

Wi-Q

wireless technology

BEST WI-Q™ ONGUARD INTERFACE USER GUIDE

**Wireless Intelligence
That Stands Alone**

Credits/Copyright

Copyright ©2020 dormakaba USA Inc. All rights reserved.

Information in this document is subject to change without notice and does not represent a commitment on the part of dormakaba USA Inc. The software described in this document are furnished under a license agreement or nondisclosure agreement.

This publication is intended to be an accurate description and set of instructions pertaining to its subject matter. However, as with any publication of this complexity, errors or omissions are possible. Please call dormakaba USA Inc. at (800) 392-5209 if you see any errors or have any questions. No part of this manual and/or databases may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information storage and retrieval systems, for any purpose, without the express written permission of dormakaba USA Inc.

This document is distributed as is, without warranty of any kind, either express or implied, respecting the contents of this book, including but not limited to implied warranties for the publication's quality, performance, merchantability, or fitness for any particular purpose. Neither dormakaba USA Inc., nor its dealers or distributors shall be liable to the user or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by this publication.

BEST Wi-Q , Wi-Q Technology and BEST are trademarks of dormakaba USA Inc.

**Written and designed at dormakaba USA Inc.
6161 East 75th Street
Indianapolis, IN 46250**

T85203_E September 2020

FCC/IC Certification

CAUTION: Please keep the Wi-Q Gateway antenna 20cm away from people to ensure that FCC RF exposure compliance requirements are not exceeded.

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.

This equipment has been tested and found to comply with the limits for Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you can try to correct the interference by taking one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

THIS DEVICE COMPLIES WITH INDUSTRY CANADA LICENCE-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 any interference that may cause undesired operation of the device.

This Class [B] digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

CET APPAREIL EST CONFORME À LA NORME RSS INDUSTRIE CANADA EXEMPT DE LICENCE.

Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant causer un mauvais fonctionnement du dispositif. This Class [B] digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe [B] respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Approved Antennas

Config Description	Antenna Part number
Gateway with rubber duck antennas	Pulse W1030W
Gateway with ceiling mount omni-directional antenna	PCTEL (Maxrad) MC2400PTMSMA
Gateway with interior/exterior wall mount directional antenna	Mobile Mark (Comtelco) CMTB36247V
Gateway with exterior omnidirectional mast mount antenna	Mobile Mark (Comtelco) CMTBS2400XL3

WARNING: Changes or modifications not expressly approved by dormakaba could void the user's authority to operate the equipment. Approved antennas are listed below and antennas not included in this list are strictly prohibited for use with these devices.

UL Evaluation

- Not evaluated by UL for use with Mercury Controller Board or Wireless Door Controller.
- Evaluated by UL for supplemental use (i.e. not in the path of the access control decision making) between the Listed Access Control Equipment and a supplemental monitoring station for monitoring and configuration.
- Evaluated by UL with the "Wi-Q" Integrated Wireless Access Controller.
- To be mounted in the protected area
- DC power to be provided by GlobTek GT-41080-1817.9-5.9 plug in power supply only.
- 0-49°C, 85% humidity

	Electrical Ratings	
Source	Voltage	Current
DC	12VDC	1A
PoE	44-52VDC (mode B)	84mA

- Wiring methods used shall be in accordance with the National Electrical Code, ANSF/NFPA70.
- UL evaluated with standard antennas.
- For UL installations using PoE, the following must be observed:
 - Compliance with IEEE 802.3 (at or af) specifications was not verified as part of UL 294.
 - Locations and wiring methods which shall be in accordance with the National Electrical Code, ANSI/NFPA 70.
 - This product is not intended for outside wiring as covered by Article 800 in the National Electrical Code, NFPA 70.
 - Category 5e cabling is the minimum performance category recommended.
 - The minimum conductor gauge permitted to connect between the PSE or power injector and the PD shall be 26 AWG (0.13 mm²) for patch cords, 24 AWG (0.21 mm²) for horizontal or riser cable.
 - Connected through standard eight-pin RJ-45 connectors.
 - Evaluated for Mode B only.
 - PoE power is to be supplied by an Access Control System Unit (ALVY), Class 2 power limited, PoE injector (PSE) providing 44-52VDC and 15W for maximum output.

Table of Contents

1	Overview	
	System Overview.....	9
	Setup Checklist.....	11
2	Hardware Installation	
	Hardware Overview.....	13
	Installing System Hardware.....	16
	Develop a Site Plan (Task 1).....	17
	Position Wi-Q Gateways (Task 2).....	20
	Install Wi-Q Gateways (Task 7).....	25
	Install Door Hardware (Task 8).....	29
	Sign-on Controllers (Task 9).....	32
3	Software Installation	
	Gather and Organize Segment Data (Task 3).....	36
	Prepare Your Computer (Task 4).....	37
	Install Wi-Q Interface Software (Task 5).....	51
4	Software Configuration and Use	
	Wi-Q Interface Configuration Tool Overview.....	66
	Configure Wi-Q Gateways (Task 6).....	67
	Configure Software (Task 10).....	70
	Firmware Updates.....	98
5	Advanced Troubleshooting	
	Status Flags in the FLAGS Column.....	105
	Update Flags in the PEND Column.....	107

A	Glossary	
	Glossary	109
B	Lock Installation	
	Lock Installation	113

1 Overview

This manual is your complete guide to the integration of BEST Wi-Q wireless hardware into your BEST Access Control System. It provides detailed steps for installing hardware and software and configuring your system.

Note BEST Wi-Q Technology can also be integrated into an OnGuard system.

The information in this guide is presented in a linear manner; however, tasks to install hardware and software and configure the system for the first time do not necessarily progress in a linear manner. You will find a Setup Checklist at the end of this section to take you through the initial setup and configuration tasks in a logical sequence. If you are unfamiliar with the terms used in wireless technology, you may want to refer to the Glossary included in this manual as Appendix A.

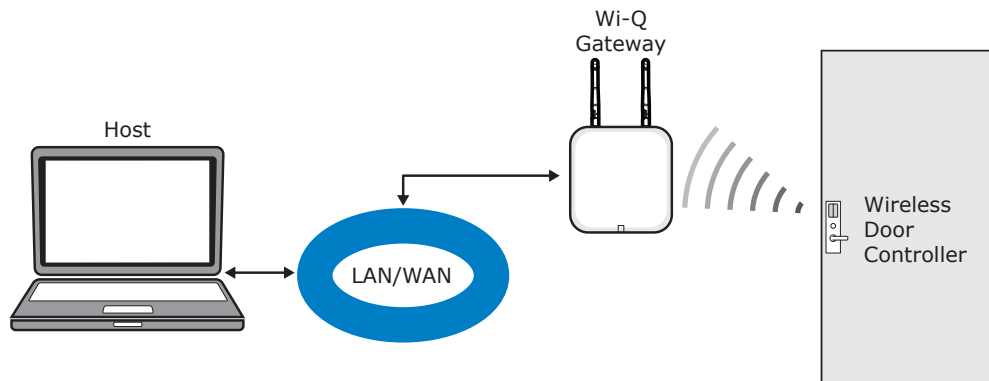
System Overview

A BEST Access Control System with integrated Wi-Q Technology combines powerful access control software with Wi-Q Gateways, Wireless Access Controllers, and multiple controller formats that work together to enable all decision making at the door. The BEST® Wi-Q system runs remotely with no need for hard wiring, providing innovative access control in any environment. The Wi-Q Interface system is versatile, so you can create a whole new system, retrofit existing hardware, and include various video camera, alarms, and inputs/outputs.

Basic Wi-Q Interface Components

A basic Wi-Q Interface system has four components: (1) a Server running the System Software, (2) a host computer with the Wi-Q Interface Software installed, (3) a Wi-Q Gateway, and (4) a Wireless Controller at the door. [Figure 1](#) is a simple diagram showing these four components.

Figure 1 Four Basic Components



1 Server with System Software

Existing systems and operators can continue to work with OnGuard as normal to control Wi-Q wireless components.

Note The System Software must be installed and operational prior to the installation and operation of the Wi-Q components.

2 Wi-Q Interface software

Wi-Q Interface software is installed either on the same computer as the OnGuard Server or another Host computer and set up to translate data between the two systems to allow normal access control functionality.

3 Wi-Q Gateway

The Wi-Q Gateway is a wireless device connected to the Host computer through a secure IP address, similar to the way your computer is connected to the internet. It transfers data signals from Wireless Controllers to and from the Host computer. The

Wi-Q Gateway recognizes all Wireless Controllers within its antenna range. One Wi-Q Gateway can control as many as 64 Wireless Controllers in a system.

4 Wireless Controller

The Wireless Controller is equipped with Wi-Q Technology that controls user access at the door. The basic configuration is battery operated, with either keypad or card reading capability and an internal antenna that communicates with the Wi-Q Gateway. The Wireless Controller grants user requests according to how they are configured in the System Software.

Note The terms “Controller” and “Lockset” are used synonymously throughout this guide. The System Software uses the term “Reader” to refer to wireless locks, while the Wi-Q Interface Software uses the term “Controller.”

Basic Operation

The system works very simply. A user enters a pass code at a Wireless Controller, either using an access card or by entering a code on a keypad. If the controller recognizes the credential from the configured settings downloaded from the Host via the Wi-Q Gateway to the controller, the door opens. The controller also sends regular signals (beacons) to the Wi-Q to let it know that it’s working properly. If a controller goes offline, the Host receives a message from the Wi-Q Gateway.

Additional System Configurations

Wi-Q Interface supports various system configurations. For example, some locations at your segment may already be hard wired with legacy equipment or additional input or output devices. You can include a Wireless Access Controller that links a hard wired strike and controller with a Wi-Q Gateway. For more information about various applications you can adapt for use with Wi-Q Interface, see “Hardware Overview” on [page 13](#).

Software Overview

Wi-Q provides powerful tools to manage your system. The Wi-Q Interface Software allows you to add Wi-Q Gateways, Controllers and Segment Sign on Credentials to your system. The Configuration Software also allows you to send firmware updates to your Wi-Q Gateways and wireless locksets as they become available. Once your BEST® Wi-Q components are added into OnGuard, you may manage your online and wireless systems together as one.

Setup Checklist

Wi-Q Interface is set up in ten basic tasks. Completing these tasks will ensure you get your system up and running as quickly and efficiently as possible. Some tasks are performed at the Host computer and some at the segment site. It is appropriate to perform some tasks concurrently. For example, you may have someone prepare your computer and install the software concurrently with site plan development and hardware installation. However, you must have the software installed and Wi-Q Gateways 'online' before you can sign on controllers.

Note System setup does not proceed in a linear manner. The following references prompt you to skip around within the Wi-Q Interface User Guide.

- Task 1: Develop a Site Plan
See page [17](#).
- Task 2: Position Wi-Q Gateways and Standalone Survey Mode
See page [20](#).
- Task 3: Gather and Organize Segment Data
See page [36](#).
- Task 4: Prepare your Computer
See page [37](#).
- Task 5: Install Wi-Q Interface Software
See page [51](#).
- Task 6: Configure Wi-Q Gateways
See page [67](#).

- Task 7: Install Wi-Q Gateways
See page [25](#).
- Task 8: Install Door Hardware
See page [29](#).
- Task 9: Sign on Controllers
See page [32](#).
- Task 10: Configure Software
See page [70](#).

2 Hardware Installation

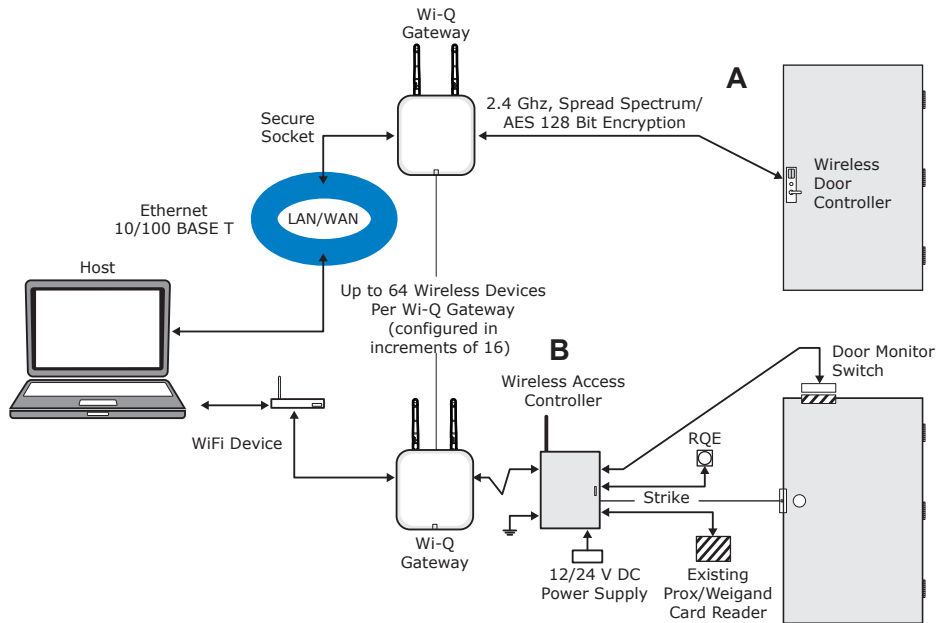
Hardware Overview

Wi-Q Interface integrates wireless hardware into your existing hard-wired system. Wi-Q Interface is designed for versatility so you can retrofit existing Wi-Gateways and include various I/O devices.

Note Once Wi-Q Technology locksets are installed, you will need to sign them on in the Wi-Q Interface Software. Therefore, it is appropriate to install Wi-Q Interface Software before or concurrent with hardware installation. For more information, see “Sign on Controllers (Task 9)” on [page 32](#).

[Figure 2](#) is a block diagram showing various configurations. Wi-Q Interface supports all Wi-Q Technology Wireless Controllers via Wi-Q Gateways (A); and existing Prox/Wiegand, RQE, door strike, and door monitor switch configurations (B). Configuration types are briefly described in the following paragraphs. Full installation instructions are provided in the following sections.

Figure 2 Example System Configurations



Wi-Q Gateway

The Standard Wi-Q Technology Wi-Q Gateway is a wireless device connected to the Host computer through a secure IP address, similar to the way your computer is connected to the Internet. It transfers data signals from Wireless Controllers to and from the Host computer. The Wi-Q Gateway recognizes all Wireless Controllers within its antenna range. One Wi-Q Gateway can control up to 64 Wireless Controllers.

Wi-Q Gateways provide bi-directional radio frequency communication between Wireless Controllers and the associated host computer(s). All communications are via secure AES 128-Bit encrypted 2.4 HGz using spread spectrum RF Radio technology. The Wi-Q Gateway communicates to the host computer through web services via either Ethernet 10/100 BaseT, or an approved commercial RF carrier-enabling a wireless solution end-to-end. Transmit range from Wi-Q Gateways will vary based on building construction. Directional antennas are also available to further extend range.

Wireless Controllers

Wi-Q Interface is designed to operate with Wi-Q Technology BEST 45HQ mortise and/or BEST 9KQ Cylindrical locksets equipped with either keypad, card, or a combination of controller input devices. Door switch monitor, request to exit, and door lock position sensors are included in the locks. BEST Wi-Q Technology controllers support a broad range of controller technologies:

- Card or Keypad ID with PINs
- Magnetic Stripe, Prox, MIFARE (card number only)
- 512 Timezones (per Segment)
- 14000 User Credentials per controller (based on licensing)
- Cardholder access level definition
- Dynamic memory for IDs vs Transactions
- Locally stored and transmitted transactions
- ADA Compliant
- No AC required at door

Wireless Access Controllers

You can retrofit any existing controller configuration to communicate with BEST Wi-Q Gateways using Wi-Q Wireless Access Controllers. You can also use this device to connect other I/O devices to the system. About the size of a standard double-gang box electrical box, these controllers operate on standard 12V DC or an optional 12/24 V DC power supply, sealed, lead acid battery pack. They seamlessly integrate existing door hardware into the Wi-Q Interface system, supporting Wiegand-compatible keypad controller inputs.

Note Please check with your dormakaba representative for a list of compatible controllers.

Antenna Types and Applications

To optimize system performance, it is important to position Wi-Q Gateways to receive maximum signal strength from the Wireless Controllers. Once all door hardware has been installed, you will be ready to position Wi-Q Gateways using the Wi-Q Technology Site Survey Tool. Wi-Q Technology supports two antenna types: Omni-directional, designed to provide coverage in all directions; and Directional antennas that focus the signal from point-to-point over longer distances and through obstacles. For more information, see “Position Wi-Q Gateways (Task 2)” on [page 20](#).

Installing System Hardware

A system with integrated Wi-Q Technology can operate with BEST 45HQ Mortise locks, BEST 9KQ Cylindrical locks, BEST EXQ Trim, Wireless Access Controllers and Wi-Q Technology Wi-Q Gateways. Detailed installation instructions are provided in the following sections and in the lock instructions provided with the hardware which are included as Appendices to this manual.

What you will need

- Engineering drawings or segment map
- Wi-Q Technology Site Survey Kit
- For keypad controllers, you will need the sign-on credential from the Wi-Q Interface Software.
- For magnetic stripe or proximity card readers, you will need the Temporary Operator Card (supplied with the controller) and Sign on Card (supplied in the Wi-Q Interface Software package). You will also need the appropriate magnetic stripe or proximity USB enrollment reader to create a proximity sign-on credential.
- Locksets to be installed on doors, including cores and keys supplied with specific model.
- Installation instructions for specific lockset brand and model
- Wi-Q Gateways
- Access to standby power for 120 VAC non-switch circuit for 12 VDC plug-in transformer
- 10/100/1 GigE Base-T network connection
- Crossover Ethernet cable if direct connection between Wi-Q Gateway and Host will be used.
- Wireless Access Controllers, if used, and knowledge of existing hardware and switches for any retrofit installations
- Installation tools
- Drill Motor/hole saw with bits appropriate for the specific lock (see the template included in your lock)
- Phillips-head and flat-head screw drivers
- Access to the Host, a networked workstation, or wireless laptop computer.

Develop a Site Plan (Task 1)

Before installing Wi-Q Gateways, it is a good idea to develop a general plan for the segment. This plan will guide you in deciding where to install the Wi-Q Gateways. You must consider the following:

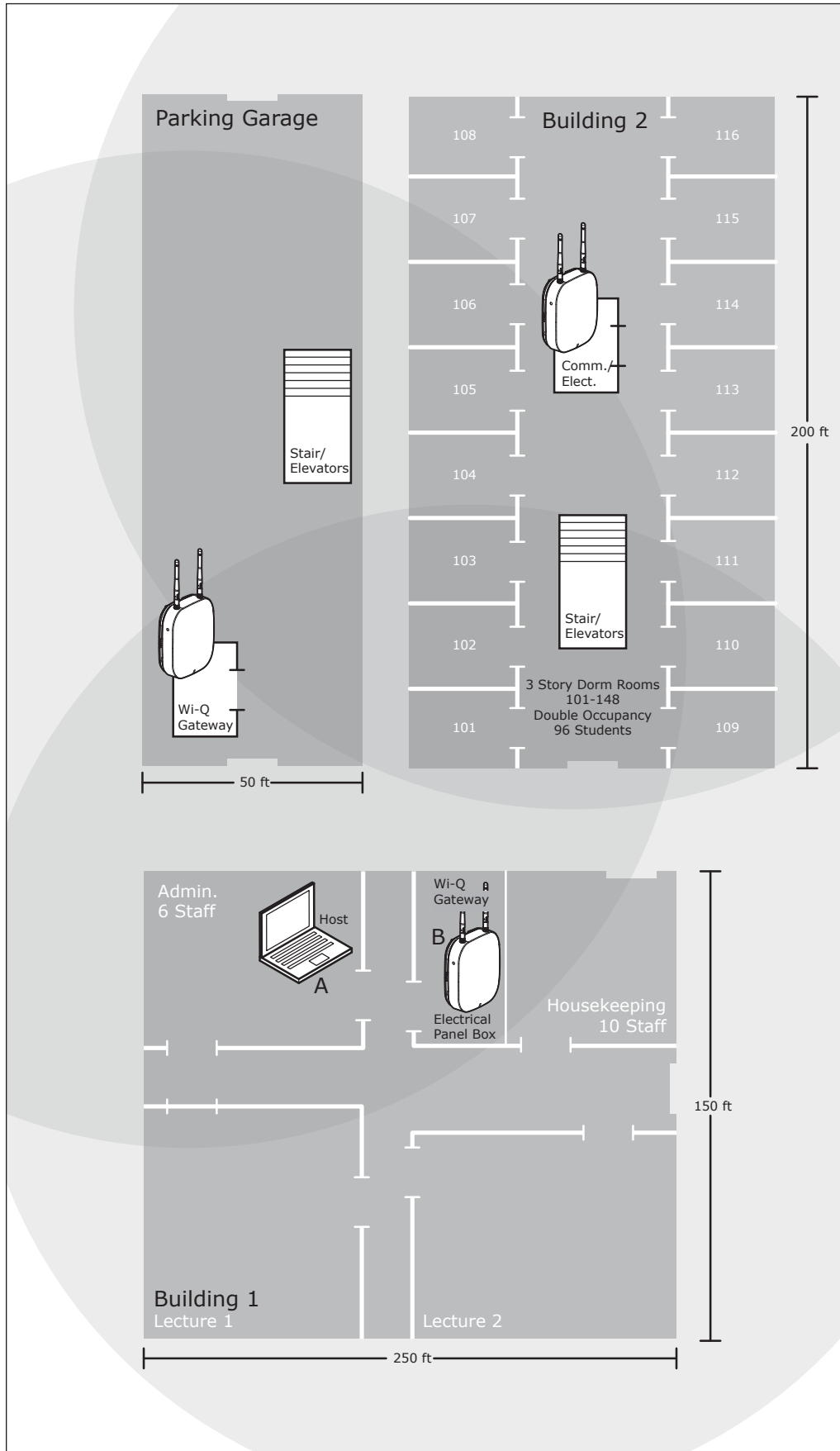
Transmit range from Wi-Q Gateway to controller varies based on building construction. Site characteristics such as reinforced concrete walls could interfere or weaken the signal; open spaces and low interference can increase signal strength.

[Figure 3](#) shows a typical site configuration. The Host (A) is located in Building 1. The Building 1 Wi-Q Gateway (B) is located near the electrical panel in the communications/electronics room.

The Building 2 Wi-Q Gateway (C) is positioned next to the electrical panel. With 48 rooms in this three-story dorm, front and rear access doors and access to the elevator on three floors, this gateway provides coverage to 53 controllers. Its range extends to all three floors of the building, and will also cover the pedestrian access, and elevator of the Parking Garage.

The Parking Garage Wi-Q Gateway (D) is positioned to cover the pedestrian door near the dorm and the stairway and elevator doors. Its range also extends to the entrance of Buildings 1 and 2.

Figure 3 Sample site installation plan



Plotting the Plan

If you don't already have a site plan indicating building dimensions, distances between buildings, possible obstructions, parking segment, and other gated access points, contact your facilities maintenance or project engineer. If none are available, you will need to visit the site, take measurements and draw up a plan of your own.

Device Identification

Each device in the system will have its own unique identity. It will be important for you to document that identity, along with capacities and locations, and to give each device a common name such as "Parking Garage" or "Admin 1". At a minimum, you must record the Media Access Control number (MAC address) for each device. This 12-digit number is assigned by the manufacturer of a network device so that it can be recognized as a unique member of a network.

Note The MAC address is most commonly shown on the back of or inside the device, so it's important to record this number before you install the device.

When you move on to configure the Host computer, it is essential to have a list identifying each Controller and Wi-Q Gateway recognized by the system. We recommend creating a temporary label for each device that includes the MAC address, device name, location, capacity, and type of antenna so that installers on the site will have a reference for installing the correct device in a location.

Interference

Wi-Q Technology transfers information between devices in the form of data packets over the 2.4 GHz ISM band. This band frequency is very heavily used in many devices such as wireless computer networks (802.11 Wi-Fi) and cordless phones, which increases the risk of lost packets, that is, packets that do not make it from a controller to a Wi-Q Gateway because of interference. Interference can also reduce controller battery life due to the constant re-broadcasting of packets and lost connections to the Wi-Q Gateways. To achieve maximum efficiency in Wi-Q Interface, this frequency range must be managed effectively. Therefore, the installer must know the positions and channels of all the 2.4 GHz wireless devices in the segment and ensure channels are assigned to each device so that there is minimum frequency overlap with adjacent or nearby devices.

Extended Range

It is likely that you will have locations in your segment separated by distances greater than 300 feet. You may want to consider adding a Wi-Q Gateway with a directional antenna to extend the transmit range.

Note The recommended range is to have controllers no more than 100 feet from a Wi-Q Gateway.

Note Actual distances will vary based on building construction.

Position Wi-Q Gateways (Task 2)

Once all door hardware and controllers have been installed, you are ready to determine the final placement of Wi-Q Gateways using the results from the Wi-Q Technology Site Survey Kit. The Site Survey Kit helps you determine the number and optimum location of Wi-Q Gateways and verify signal strength before permanently installing the hardware. It is important to perform the Site Survey process as many times as needed to determine the optimal position.

The Wi-Q Gateway has a built in Survey Mode. This feature is especially handy when performing a Site Survey for Wi-Q Gateway and controller approximations for future installations as well as troubleshooting existing installations. The Survey Mode offers a live trace of signal strength and packet ratio transfer ratio.

Using the Wi-Q Gateway for a Stand-alone Site Survey

The Wi-Q Gateway can be used standalone without an ACS to perform a Site Survey to determine the Gateway antenna placement in approximation to the Wi-Q Controllers and the number of Gateway's needed for adequate coverage as well as troubleshooting signal and packet transfer ratio issues.

Using a Wireless Smart Device:

- 1 Power on the WQXM-PG (wait for the boot process to complete).
- 2 Press the WiFi toggle push button of Gateway and release.

Note Gateway Wi-Fi access point will be disabled by default after a reboot. Once the Wi-Fi push button is pressed, the access point will remain active until the button is pressed again or 30 minutes have elapsed after the last Wi-Fi client disconnects.

- 3 Connect smart device to the Gateway WiFi access point (SSID if Gateway will be like WiQ-123456, where 123456 are the last 6 digits of the Gateway MAC address).
- 4 Using a smart device's browser, navigate to WQXM-PG wireless network IP address: 192.168.3.200.
- 5 Log in to the Gateway's webpage using the previously updated Username and Password.

Note Default username and password works only with factory reset/deep reset Wi-Q Gateway. User need to change the password on a factory reset Gateway for security reasons.

Default Username: admin

Default Password: password

6 Once logged in, click on the 'Survey Mode' button in the upper right corner of the Gateway webpage.

7 Click on the 'Standalone Survey' button to perform a Site Survey without an ACS.

Note After Standalone Survey Mode is enabled, the Web UI will be logged out. You must then log back in and return to the Survey Mode page to perform Standalone Survey Mode operations.

8 The 'Current Sign-on Key' field will fill with a 6-digit sign-on key (987654) to sign a demo reader onto the Gateway.

9 Noting the Gateway's sign-on key, sign on the Wi-Q Controller(s) with a keypad.

- On the keypad enter 5 -6 -7 -8 - # immediately followed by the 6-digit sign-on key in the segment tab.

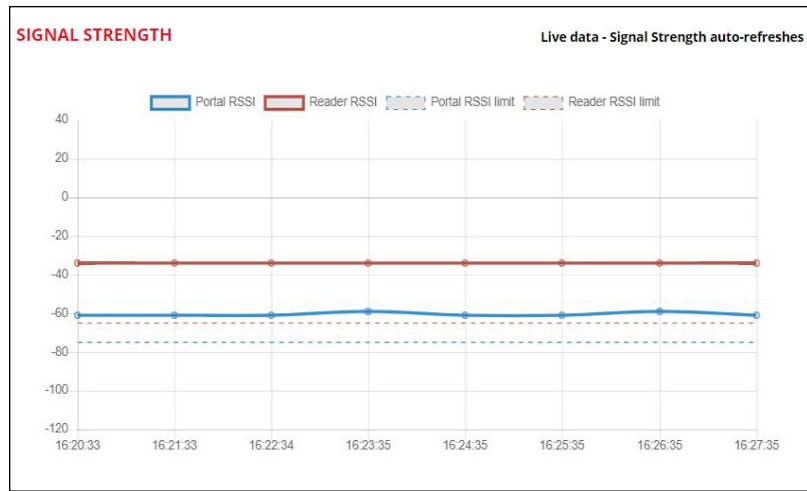
- The LED's on the WDC will alternate red, green and blue. If the sign-on is a success, there will be 3 green LED's accompanied by 3 tones that go up in pitch.

- If the sign-on is unsuccessful, there will be 3 red LED's with 3 tones that go down in pitch.

10 Click on 'Start log' button to start the logging the signal strength.

The Wi-Q Gateway will begin logging the gateway packet transfer ratio, the reader packet transfer ratio as well as the signal strength at the gateway and the reader.

Figure 4 Portal Signal Strength



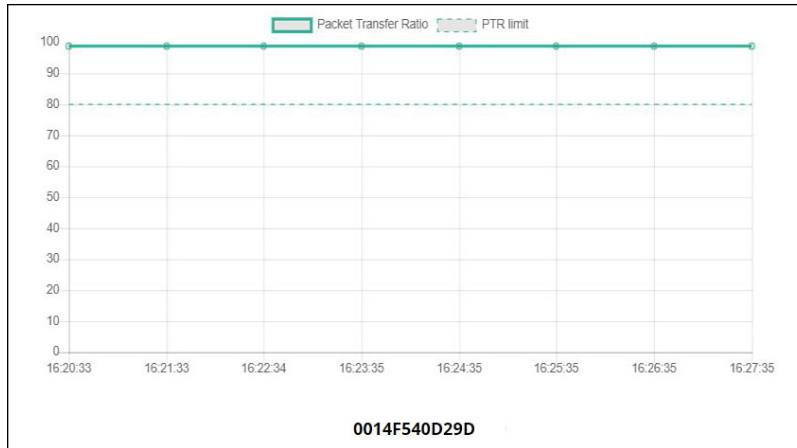
Portal Signal Strength

The Portal RSSI value indicates how well the Wi-Q Gateway receives signal from the door controller and should be -75dB or better. The Survey Mode charts in the Wi-Q Gateway denotes the lowest limit by the blue dashed line in the Signal Strength chart. If the Portal RSSI value is below the limit, please reposition the Gateway or the antennas to improve signal strength. It may also be possible that another Wi-Q Gateway is required for adequate coverage.

Reader Signal Strength

The Reader RSSI value indicates how well the reader is receiving signal from the Wi-Q Gateway and should be at least -65dB or better denoted on the chart with the red dashed line. If the Reader RSSI value is below the recommended limit check the reader antenna and the gray antenna jumper cable to verify there is not damage to them. Also, it may be required that the Wi-Q Gateway or the antennas need to be repositioned so the reader can hear the Wi-Q Gateway more clearly.

Figure 5 Packet Transfer Ratio



Packet Transfer Ratio

It is recommended that the packet transfer ratio rate is 80% or better. This value indicates how efficient the communication is between the readers and the Wi-Q Gateway as well as how much interference maybe in the area. If this value is below 80%, the reader will not receive all the configuration data. To verify the Wi-Q Gateway packet transfer ratio, update the reader statistics to poll every 10 seconds instead of once a day while running the survey tool in the Wi-Q Gateway.

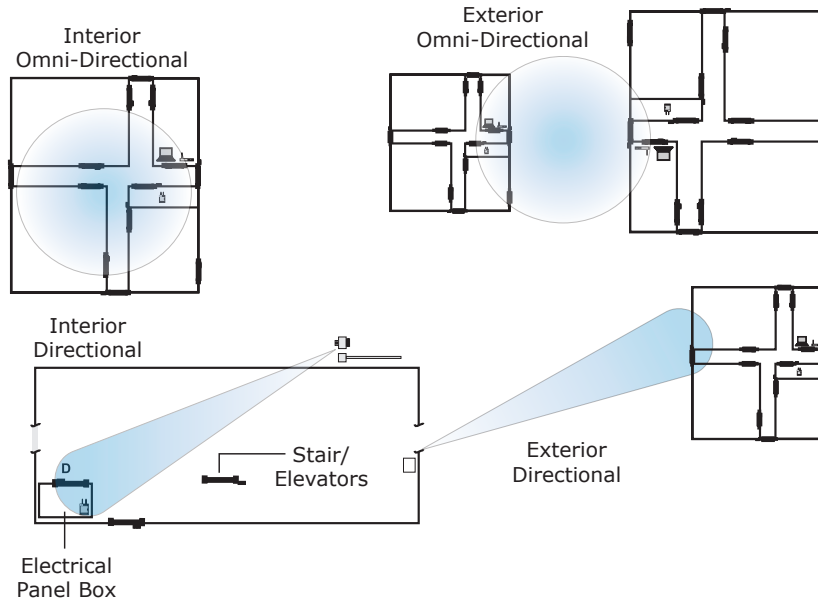
It is imperative to consider the wireless environment and the placement of the Gateway and its antennas during planning. The Gateway communicates on the 2.4 GHz frequency using the ZigBee channels. If the location has other wireless devices or networking using the 2.4 frequency, please orient the antennas away from these devices to manage interference. It may be required to work with local personnel to manage the wireless environment to prevent causing interference with other Wi-Fi installations and products.

Note You will need to test signal strength at all door locations near the perimeter of the coverage area as well as any location where a physical obstruction may cause interference. You can test the range and signal quality by using the built in survey mode in the Wi-Q Gateway model Wi-Q gateway.

Antenna types

Wi-Q Technology supports two antenna types: Omni-directional, designed to provide coverage in all directions; and Directional antennas that focus the signal from point-to-point over longer distances and through obstacles. If you have trouble verifying signals, you may need to consider some antenna type options. [Figure 6](#) shows two available antenna types.

Figure 6 Selecting the antenna type that best suits your needs.



Power Supply

Wi-Q Gateways must be located where they can receive 12 VDC power from a transformer plugged into a dedicated power source. If this is not possible, ensure they are plugged in to a 24/7 power circuit than cannot be turned off at a switch, such as a light switch that might be turned off by a cleaning crew. Wi-Q Gateways may also be powered with PoE instead of using the AC wall adapter.

To make your final determination, you must also consider the following:

- Access to Ethernet 10/100 Base T network connection.
- Proximity to other I/O device(s) if used.
- Placement within range of controllers.

Note Transmit range will vary based on building construction.

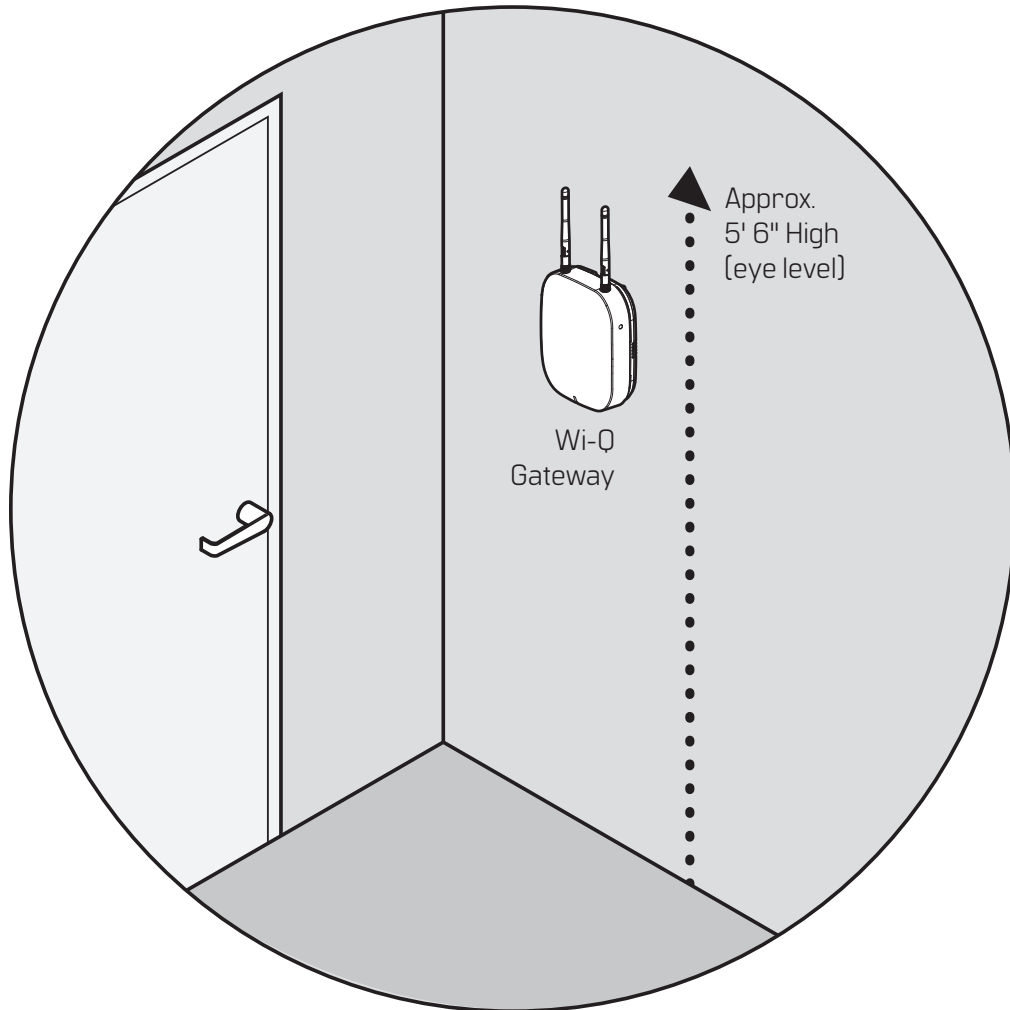
Next steps

When you are satisfied with signal performance, you can proceed to configure Wi-Q Gateways using the Wi-Q Interface Software. See “Configure Wi-Q Gateways (Task 6)” on [page 67](#).

Install Wi-Q Gateways (Task 7)

The most common installation site is inside an existing protected area such as a locked room or other secure enclosure, or above ceiling level. If you are installing inside a dealer-supplied locked enclosure, refer to the instructions provided with that equipment. [Figure 7](#) shows a Wi-Q Gateway positioned in a protected area.

Figure 7 Installing a Wi-Q Gateway in a protected area.



- 1 Connect the power supply to the Wi-Q Gateway and plug the transformer into a dedicated AC power supply (wall outlet). The power indicator should come on and start blinking purple. The LED behavior should follow Table 1 (LED Behavior).
- 2 Insert the Ethernet cable into the Ethernet connection on the bottom of the Wi-Q Gateway.

Connecting the Gateway and Verifying Operation

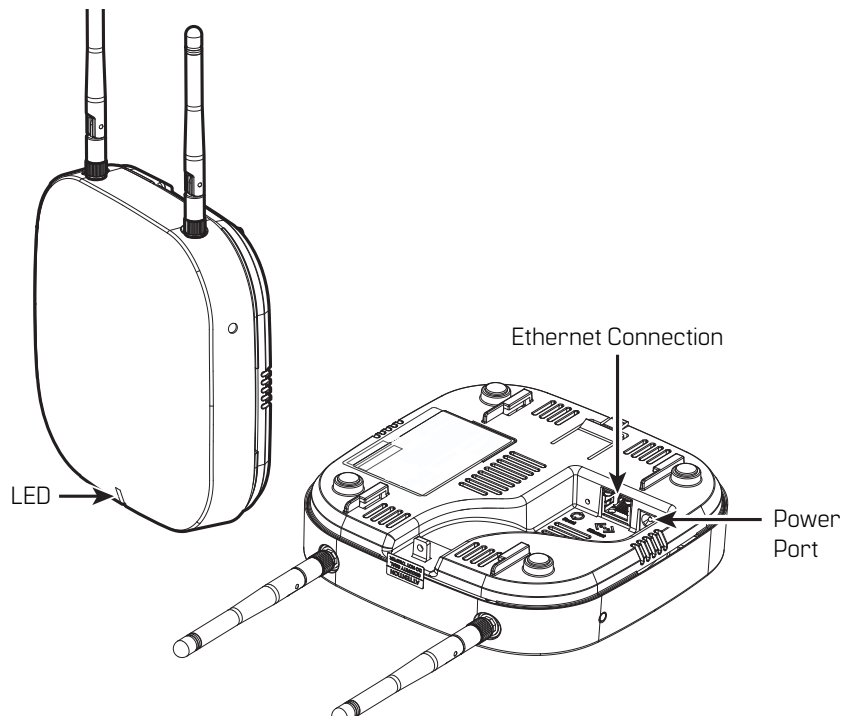
Once the Gateway is installed, connect and verify operation as follows:

- 1 Connect the power supply to the Gateway and plug the transformer into a dedicated AC power supply (wall outlet) if power over Ethernet is unavailable, see [Figure 8](#).
- 2 Insert the Ethernet cable into the Ethernet connection on the bottom of the Gateway; see [Figure 8](#). The link status light at the top of the Gateway will flash red while the Gateway is booting. When it flashes green, it is ready to be configured. Please see the table below for a complete list of the various LED indications and what they mean.

Table 1. LED Behavior

Mode	LED Behavior
Boot	Flashing purple, 1 flash every 2 seconds
Waiting for or lost ACS connection	Solid red
Online and connected to ACS	Solid green
Survey mode	Solid blue
Firmware update	Flashing aqua
Boot error	Solid purple
Rebooting	Flashing purple, 2 flashes per second
Factory reset	Flashing purple, 4 flashes per second

Figure 8 Connecting the Wi-Q Gateway to Power and Ethernet Connections.



Note If no protected area is available, consider positioning the Wi-Q Gateway inside a locked enclosure designed for that purpose. Contact your dealer for more information.

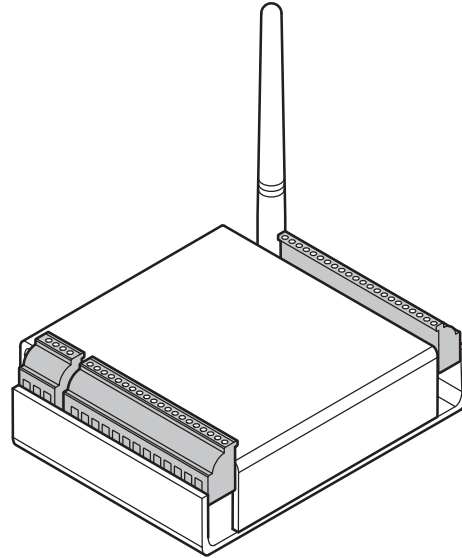
Installing a Wireless Access Controller

The Wi-Q Technology Wireless Access Controller (WAC) provides an optional, cost effective way to retrofit an existing hard-wired application, or where the installed controller may be obsolete or unable to handle additional controller inputs. It supports Wiegand-compatible keypad controllers and is configured and monitored in the Wi-Q Interface Software, just like a standard controller.

Note Please check with your dormakaba representative for a list of compatible controllers.

Using the Wireless Access Controller (Figure “Wireless Access Controller.” on [page 28](#)), you can add controllers or other I/O devices to an overall wireless solution without the high cost of installing hard-wire such as RS485 or CAT5 to the controller. You can position the controller at the door or where suitable above the ceiling tile.

Figure 9 Wireless Access Controller.



Installation

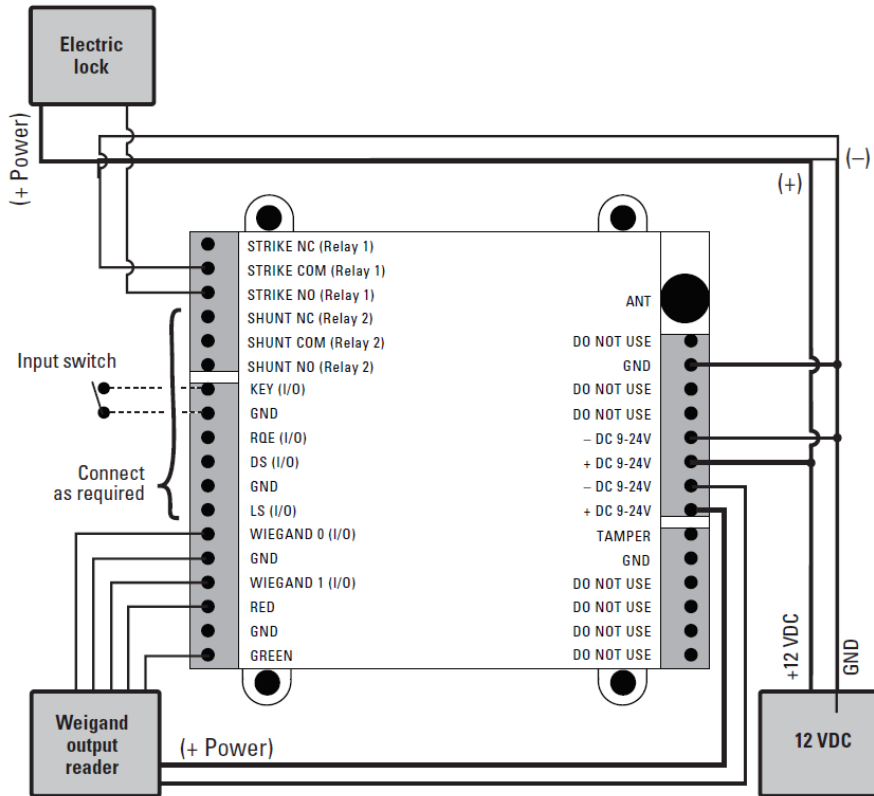
Specific installation methods are dependent on the device type and configuration of the system; therefore, the WAC should be installed by a trained technician using the instructions provided with the controller.

WARNING: Wireless Access Controllers are intended for use in indoor or protected area. For other applications, such as outdoor use, contact the factory for the appropriate NEMA enclosure. Changes or modifications not expressly approved by dormakaba could void the user's authority to operate the equipment.

Wireless Access Control Wiring

The Wireless Access Controller (WAC) can be installed with its own 12 VDC power supply or slaved to the existing installation. [Figure 10](#) is a wiring diagram illustrating both configurations. Dotted lines represent optional connections for the slaved configuration.

Figure 10 Connecting devices to a WAC



Once the WAC is installed and all points connected, it will be recognized by Wi-Q Interface as a 'Controller' in the system. The WAC is configured in an almost identical manner as a Controller. For more information about configuring the WAC in the Wi-Q Interface Software, see "Controllers Tab" on [page 81](#).

Install Door Hardware (Task 8)

This section provides general instructions for installing your controllers. Complete instructions for installing locks are packaged with the hardware. You will also find instructions for BEST Wi-Q Technology BEST 45HQ Mortise locks, BEST 9KQ Cylindrical Locks and BEST EXQ Trim as Appendices to this manual.

Before You Begin

Before you begin, take a few moments to review the following considerations:

Record device MAC address before installing device. You will need this when configuring the controller in the Wi-Q Interface Software and System Software.

- Wi-Q and Omnilock Technology locks will work from -31°F to 151°F.

Note Extreme heat will cause a reduction in wireless signal strength and can cause a loss of connectivity while the heat remains.

Note Alkaline batteries cease to operate if they reach a temperature of -20°F

- Wi-Q Technology controllers are designed for use on 1-3/4-inch doors. If you need to install on non-standard doors, contact dormakaba Customer Service for more information.
- Lockset instructions are given for right-hand doors (as determined from outside the door). If you are installing a left-hand door, see the instructions provided with your lockset for hand change instructions.
- If you are installing locksets on unprepared (un-drilled) doors, use the template provided with your specific lockset.

Please refer to the Appendices or the instructions provided with your particular lock to complete these steps. Once this is done, check controller operation as described in the following paragraphs.

Check Controller Operation

Verify controller operation using the steps appropriate for your controller type (Magnetic Card, Proximity Card or dual-validation with keypad). If the system does not operate properly, see Troubleshooting, at the end of the section.

Magnetic Card Check

If your system has a magnetic card reader (mag card), you will need the Temporary Operator Card (supplied with the controller) and Sign on Card (supplied in the Wi-Q Interface Software package) when you are ready to sign on the readers.

To perform a magnetic stripe card verification:

- 1 Determine if the magnetic card type is Track 2 or Track 3.
- 2 Select the default Programmer ID card that matches the type for your magnetic card reader.
- 3 Insert and remove the magnetic card. The magnetic stripe on the card should be aligned with the 'V' mark by the card slot. The lights on the top of the Wi-Q Technology card reader will flash green once and unlock, then during the open delay time, it will flash green five times. Once this occurs, the card reader light will flash red and lock.
- 4 While unlocked, check for proper lock operation.

Proximity Card Check

If the Wi-Q Controller has a proximity card reader, the temporary operator card (supplied with the controller) and the sign-on card (created in the WiQ Interface) are both required to sign on the readers.

To perform a proximity card verification:

- 1 Select the temporary operator card supplied with the controller.
- 2 Present the temporary operator card to the proximity bezel at the face of the reader.
The light on top of the controller will flash green once and the lock will unlock. After 3 seconds, the controller will flash green and lock.
- 3 While unlocked, check for proper lock operation.

Keypad Check

If your Wi-Q Technology controller is a keypad type, perform the following steps:

- 1 At the keypad, enter the default Programmer ID, 1234#. The green light on top of the card reader will flash once and the lock will unlock, then during the open delay time, it will flash green five times. Once this occurs, the controller red light will flash and the lock will relock.
- 2 While unlocked, check for proper lock operation.

Troubleshooting mortise and cylindrical locks

If the mechanism doesn't unlock, refer to the following table:

Table 2. Troubleshooting (Mortise and Cylindrical Locks)

LEDs	Sounder	You should...
Single red flash	—	Use the card at a moderate speed.
Red flashes	3 short tones	Use the temporary operator card provided with the lock.
Green flashes	—	Check the motor connection.
—	—	Check the battery connection.

Troubleshooting EXQ Exit Hardware trim

If the mechanism doesn't unlock, refer to the following table:

Table 3. Troubleshooting (EXQ Exit Hardware Trim)

LEDs	Sounder	You should...
Single red flash	—	Use the card at a moderate speed.
Red flashes	3 short tones	Use the temporary operator card provided with the lock or Perform a door reset to restore to the factory default settings (the lock may already be associated (programmed)).
Green flashes	—	Check the motor connection.
Alternating red and green flashes	—	Check the motor connection.
—	—	Check the battery connection.

For additional troubleshooting instructions, see the Service Manual for the hardware.

Sign on Controllers (Task 9)

When all hardware is installed and tested, you are ready to sign on your system controllers. To do this, Wi-Q Interface Software must be installed on your Host computer. At a minimum, you will need to create your segment and add your Wi-Q Gateways to the segment tree before you can sign on the controllers. Once that is done you can return to the site and sign on the controllers. To complete controller sign on, you must perform steps at the Host and the controllers.

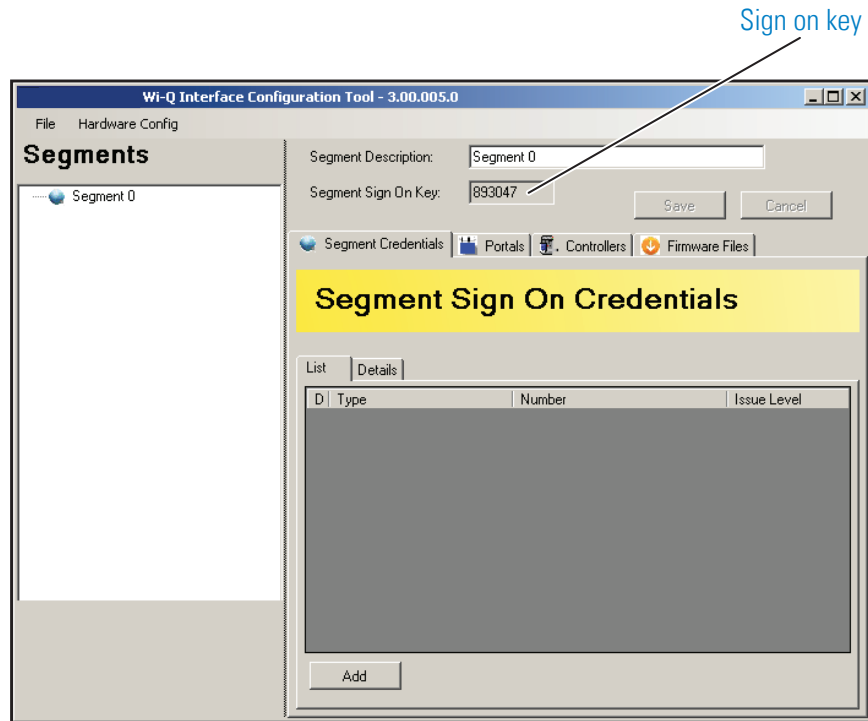
At the Host

Once you have installed Wi-Q Interface Configuration Tool and created a segment, a sign-on key number is generated. You will need this number when you return to the site and sign on the controllers.

To get the Sign on Key number:

In the Wi-Q Interface Software, at the top of the screen, note the Segment Sign On Key number.

Figure 11 Locating the Segment Sign On Key.



At the Controllers

Once you have the sign on key number, you can return to the site and prepare to sign on all controllers.

Signing on Keypad Controllers

If your segment uses keypad controllers, use the following steps, in sequence, to register each controller in the system. Once this is done, the controllers will appear in the Wi-Q Interface Hardware Segment tree and Controllers tab.

Note The following sequence is timed. Be sure to have your segment sign on key ready to enter at the appropriate time.

- 1 Have your six-digit segment sign on key number ready.
- 2 At a keypad controller, press the following number sequence on the keypad: 5678# (Wireless Door Controller) or 5678 (WAC). The green light will flash three times.
- 3 Within five or six seconds, begin to enter the six-digit segment sign on key number, followed by #. You will have about five seconds to enter each number. The sequence will time out if more than five seconds elapses between numbers.

- 4 Once the key number is completed, the controller begins to alternately flash green and red to signify that it is searching for Wi-Q Gateways in range. If the sequence was completed successfully, three green flashes indicate the controller has accepted the sign on key.
- 5 If you see three red flashes, the controller has not accepted the number or you have exceeded the time limit. Begin again at step two and continue until you receive three green flashes.

Note Once a controller has been signed on, all sign-on functionality is disabled unless it is deep-reset.

Signing on Card Readers

If your segment uses card readers, you may want to register one of your cards with a segment credential number (See “Segments and Segment Sign On Credentials” on [page 74](#)). This card will be used to sign on card readers to the system. You can register a separate card and hold it specifically for this purpose, or register one that belongs to a user such as the Administrator’s card. Once this is done, you will use the card to sign on each card reader in the system.

Verify Signal Strength, Voltage and Packet Transfer Ratio

If you used the Wi-Q Technology Site Survey Kit, you have already verified basic controller signal strength. Once the controllers are signed on, you can use the Alarm Monitoring application to further measure controller performance, including controller voltage (battery level), and the packet ratio (the number of packets received vs the number of packets sent) of the controller. For more information about the Alarm Monitoring application, see the Alarm Monitoring User Guide.

Replacing a Controller

If you must replace an old or defective Controller with a new one, follow these steps:

- 1 Ensure that the Controller is online and associated with any Wi-Q Gateway. Send a deep reset to the Controller if needed.
- 2 Remove Wi-Q Controllers from assigned access levels in System Administration before deleting them from Readers and Doors.
- 3 Inside the Readers and Doors Module, Click Add button and enter the controller name followed by MAC address. Example: Controller1(0014f5123456)
- 4 Select OK button and confirm the changes.
- 5 Sign on the new controller. And the configuration should be automatically sent to it.

3 Software Installation

This chapter will guide you through performing the following tasks: :

Task 3 — Gather and Organize Segment Data

Task 4 — Prepare your Computer

Task 5 — Install Wi-Q Interface Software

Gather and Organize Segment Data (Task 3)

As the technical team works on planning and installing hardware using the Site Plan, a program administrator or other person responsible for the software side of program setup should be making plans to populate and configure the Wi-Q Interface Software and the System Software.

Device Information

You will need the MAC numbers, device names, capacities, and physical locations of all Wi-Q Gateways so that you can easily identify them and assign them to the correct location within the Wi-Q Interface Software and System Software. Ensure your site technical team will provide you this information as they work their way through the site.

User Information

To set up your Wi-Q System, you will need to gather the names of users, define their access requirements, organize user and timezone groups, and decide how you will use other features configurable within OnGuard.

It will be helpful to create a table listing what you know about each user. Starting with a list of names, think about building a table that defines basic information about each user; such as, User Type, User Group, Shift, and so on. Following is a very simple example:

Table 4. User Information

Last	First	User Type	Bldg.	User Group	Timezone	Shunt
Alvarez	Alicia	Manager	A	Admin	Default	Default
Bennet	Fred	General	A	Lecture	Default	30 sec.
Ford	Aldo	General	B	Service	Service 1	30 sec.

What User Groups will help you manage security? Do you have shift workers who are allowed on site only during certain days or hours? Will there be areas off limits to certain groups? Do some users need extra time to pass through a door, such as to accommodate a food cart or wheel chair? Start thinking about these elements and begin organizing the data as soon as possible so you'll be ready when your equipment and software are ready. It is a good idea to use a spreadsheet software such as Microsoft® Excel® for this purpose. That way you can sort the data to help you plan your segment.

Importing Data

Do you have an existing database that already contains much of the information you need? It is likely you can modify a version and import it into your System using the program's System Administration feature. If you have a large organization, this will save you time and reduce data entry error. See the System Administration User Guide for more information.

Prepare Your Computer (Task 4)

To prepare your computer for the installation of the Wi-Q Interface Software, you must do the following:

- Ensure that your system is equipped with an appropriate operating system, database and server.
- Configure your Windows Firewall Ports.
- Obtain your Wi-Q Gateway Accessory Add-On.
- Stop your Communication Server (if required).
- Install your Wi-Q Gateway Accessory Add-On

It is recommended that you follow the tasks above in the order that they are presented in this guide.

Note You must have administrative rights on your computer to perform many of the tasks listed here.

Recommended System Limits

It is important to ensure your Host computer or computers are adequate to handle the system.

Computer specifications should follow OnGuard documentation.

The loading on a single OnGuard communication server should be as follows:

Table 5. OnGuard Communication Server

Element	Limit
Wi-Q Gateway Panels and Online Panels	80 maximum
Wi-Q Locks and Online Readers	500 maximum

Configure Windows Firewall Ports

Several ports must be enabled in your Windows firewall settings to allow proper communication in the Wi-Q Interface. The following ports must be enabled:

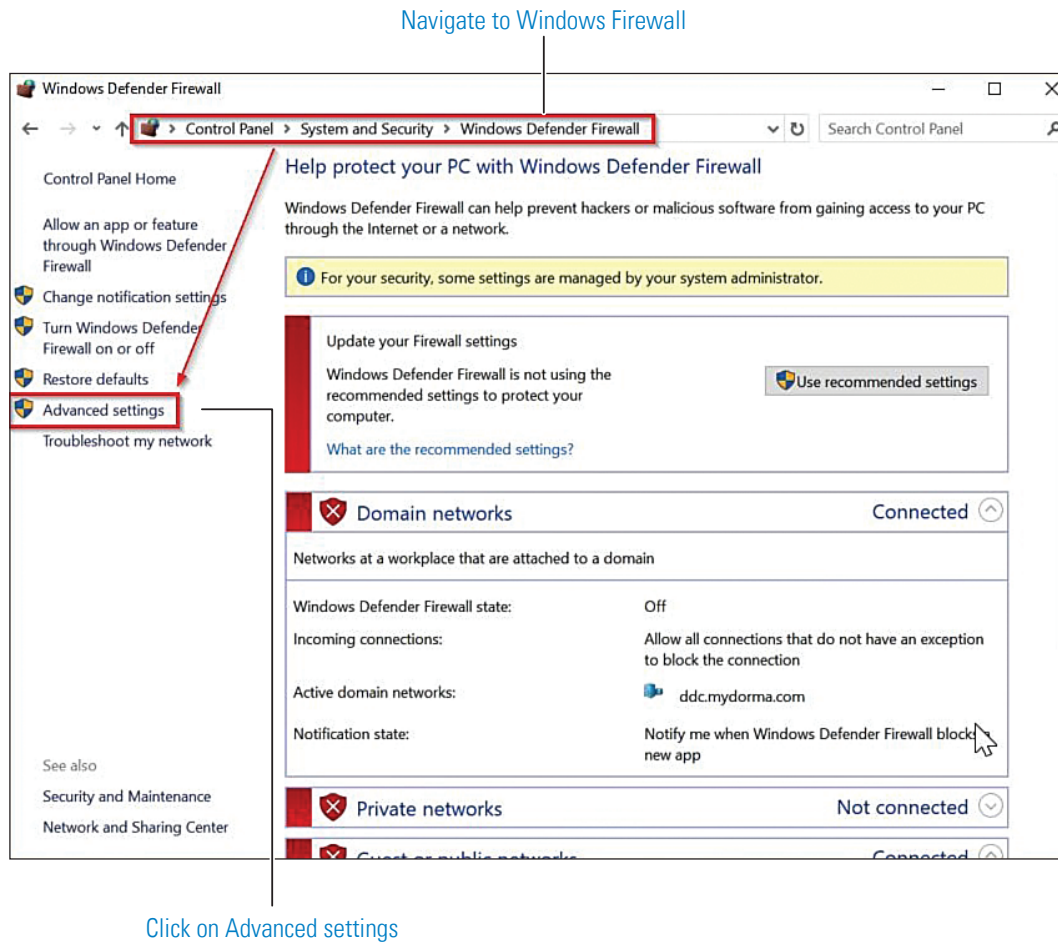
- Port 80
- Port 443
- Port 1433
- Port 1434
- Port 8000
- Port 5353

If your firewall is disabled, then all ports are open by default. If the firewall is on, perform the following steps in order to add the required ports listed above:

Note The screenshots below reflect a Windows 2007 operating system. Navigating through the firewall settings in other editions of Windows will be slightly different.

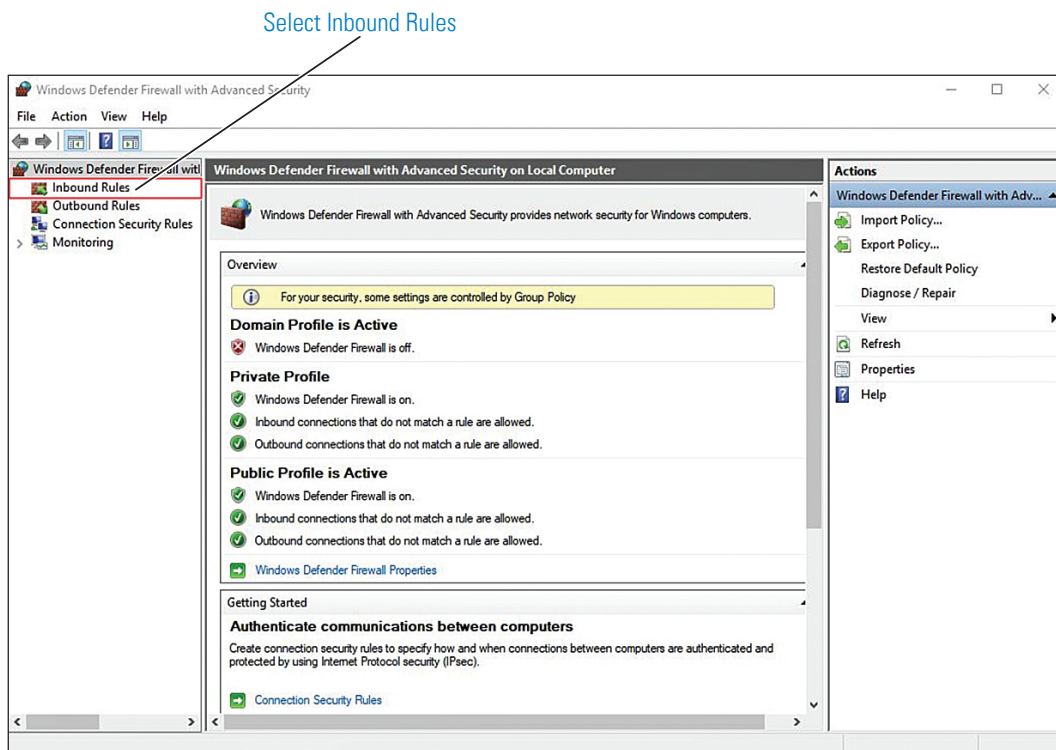
- 1 Navigate to your Windows Firewall settings from your PC's control panel. [See Figure 12.](#) Then, click on Advanced settings.

Figure 12 Windows Firewall



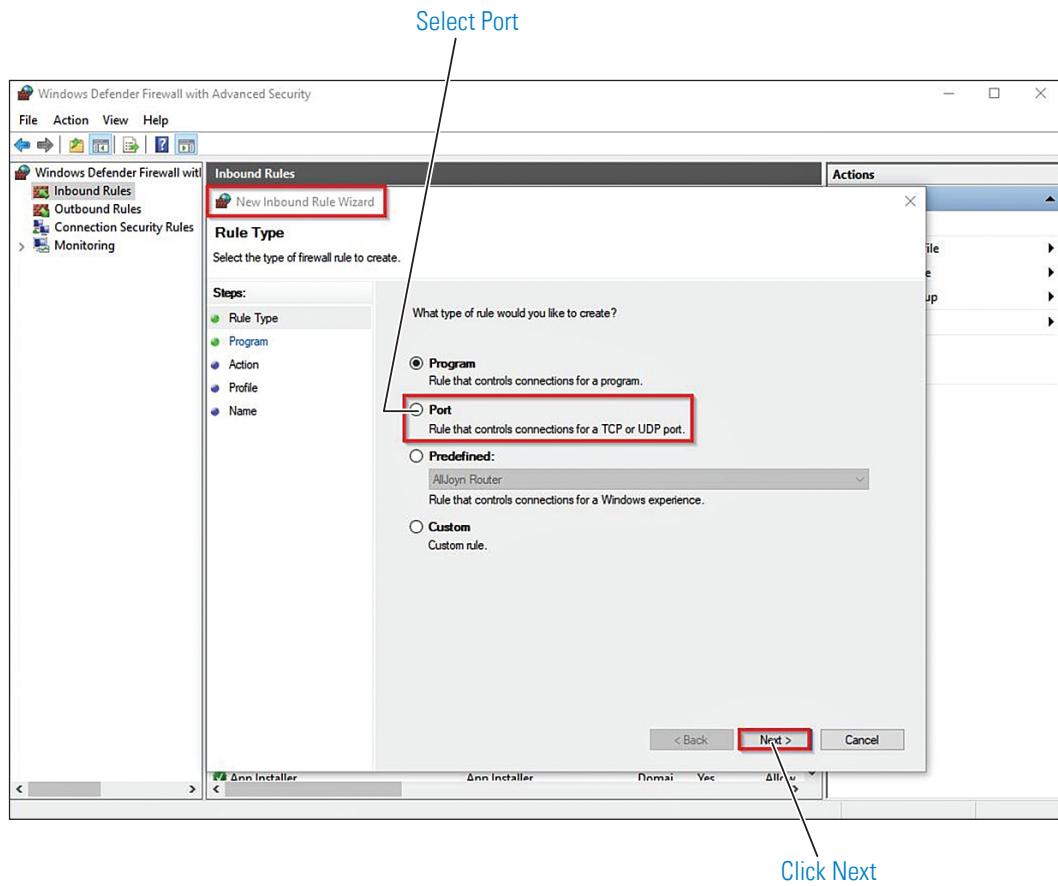
2 Select Inbound Rules.

Figure 13 Inbound Rules



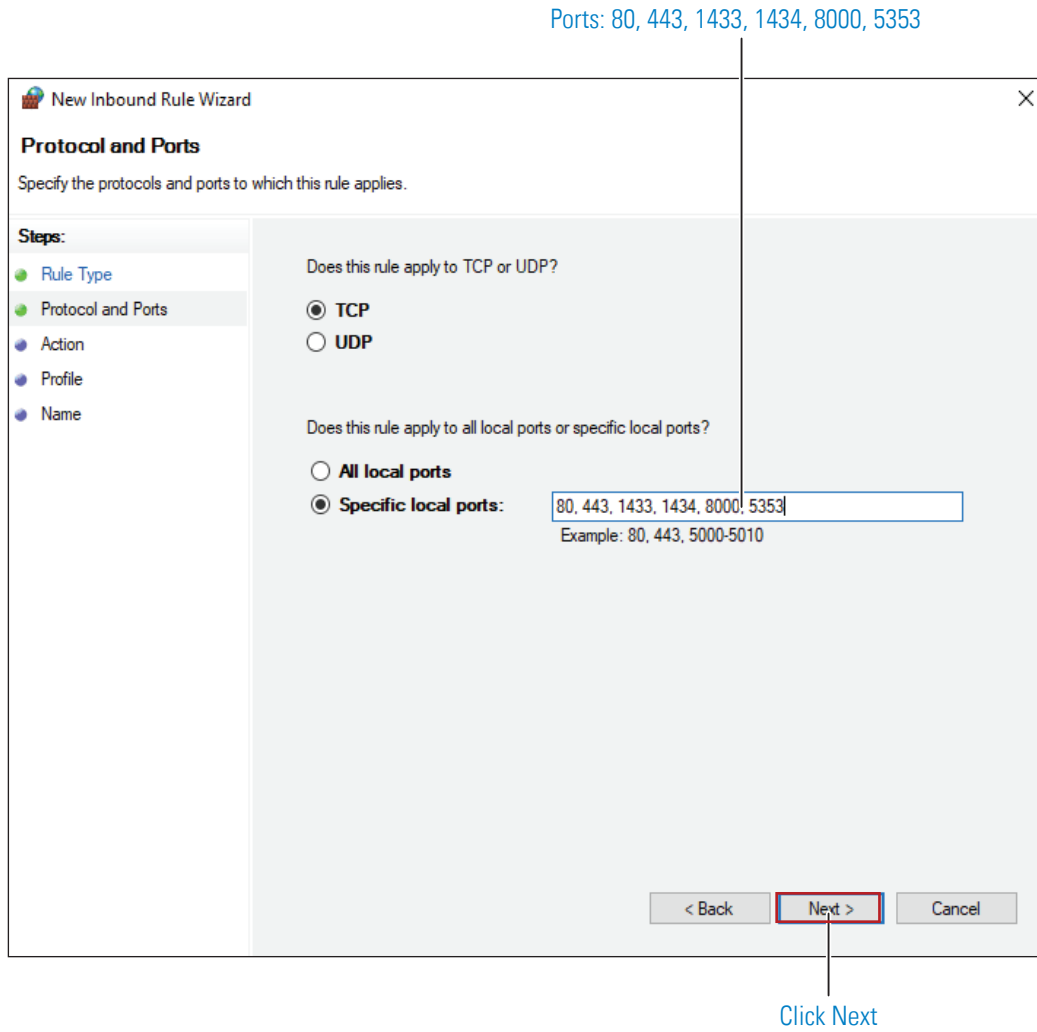
4 In the New Inbound Rule Wizard window, select Port. Click Next to continue.

Figure 15 Create Port Rule



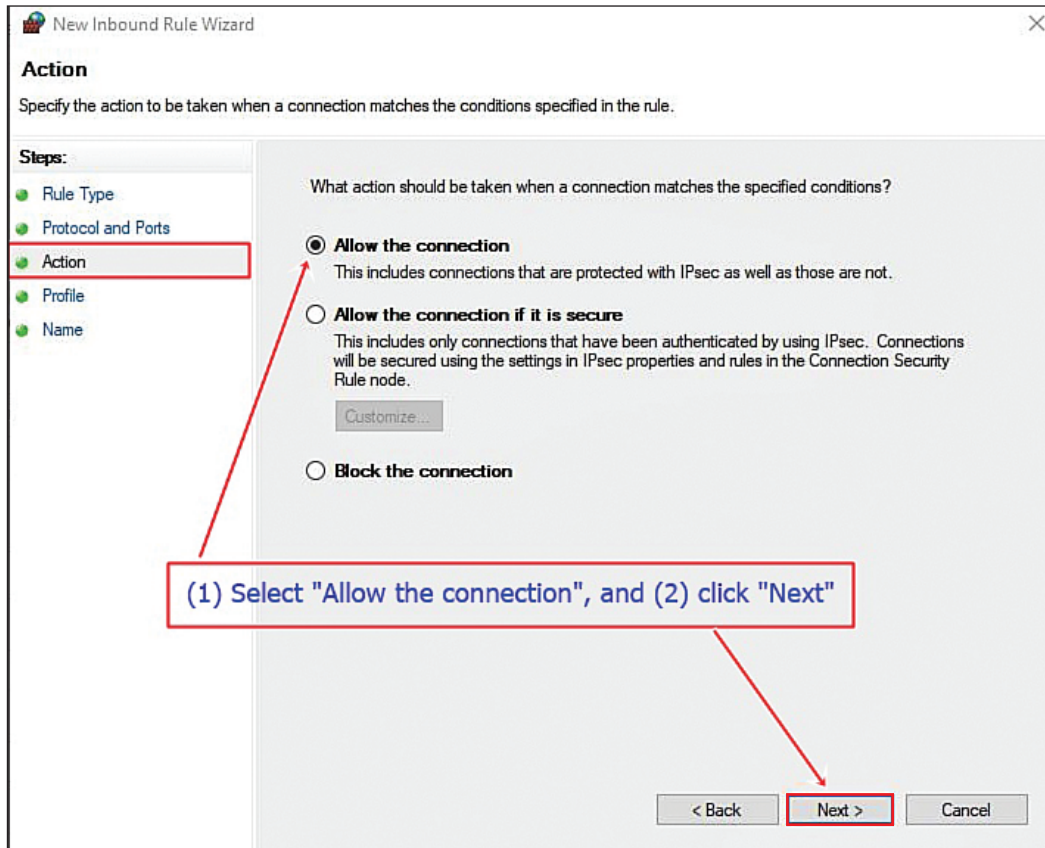
- 5 Enter the following ports into the “Specific local posts” field: 80, 443, 1433, 1434, 8000, 5353. Then, click Next to continue.

Figure 16 Enter Ports



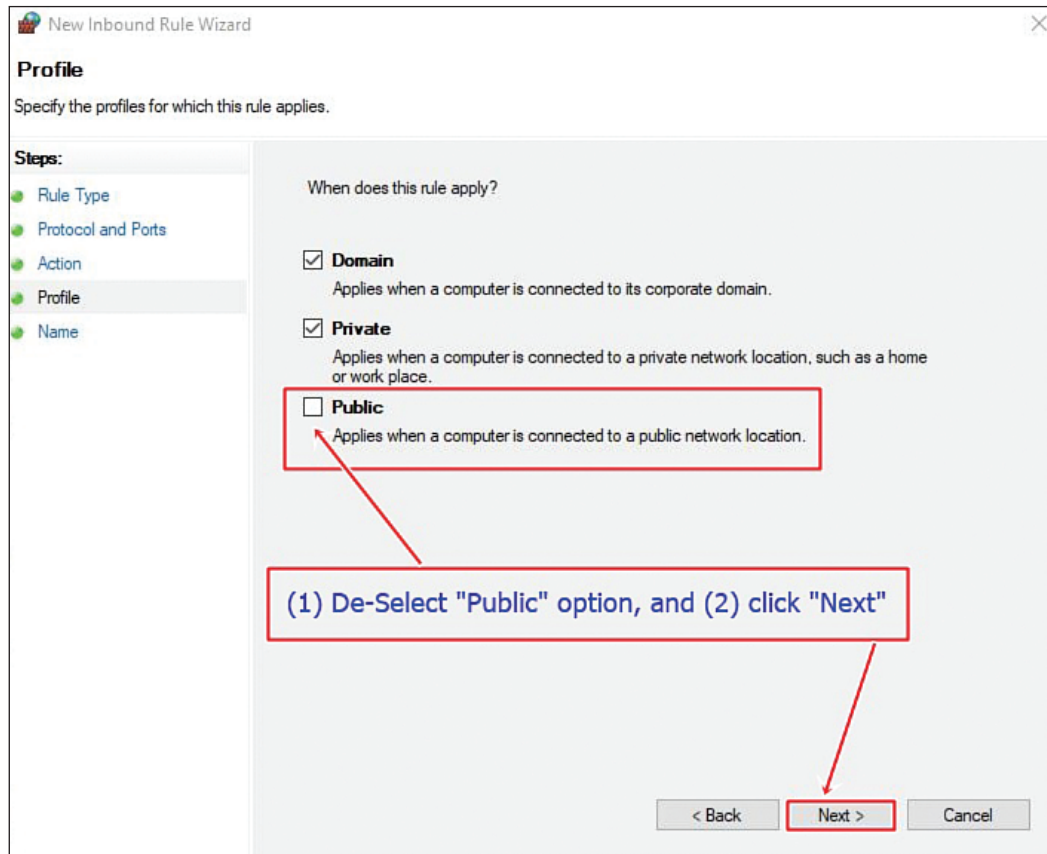
6 Select Allow the connection. Click Next to continue. [See Figure 17.](#)

Figure 17 Allow the Connection



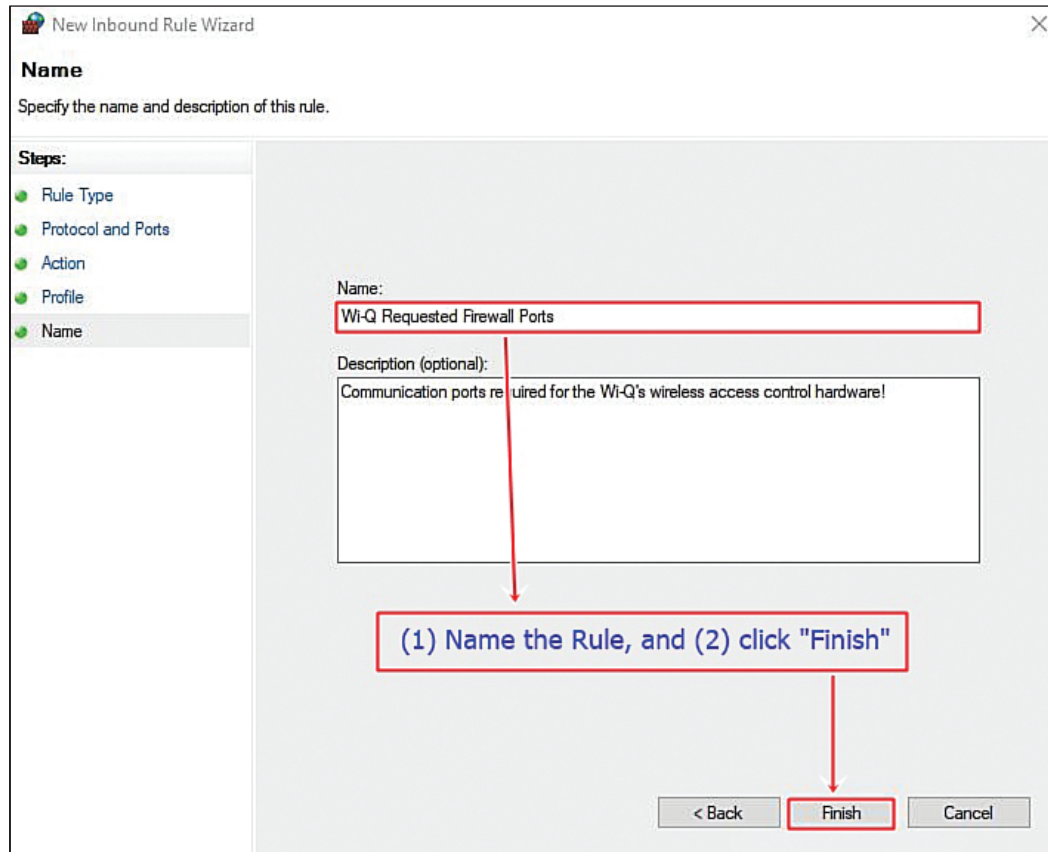
7 De-select the Public option. Click Next.

Figure 18 De-select Public



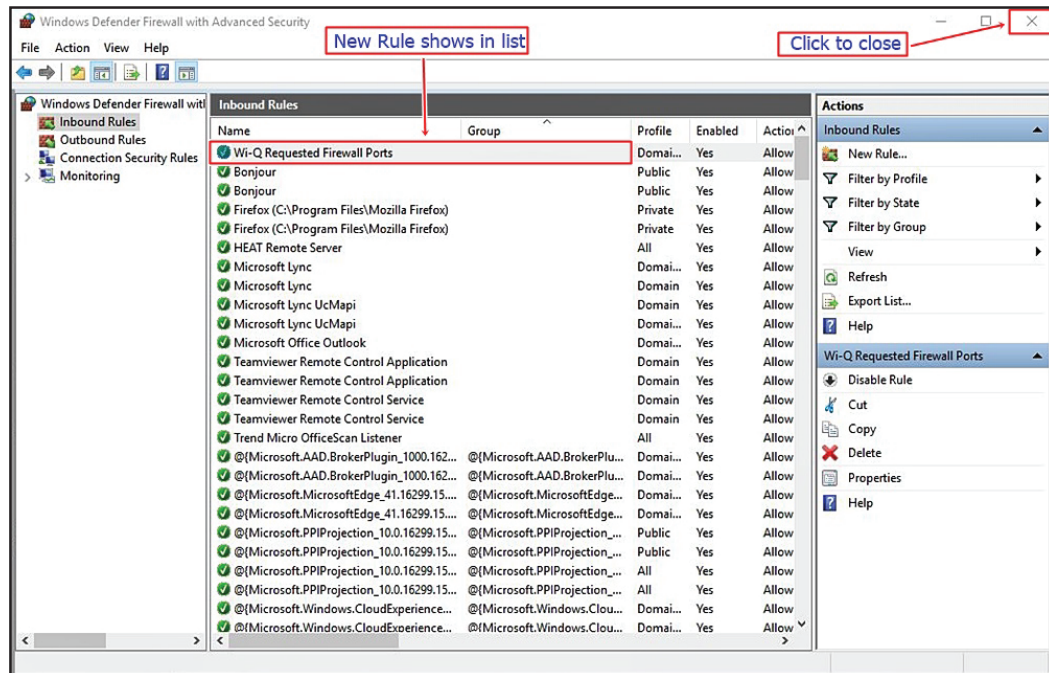
- 8 Give the new rule a name that can be easily identified by an administrator. Once finished, click Finish. [See Figure 19.](#)

Figure 19 Name the Rule



- 9 The new rule now appears in the list. The Firewall Settings module may now be closed. See Figure 20.

Figure 20 Inbound Rules List



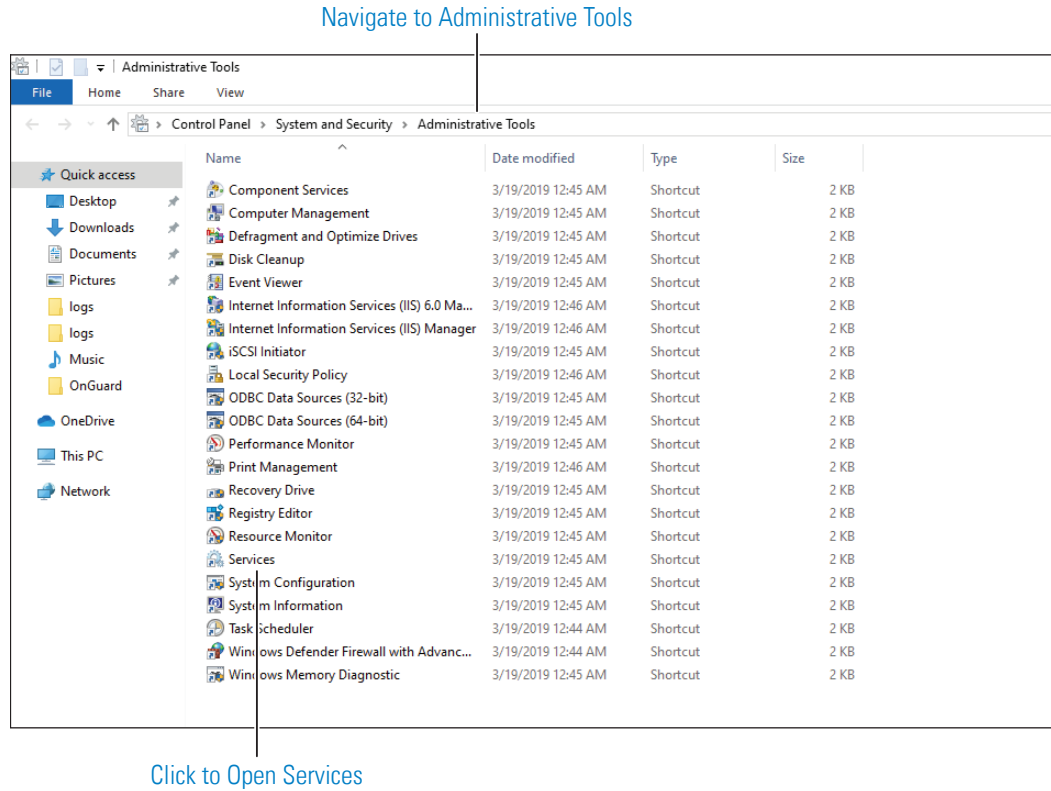
Obtain Wi-Q Gateway Accessory Add-On

Before you can install the Wi-Q Interface software, you must obtain a BEST Wi-Q Gateway Accessory Add-On from dormakaba Technical Support's secure file share available to all Wi-Q Certified technicians. This package contains necessary add-on components that enable BEST Wi-Q Gateway support. Contact dormakaba Technical Support directly at dhw.support.us@dormakaba.com.

Stop Communication Server

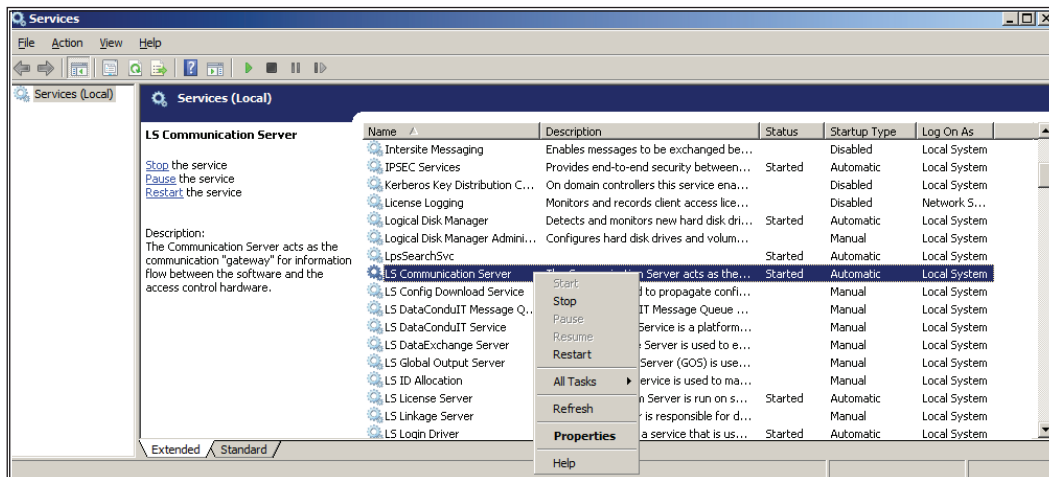
To make sure your Communication Server is not running, first, navigate to your system's Services via Administration Tools. [See Figure 21.](#)

Figure 21 Navigate to Services



Next, locate "LS Communication Server" in the list of services ([Figure 22](#)). If the Status column reads as "Started," right-click on the line and select Stop. This step will be followed only when the LS Communication Server is run as a Service.

Figure 22 Stop Communication Server

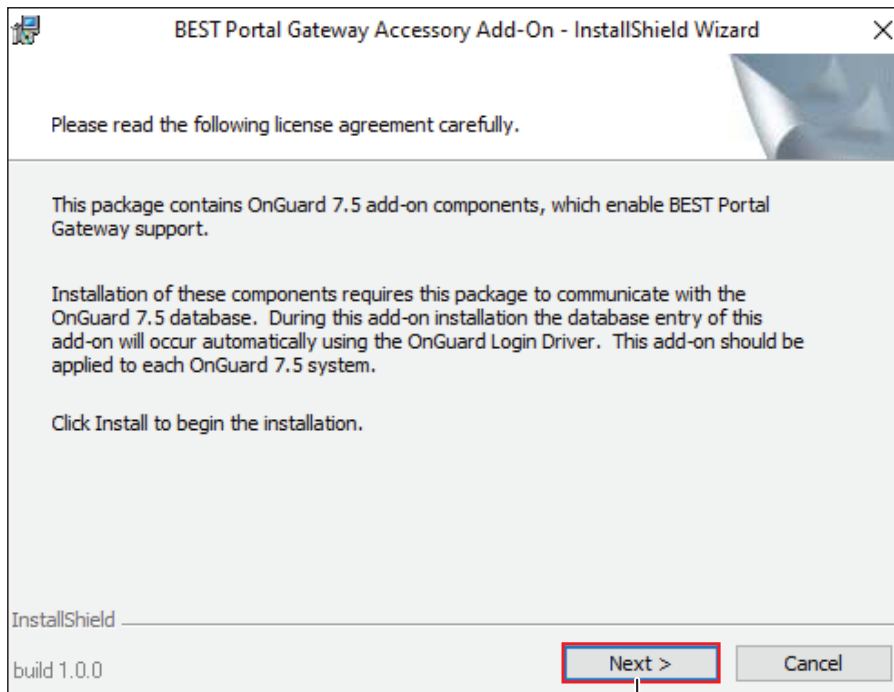


Install Wi-Q Gateway Accessory Add-On

Once you've obtained the Add-On package and associated database login information, perform the following steps to install it.

- 1 Navigate to the Windows Installer File (.msi extension) that you obtained from dormakaba Technical Support. Double-click to install.
- 2 The Accessory Add-On InstallShield Wizard will open. Read the license agreement carefully, then click Next. [See Figure 23.](#)

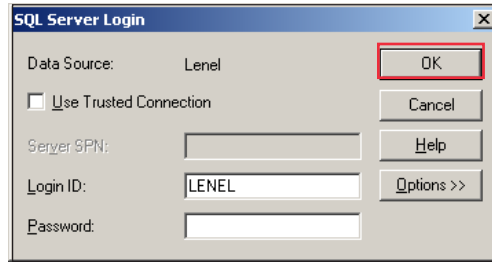
Figure 23 Accessory Add-On InstallShield Wizard



Click Next

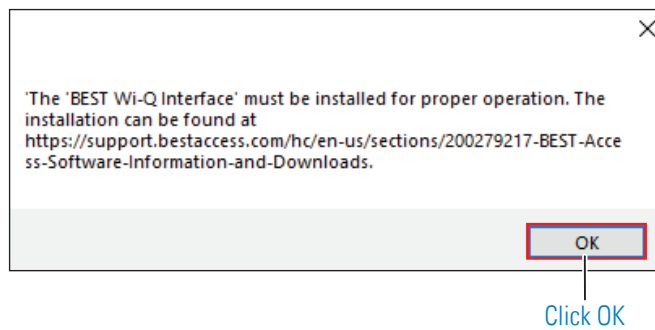
- 3 The Add-On package will begin to install.
- 4 Next, you will be prompted to input the Login ID and password. The default, case-sensitive Login ID and password are:
Login ID: LENEL
Password: MULTIMEDIA or Secur1ty#
Type in your login information and click OK. [See Figure 24.](#)

Figure 24 SQL Server Login



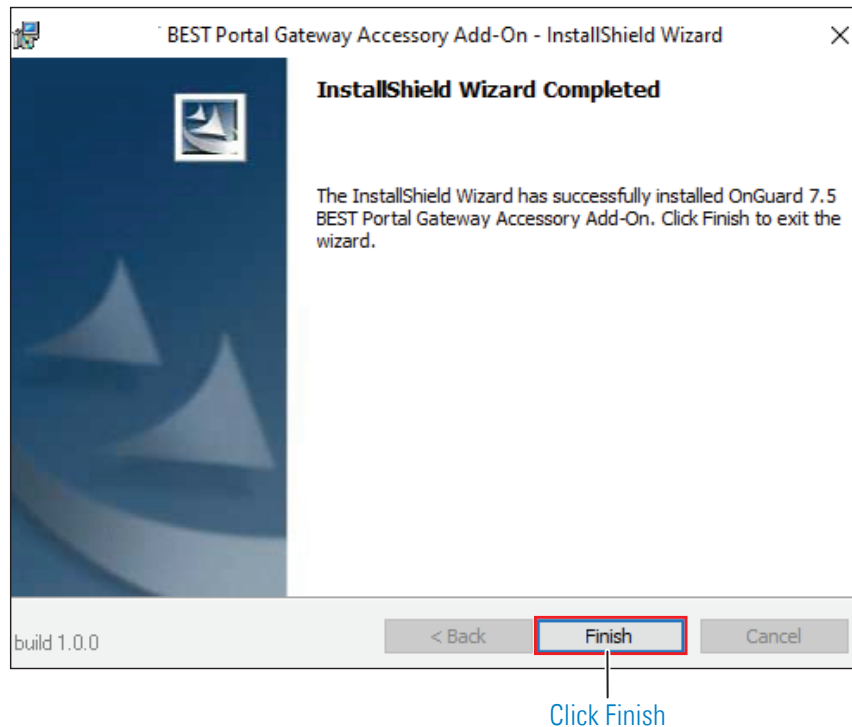
- 5 A window will pop up to inform you that the BEST Wi-Q Interface must be installed next. Click OK. [See Figure 25.](#)

Figure 25 Accessory Add-On Installation Reminder



- 6 The InstallShield Wizard should now be complete. Click Finish to exit the wizard. [See Figure 26.](#)

Figure 26 Accessory Add-On Installation Complete



Install Wi-Q Interface Software (Task 5)

Once the Accessory Add-on has been installed, it is time to install the Wi-Q Interface Software. The Wi-Q Interface Software is a powerful tool that will help you integrate Wi-Q Technology into your system. The software consists of three parts:

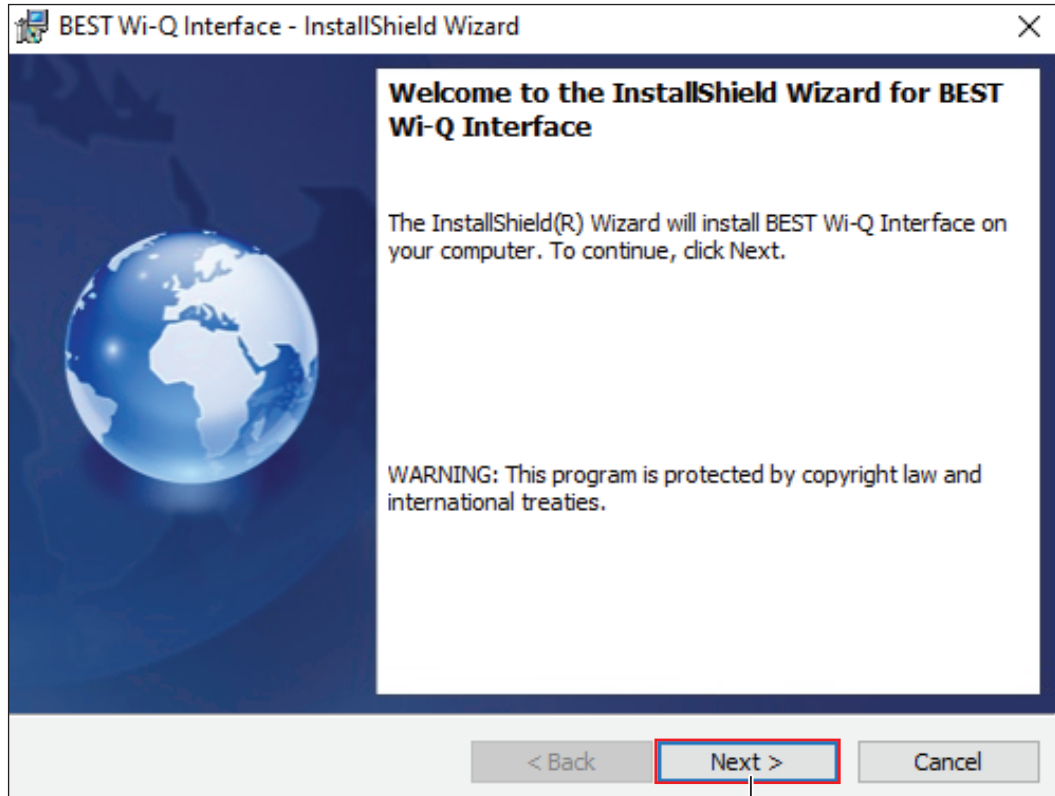
- **BEST Wi-Q Interface** — Provides a communication link between the Communication Server and BEST Wi-Q Wi-Q Gateways. The Interface is responsible for transmitting and receiving all access control information.
- **BEST Wi-Q Interface Configuration Tool** — The actual software that you use to configure Wi-Q Gateways, generate Segment Sign-On Credentials, add Wireless Controllers and run Firmware Updates.
- **BEST Wi-Q Interface Database** — Contains the tables that are installed within the Access Control Database that are used by the Wi-Q Interface and Wi-Q Interface Configuration Tool.

Once the software is installed, you can access this application from the Windows Start Menu. Perform the following steps to install the Wi-Q Interface Software.

- 1 If you have not already done so, download the Wi-Q Interface Software from the dormakaba Technical Support secure file share website available to all Wi-Q certified technicians.

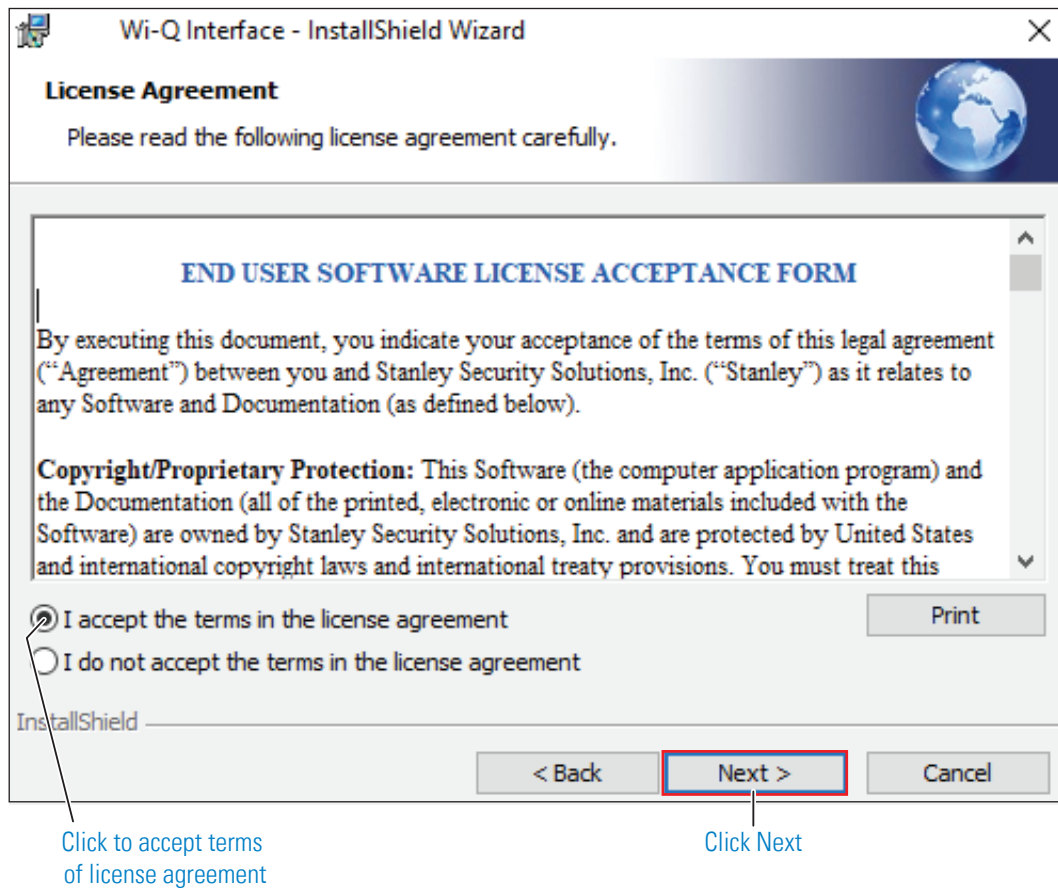
or
Insert the software disc into your machine's disc reader.
- 2 Navigate to the software contents and right click on the setup.exe file and Run as administrator.
- 3 The BEST Wi-Q Interface InstallShield Wizard will pop up. Click Next to continue with the installation. [See Figure 27.](#)

Figure 27 Wi-Q Interface Setup Wizard



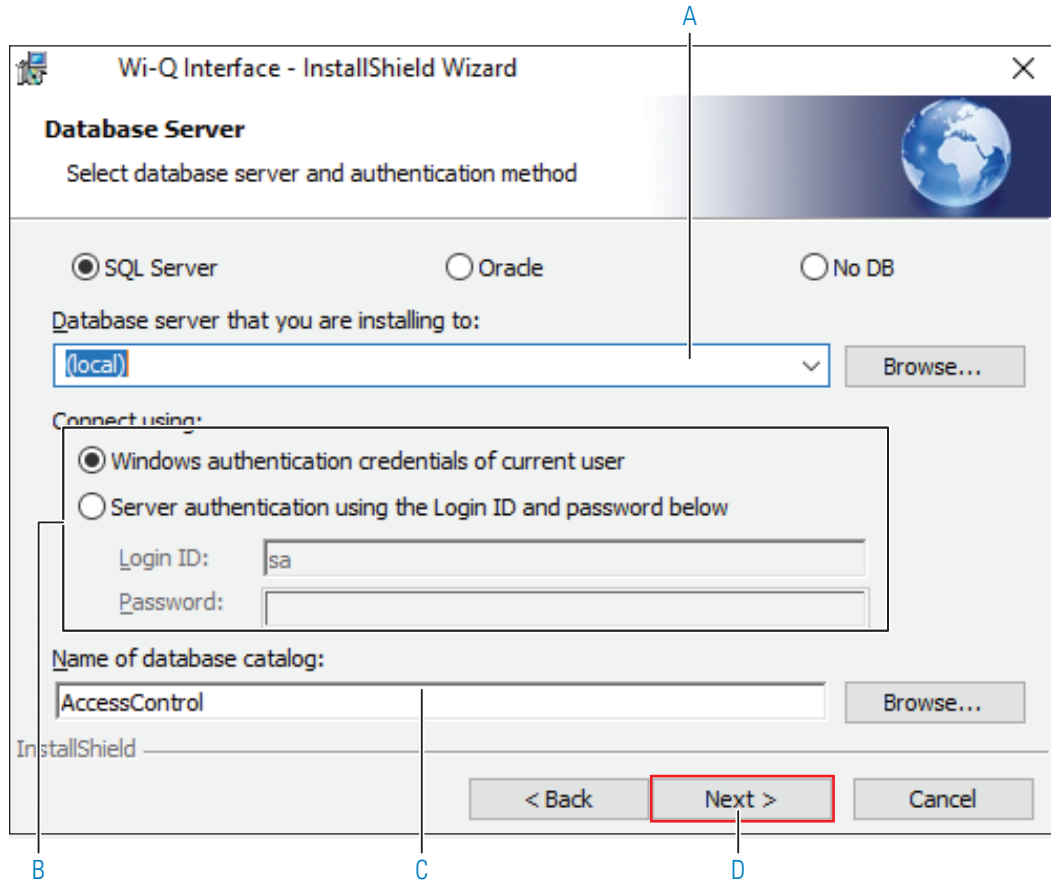
- 4 Read the License Agreement. To continue with the installation, click on "I accept the terms in the license agreement," then press Next (Figure 28).

Figure 28 Wi-Q Interface License Agreement



- 5 In the "Database server that you are installing to" field, enter the computer name of your Server (Figure 29, Item A). If needed, you may browse to the server by selecting Browse.

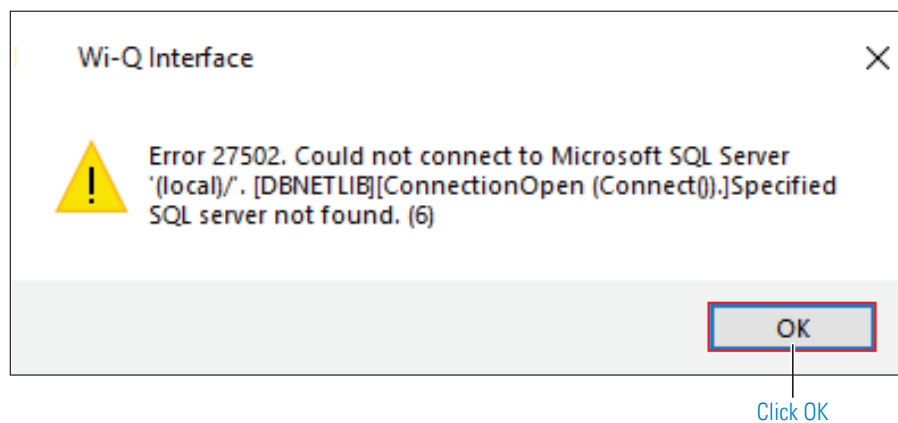
Figure 29 Wi-Q Interface Database Server



- 6 In the Connect Using section, choose your connection method. If you choose Server authentication, provide the Login ID and Password for the server. See Item B.
- 7 Enter the name of your Database in the “Name of database catalog” field. See Item C. If needed, you may browse to the database name by selecting Browse.
- 8 Click Next (Figure 29, Item D).

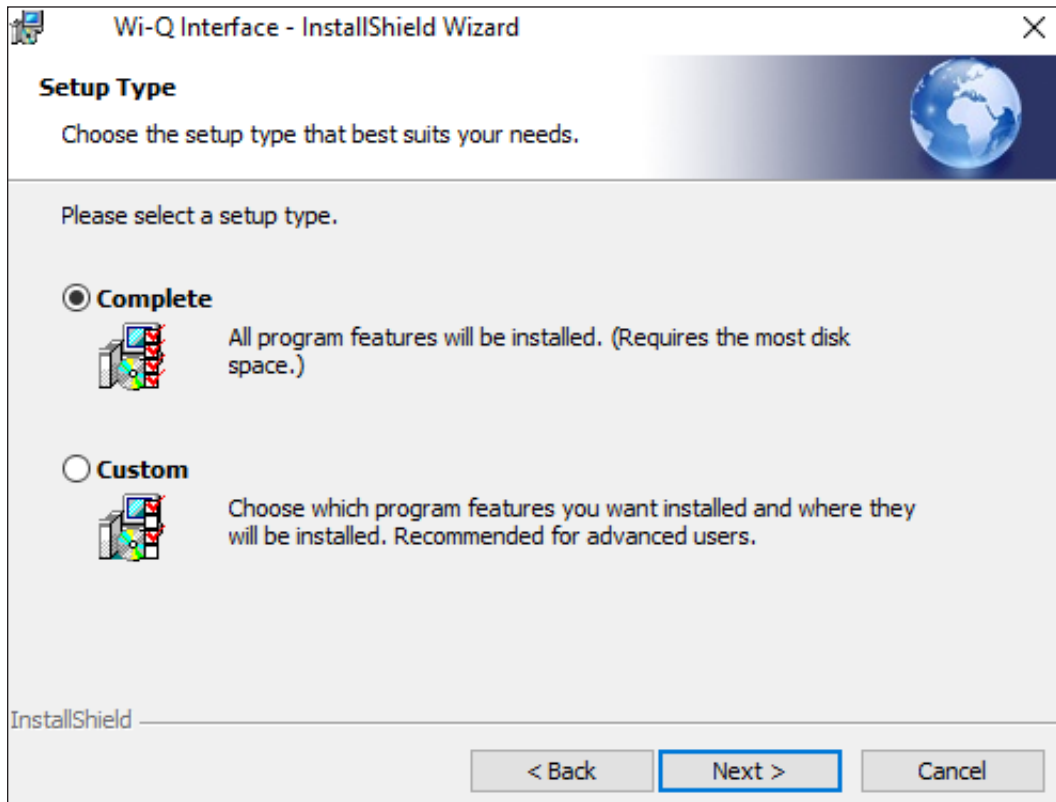
Note If you receive an error message like Figure 30, there may be an error in your database server information. Click OK, correct your information as needed, and press Next to continue. If you receive the error message again, and you have verified that all of your information is correct, contact dormakaba Technical Support.

Figure 30 Connection Error Message



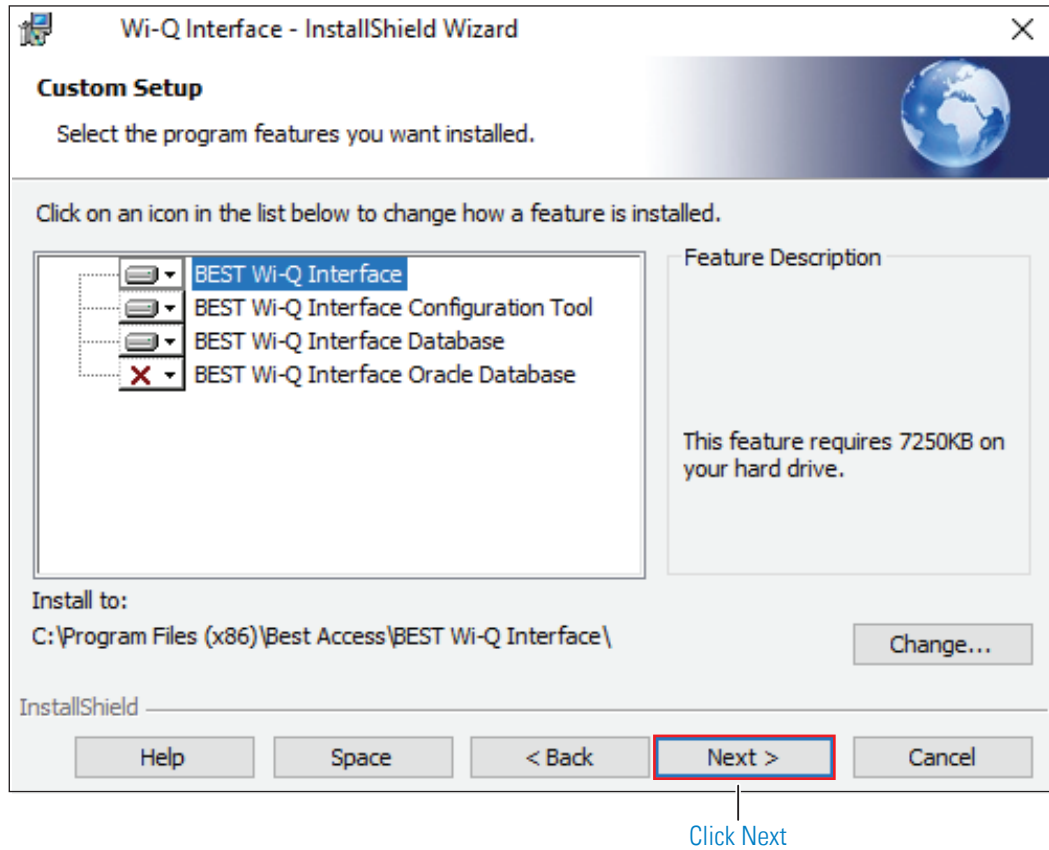
- 9 The next step requires you to choose either a Complete Setup Type or Custom Setup Type. [See Figure 31](#). Selecting Complete will install the BEST Wi-Q Interface, the BEST Wi-Q Interface Configuration Tool and the BEST Wi-Q Interface Database. Selecting Custom will allow you to choose which components to install. Once you've made your selection, press Next to continue.

Figure 31 Choose Setup Type



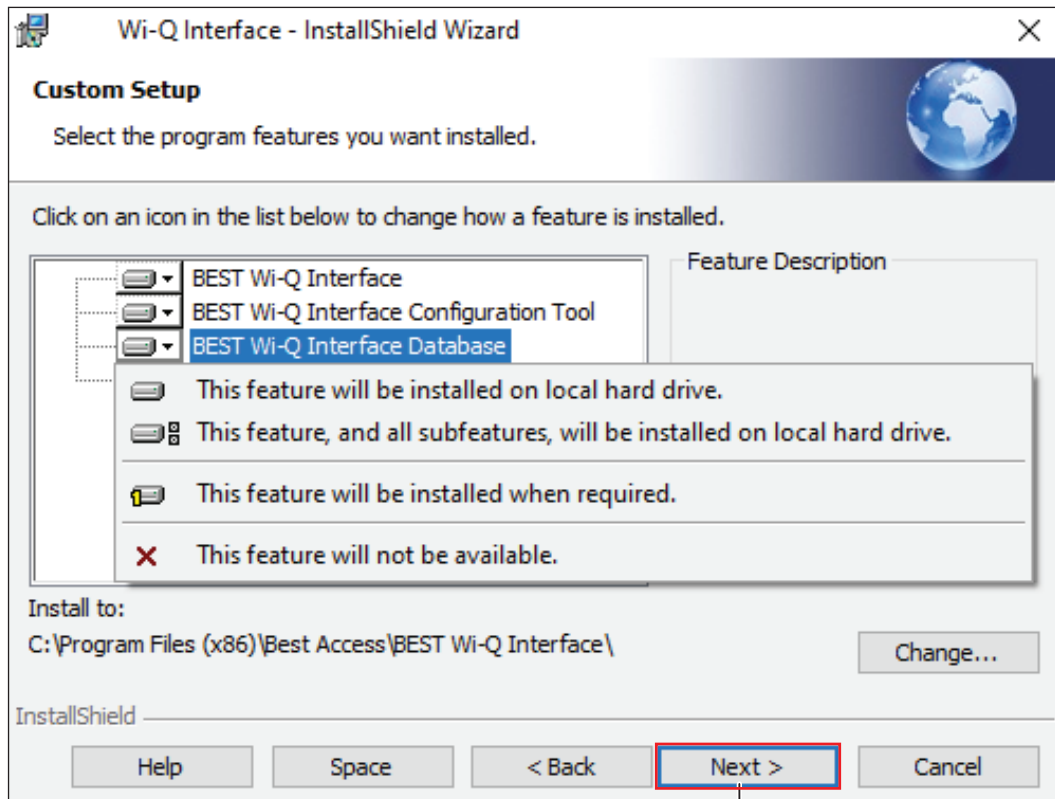
[Figure 32](#) shows the installation components available in a Custom Setup.

Figure 32 Custom Setup



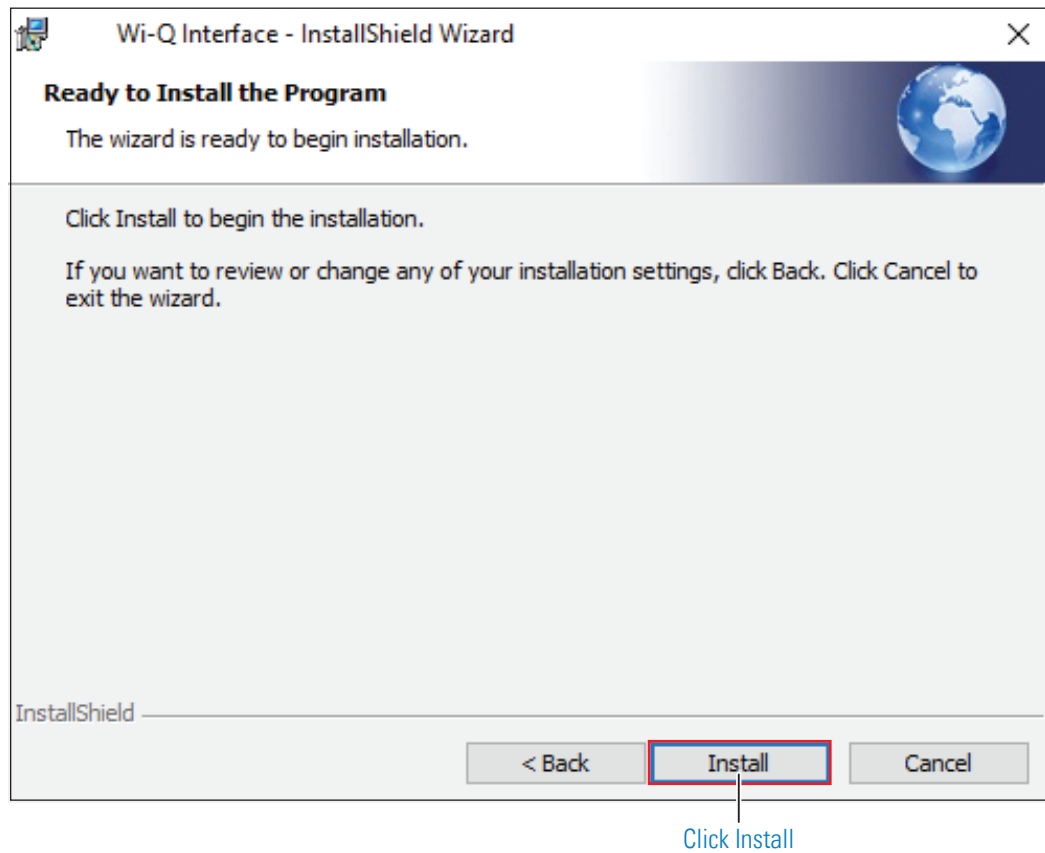
Clicking on the icons to the left of each component will bring up installation options ([Figure 33](#)). If you decide on a Custom Setup, you must select an installation option for each component. Then click Next to continue.

Figure 33 Custom Setup Options



10 The wizard is now ready to begin installation. Click Install.

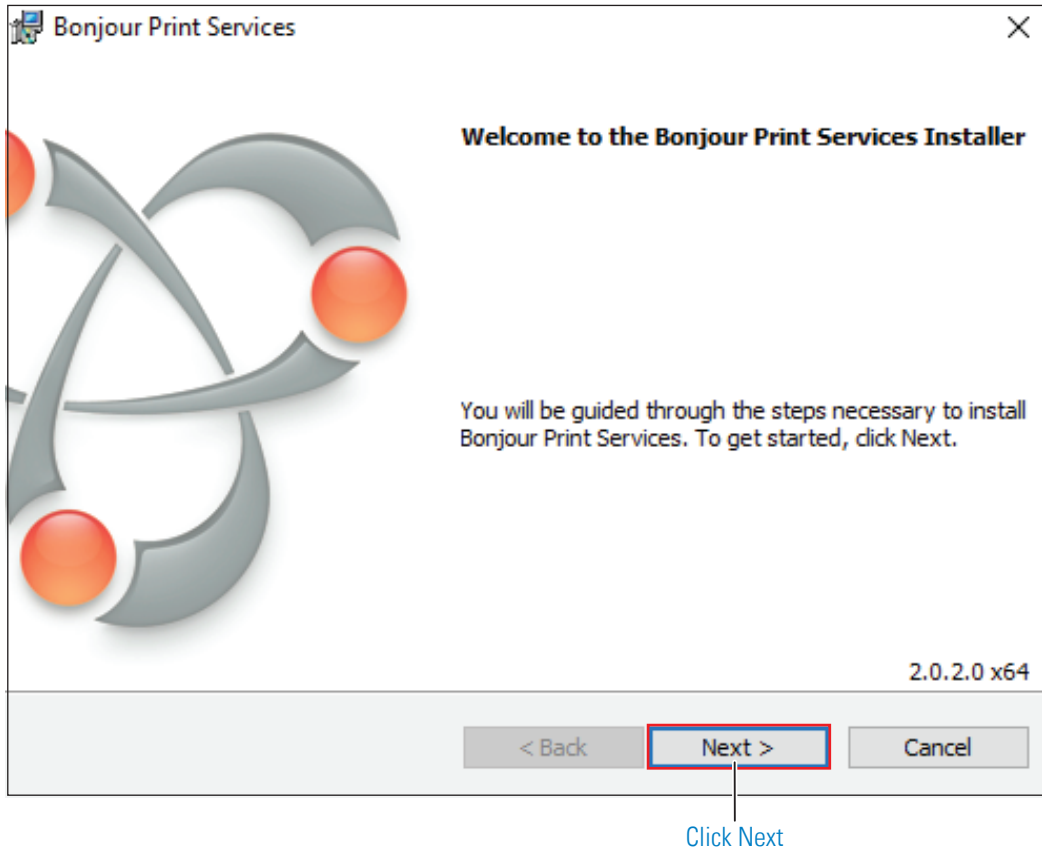
Figure 34 Begin Installation



11 At this point, the Bonjour® Print Services Installer window will pop up. Bonjour networking technology is used by the Wi-Q Interface Configuration Tool to locate and list all Wi-Q Gateways on the network. Click Next to begin installing Bonjour.

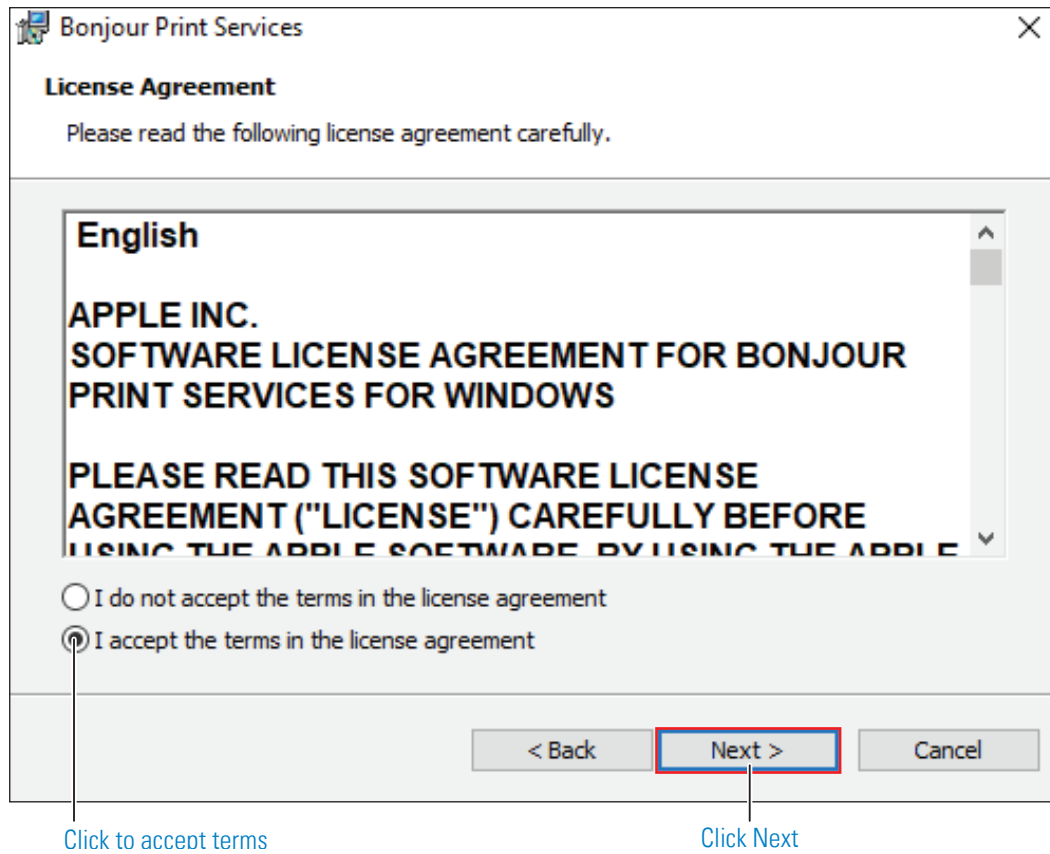
Note If performing a Custom Setup, Bonjour will only be installed if the Wi-Q Interface Configuration Tool is being installed.

Figure 35 Bonjour Print Services Installer



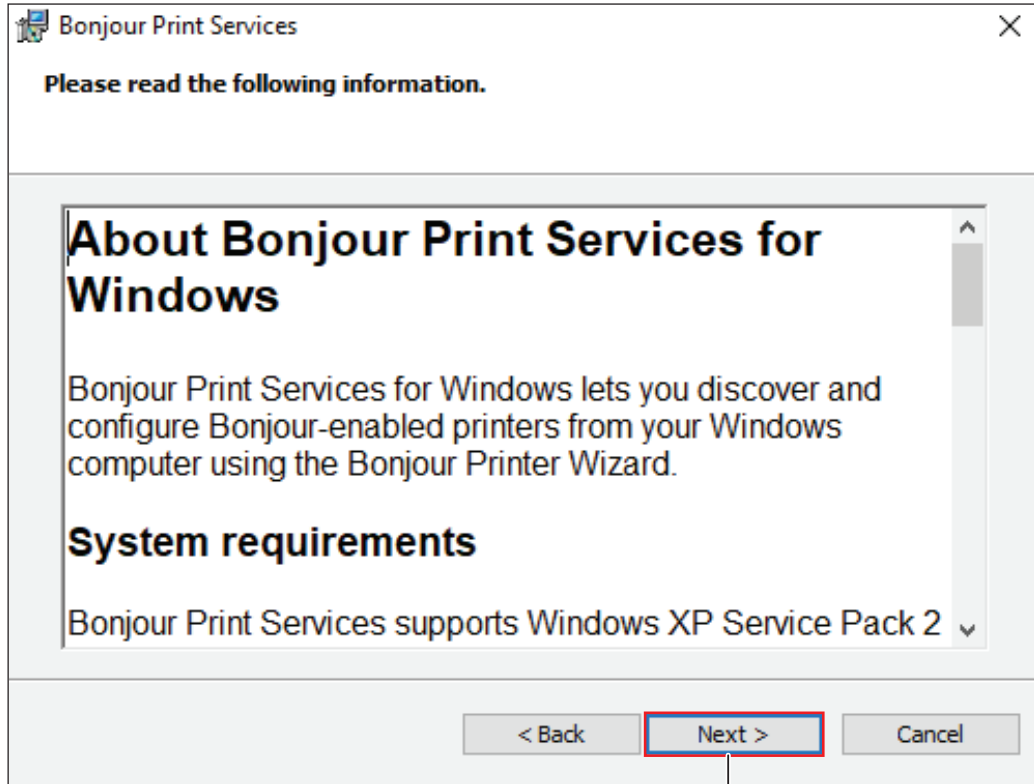
12 Read the License Agreement. To continue with the installation, click on "I accept the terms in the license agreement," then press Next.

Figure 36 Bonjour Print Services License Agreement



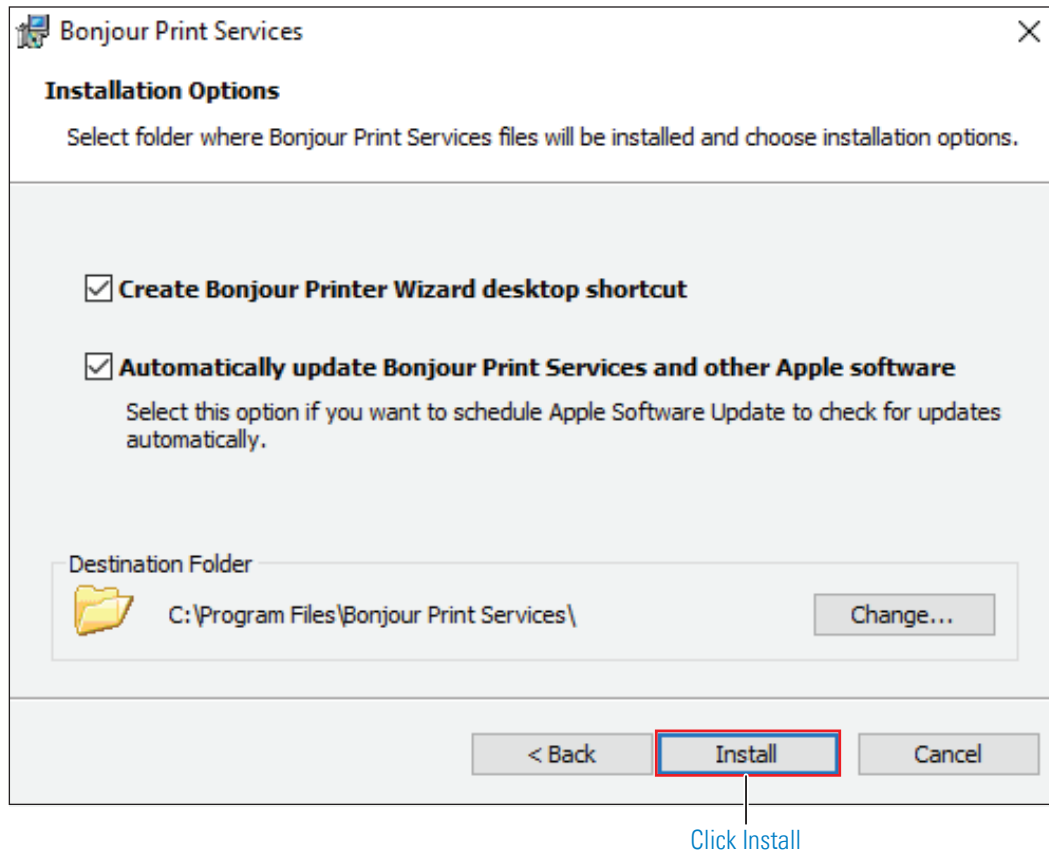
13 Read the information about Bonjour Print Services. Then press Next.

Figure 37 Bonjour Print Services Information



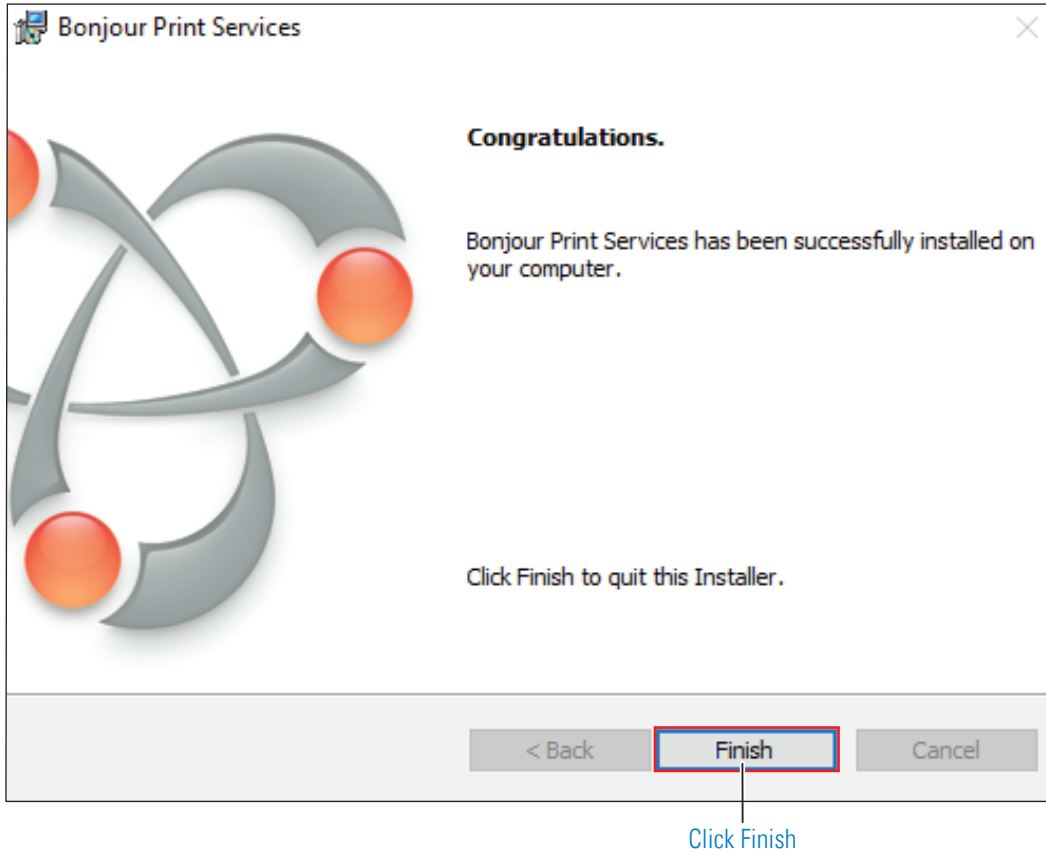
- 14 In the Installation Options section, decide whether or not to create a desktop shortcut and/or schedule automatic updates for Bonjour. Choose your destination folder and then select Install.

Figure 38 Bonjour Installation Options



15 Once the Bonjour Print Services Installation is complete, press Finish.

Figure 39 Bonjour Print Services Installation Complete



16 The Wi-Q Interface components now begin to install. Once installation is complete, press Finish.

Figure 40 Wi-Q Interface Installation Complete



Click Finish

17 You may now start up your Communication Server again. See "Stop Communication Server" on [page 48](#) for more information on how to access it.

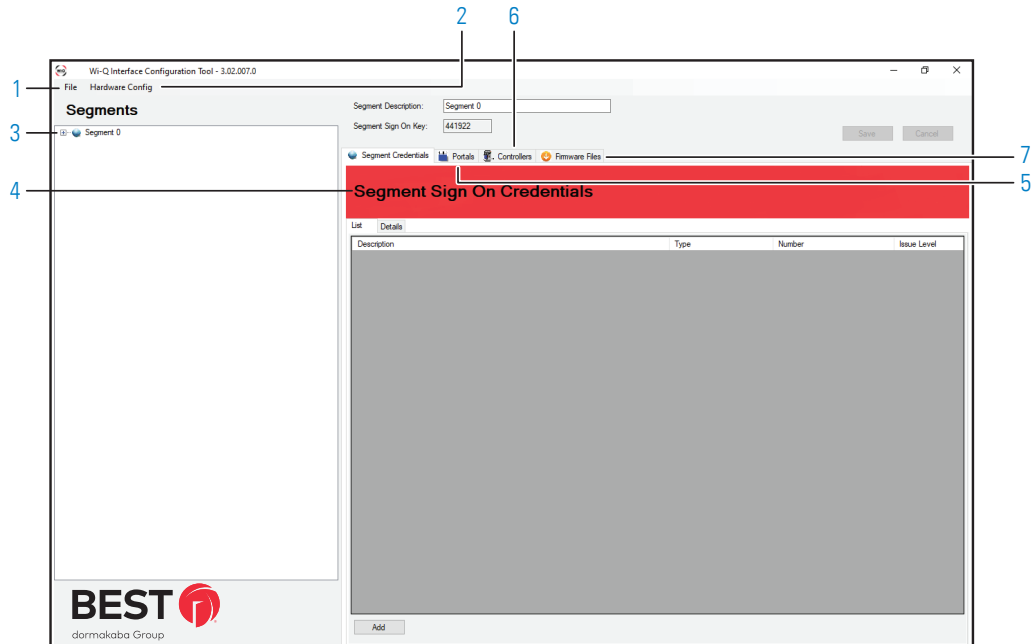
4 Software Configuration and Use

This chapter will guide you through Task 6 (Configure Wi-Q Gateways) and Task 10 (Configure Software) and Firmware Updates. It will also provide a useful term comparison chart for events and transactions in Alarm Monitoring and the Wi-Q Interface Configuration Tool.

Wi-Q Interface Configuration Tool Overview

This section will provide a brief overview of the components in the Wi-Q Interface Configuration Tool. [See Figure 41.](#)

Figure 41 Wi-Q Interface Configuration Tool



- 1 File menu dropdown**

Contains three options: (1) Database Connect (2) Change Password and (3) Exit. You can use Database Connect tool if you must connect to additional databases or if you move the location of the database and must connect to it again.
- 2 Hardware Config menu dropdown**

Contains two options: (1) Wi-Q Gateways and (2) Firmware Reprogram. The Portals tool is used to add and configure Wi-Q gateways. The Firmware Reprogram tool is used to send firmware updates to your wireless hardware.
- 3 Segments tree**

Provides a visual representation of which Wi-Q Gateways are associated with which segment and which Wireless Controllers are associated with which Wi-Q Gateways. Right-clicking on hardware items listed in the tree will provide additional options.
- 4 Segment Credentials tab**

Allows you add Sign On Credentials so you can sign on wireless card readers.
- 5 Portals tab**

Displays a list of BEST® Wi-Q Gateways and details about each one.

6 Controllers tab

Displays a list of Wireless Controllers and details about each one.

7 Firmware files tab

Used to upload firmware files to the database.

Configure Wi-Q Gateways (Task 6)

Wi-Q Gateways can now be added and configured within the Wi-Q Interface Configuration Tool. This can be performed on a single Wi-Q Gateway or multiple Wi-Q Gateways at a time. This task is performed in the Portal Configuration window, which utilizes Bonjour to locate and list all Wi-Q Gateways on the network.

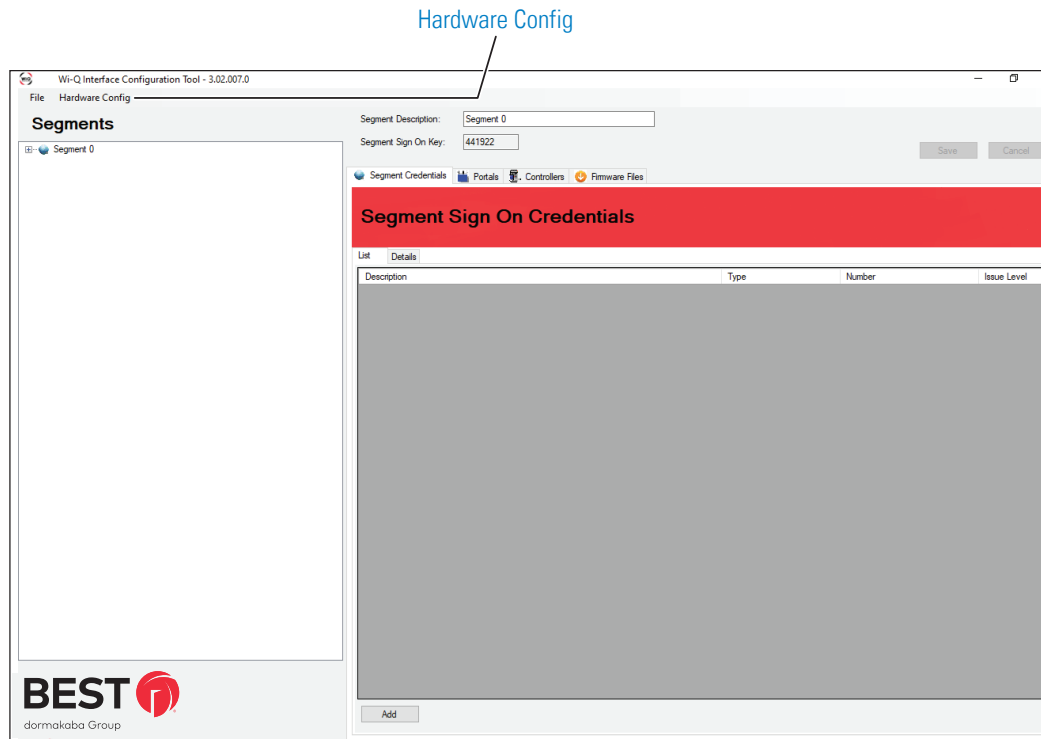
Wi-Q Gateways are configured from the factory with an IP address of 192.168.1.200 and the gateway webpage can be accessed with IP address 192.168.3.200 (for configuration only) when connected to gateway WiFi. When configuring a Wi-Q Gateway, it is best to connect directly to the Wi-Q Gateway before placing it on the network. This removes the possibility of duplicate IP addresses on the network.

Note You will need to create and reserve a range of IP addresses for your Wi-Q Gateways before proceeding with Wi-Q Gateway configuration.

To Configure a Wi-Q Gateway:

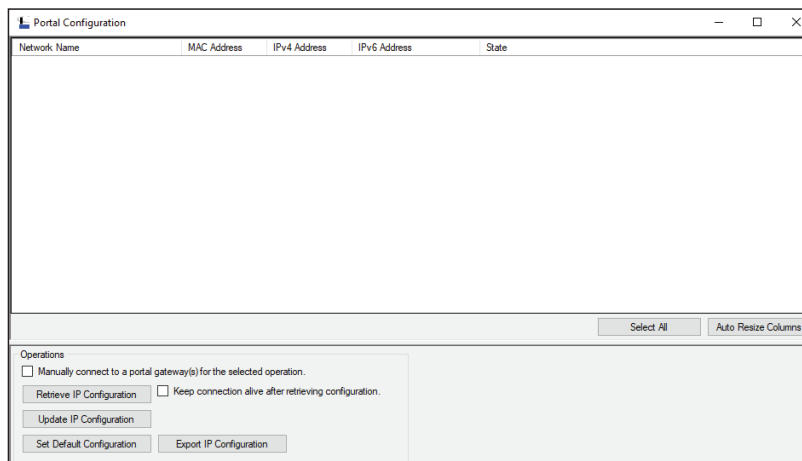
- 1 Connect the Wi-Q Gateway to the Host either over LAN or WiFi or directly via crossover Ethernet cable (recommended). For more information on connecting a Wi-Q Gateway, see “Connecting the Gateway and Verifying Operation” on [page 26](#).
- 2 Inside the Wi-Q Interface Configuration Tool, click on Hardware Config, and select Portals. [See Figure 42](#).

Figure 42 Configure Wi-Q Gateway



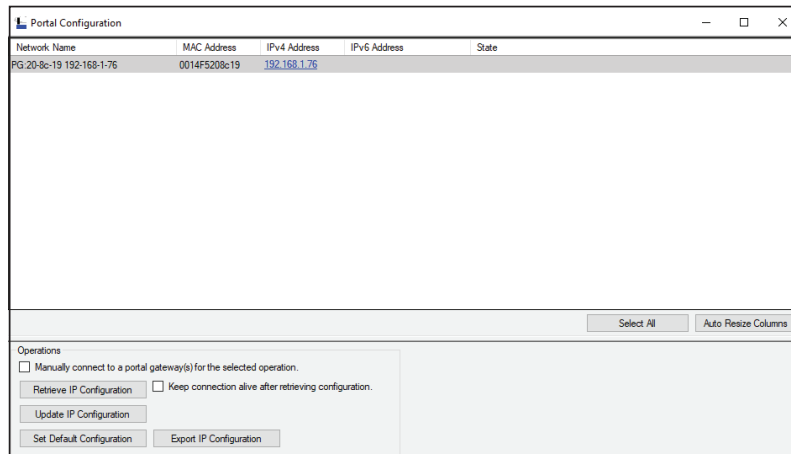
3 The Portal Configuration window lists the BEST® Wi-Q Gateways on the network.

Figure 43 Portal Configuration Tool



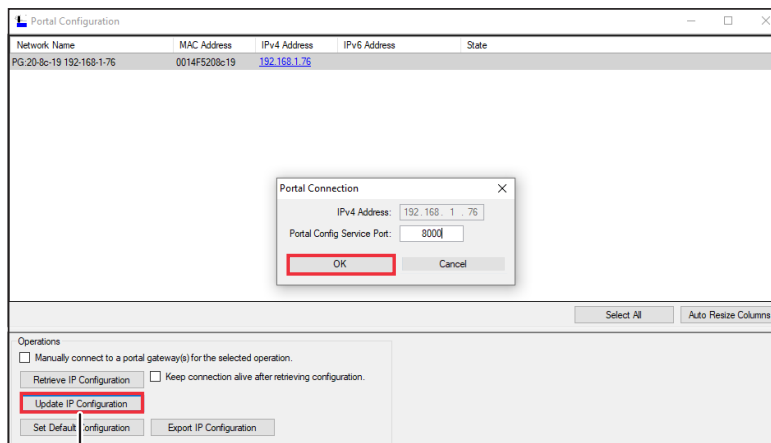
4 Select a Wi-Q Gateway from the list.

Figure 44 Portal Configuration Tool with PG



5 At this point, you may change the IP address from the factory setting to one from the range you've created. Select Update IP Configuration button and change the Portal Config Service port to 8000, click OK button.

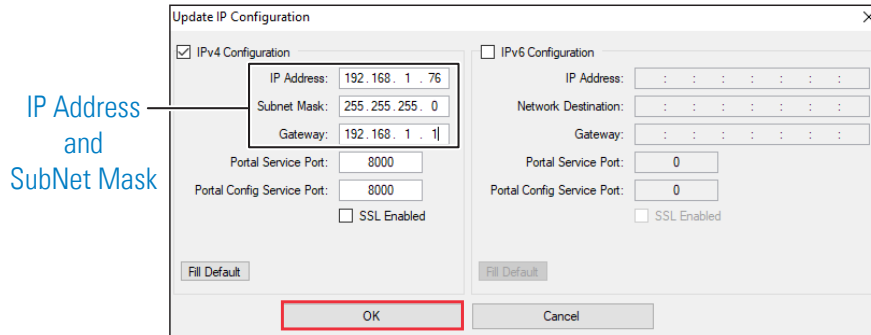
Figure 45 Update IP Address



Update IP Configuration

- 6 You may need to adjust the SubNet Mask to match your network. Consult your network administrator for details.

Figure 46 Update IP Configuration



Note Change the Portal Config Service Port to 8000.

- 7 If you have a direct connection to the Wi-Q Gateway, and you have changed the IP address, click on the OK button to update the selected Wi-Q Gateway.

Configure Software (Task 10)

The sub-tasks below are required to configure your software to communicate with your Wi-Q hardware. These should be performed in the order presented here.

- 1 Add Wi-Q Gateways as Access Panels in OnGuard.
- 2 For Wireless Card Readers only — Add Segment Sign on Credentials in Wi-Q Interface Configuration Tool
- 3 Add signed on Wireless Controllers to Readers and Doors
- 4 Configure Wi-Q Gateways and Controllers in Wi-Q Interface Configuration Tool

Also in this section, you will find additional notes for configuring Cardholder Options, Card Formats, Timezones, Timezone/Reader Modes, Cardholders and Segments. You will also find information about Firmware Updates in the Wi-Q Interface Configuration Tool. Finally, you will be provided with a term comparison chart of events/transactions that are viewable in Alarm Monitoring and the Controllers tab of Wi-Q Interface software.

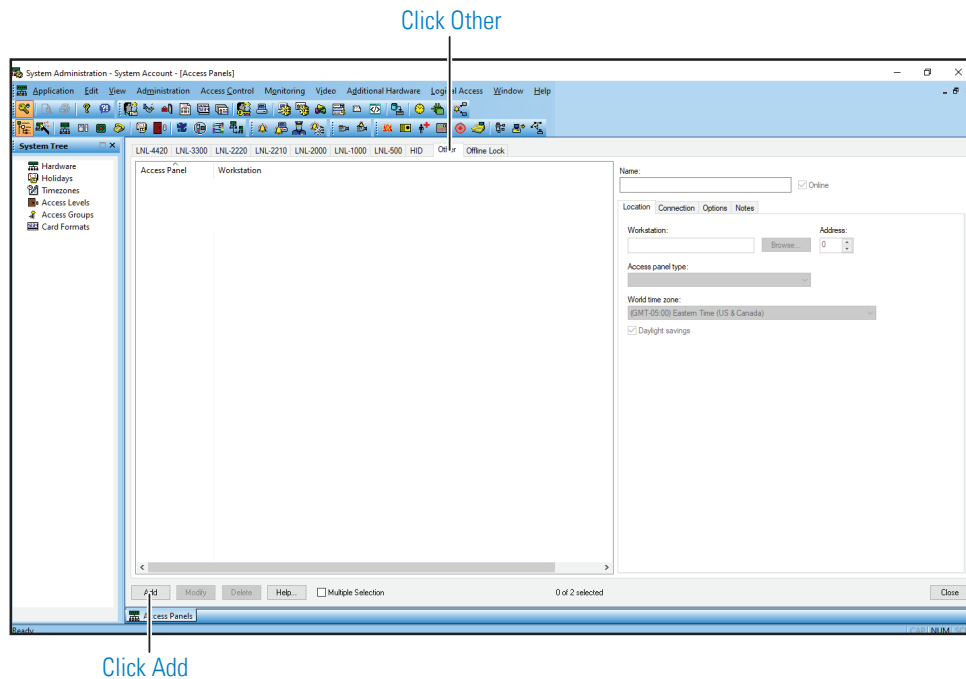
Add Wi-Q Gateways as Access Panels

Perform the following steps to add your Wi-Q Gateways as Access Panels in System Administration. For more information on Access Panels and/or System Administration, see the System Administration User Guide.

Note A Access Panel corresponds to a single BEST® Wi-Q Gateway. By default in OnGuard, the controller capacity is set to 64 controllers.

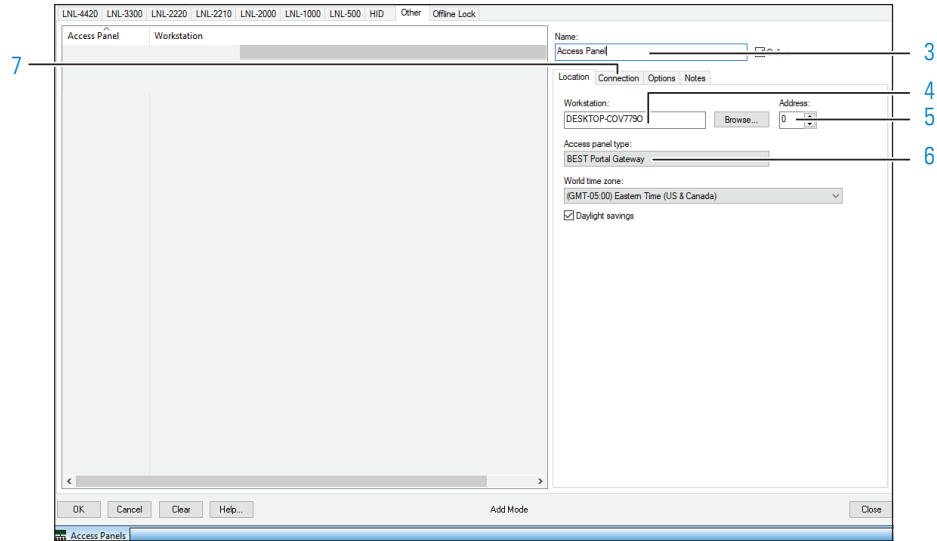
- 1 Open System Administration and navigate to the Access Panels module (Access Control > Access Panels).
- 2 Click on the Other tab, then click Add. ([Figure 47](#)).

Figure 47 Add Access Panel



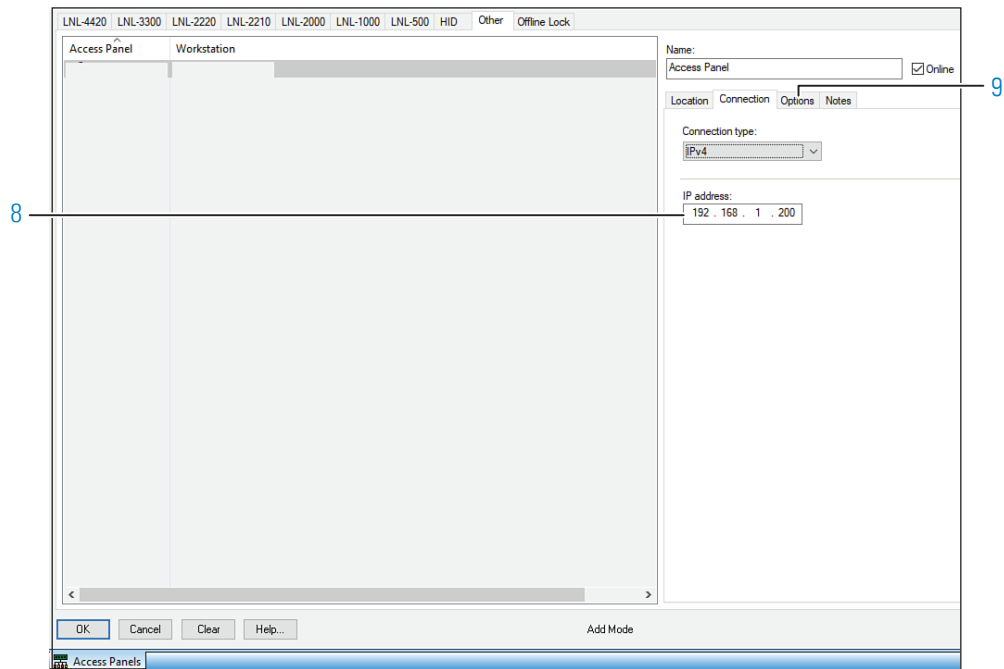
- 3 In the Name field, type a unique name for your Wi-Q Gateway ([Figure 48](#)).

Figure 48 Access Panel Location Tab



- 4 Type in or browse to the computer name of the server.
- 5 Set the Address field to a number between 0 and 7.
- 6 From the Access Panel Type dropdown list, select BEST Wi-Q Gateway.
- 7 Next, click on the Access Panels Connection tab.
- 8 Select LAN and enter the unique IP address of the Wi-Q Gateway. See [Figure 49](#).

Figure 49 Access Panels Connection Tab



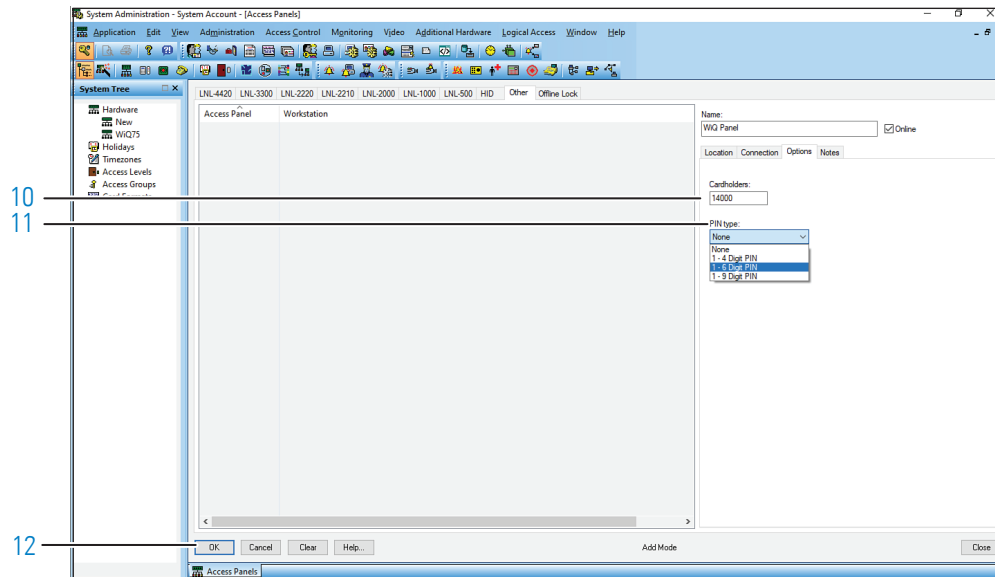
9 Next, click the Options tab.

10 In the Cardholders field, type in 14000 (Figure 50).

11 From the PIN type dropdown, select either “1-4 Digit PIN” or “1-6 Digit Pin.”

Note BEST Wi-Q technology does not support PINs longer than 6 digits.

Figure 50 Access Panels Options Tab



12 Then, click OK.

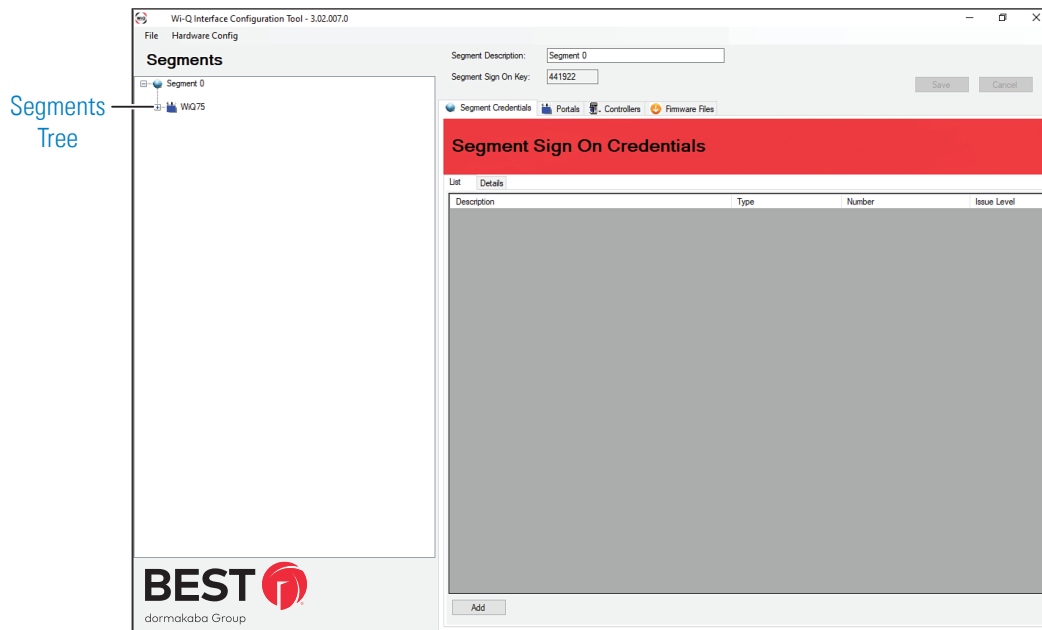
Once you have created Access Panels in OnGuard to match the Wi-Q Gateways that you configured in the Wi-Q Interface Configuration Tool (and your Wi-Q Gateways are on the network), the Wi-Q Gateways will become visible in the Segments Tree and Portals tab of the Wi-Q Interface Configuration Tool. See “Portals Tab” on [page 78](#).

Segments and Segment Sign On Credentials

When a panel is created in OnGuard, it is assigned to a segment. In the Wi-Q Interface Configuration Tool, the Segments tree (Figure 51) provides a visual representation of which Wi-Q Gateways are associated with which segment. There are no limitations to the number of Wi-Q Gateways that can be assigned to one segment, and there are no limitations to the number of segments.

Note The option to delete a segment from the Segment tree becomes available when you right-click from within the tree.

Figure 51 Segments Tree



For each segment, the Wi-Q Interface Configuration Tool creates a unique Segment Sign On Key that is used to sign Wireless Controllers onto a segment. This Sign On Key is used when signing on Wireless keypad controllers (See "Signing on Keypad Controllers" on [page 33](#)).

The Segment Credentials tab allows you add Sign On Credentials so you can sign on wireless card readers.

To add a new Sign On Credential

1 Select Add.

Figure 52 Add Segment Sign On Credential

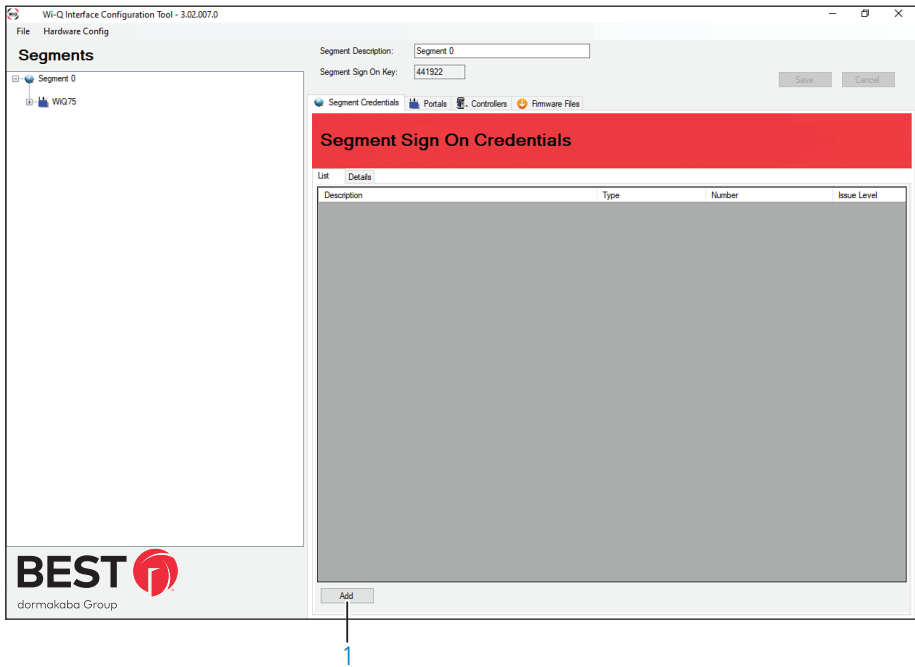
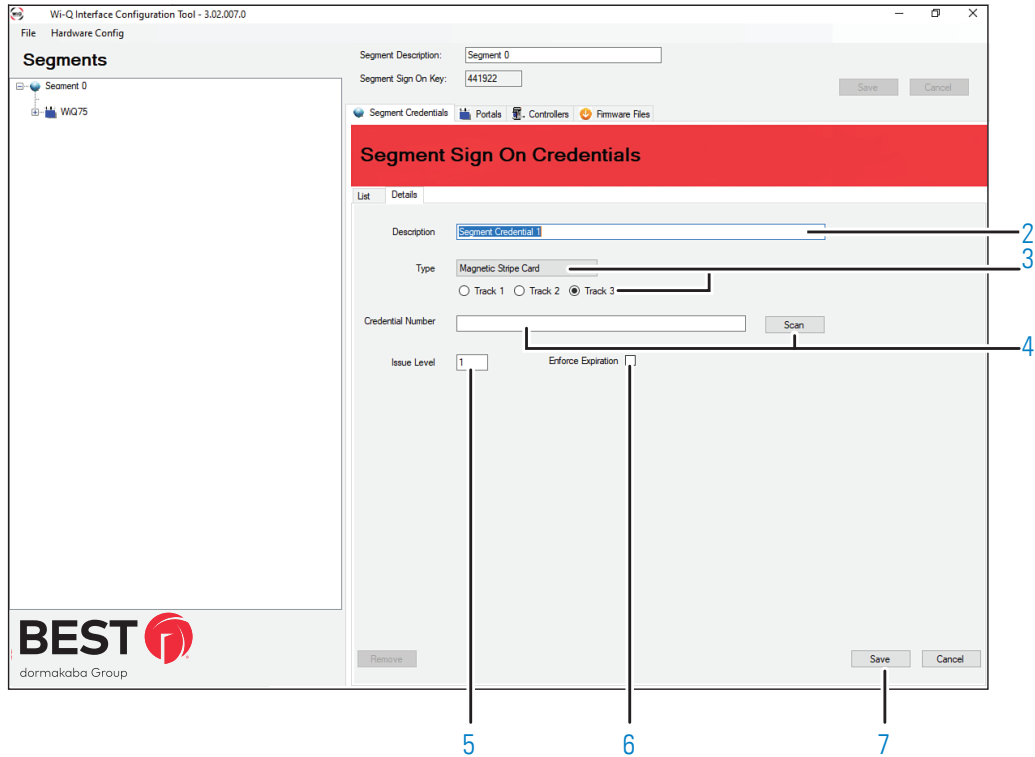


Figure 53 Segment Sign On Credentials



- 2 Enter a unique description in the Description field.
- 3 Select an option from the Type dropdown menu. If you've selected Magnetic Stripe Card, select the corresponding Track location.
- 4 Enter a credential number in the Credential Number field, or attach a USB card reader, press Scan, and scan the card with the reader.
- 5 Enter an issue code in the Issue Level field (if applicable).
- 6 If needed, check the Enforce Expiration checkbox to enforce an expiration date.
- 7 Select Save. This will trigger your Wi-Q Gateway(s) to download the saved information.

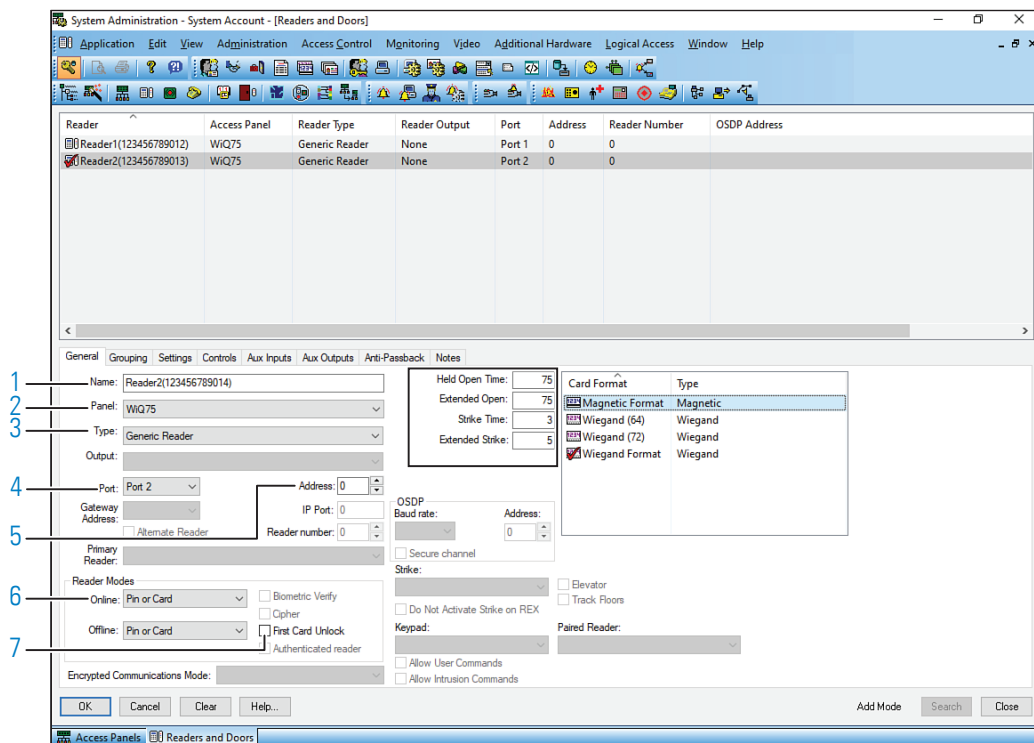
To sign on your card readers, see "Sign on Controllers (Task 9)" on [page 32](#). Once you've signed on your Wireless Controllers, they will be visible in the Wi-Q Interface Configuration Tool Segment tree and Controllers tab.

Now, you can set up your Wireless Controllers in the Reader and Doors Module of System Administration.

Add Signed On Wireless Controllers to Readers and Doors

The Wi-Q Interface supports a maximum of 64 controllers per Wi-Q Gateway. Wi-Q supports a maximum of 64 controllers per panel. Perform the following steps to add your Wireless Controllers into OnGuard (Figure 54). See the System Administration User Guide for more information on Readers and Doors.

Figure 54 Readers and Doors



- 1 In the Name field, enter a name for your Controller. The name must contain the MAC Address of the Controller within parenthesis (). For example: Upstairs IT Closet (123456780006)
- 2 From the Panel dropdown, select the Wi-Q Gateway to which the Controller is being assigned.
- 3 From the Type dropdown, select Generic Reader.
- 4 From the Port dropdown, select a unique port number (if needed).
- 5 In the Address field, provide a unique address (if needed).
- 6 In the Online field, under Reader Modes, select a default reader mode.
- 7 Select First Card Unlock to enable this mode. Doors configured with first card unlock will not unlock until valid personnel presents their card.

- 8 Select a Card Format to use. Even if you are using a keypad pin for sign-on you must select a Card Format.
- 9 Select OK to create the Reader.

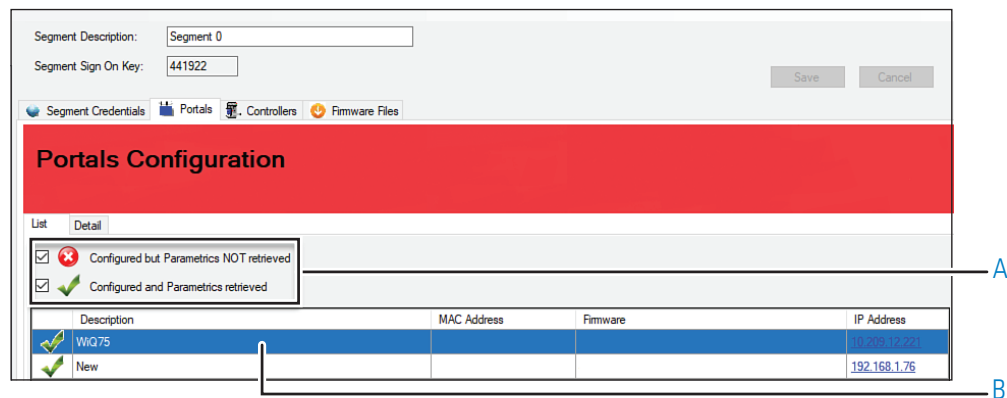
Configure Wi-Q Gateways and Controllers in Wi-Q Interface Configuration Tool

Although you already performed most of the Wi-Q Gateway and Controller configuration in OnGuard, additional configuration options can be found in the Wi-Q Gateways and Controllers tabs inside the Wi-Q Interface Configuration Tool.

Portals Tab

The Portals List tab displays a list of BEST® Wi-Q Gateways along with their MAC address and current firmware version (Figure 55). The Status Legend (Item A) shows the two levels of configuration that exist for Wi-Q Gateways: (1) Configured but parametrics NOT retrieved (2) Configured and parametrics retrieved. Clicking the checkboxes next to the icons in the Status Legend will display Wi-Q Gateways matching those configurations in the Portals List (Item B) below.

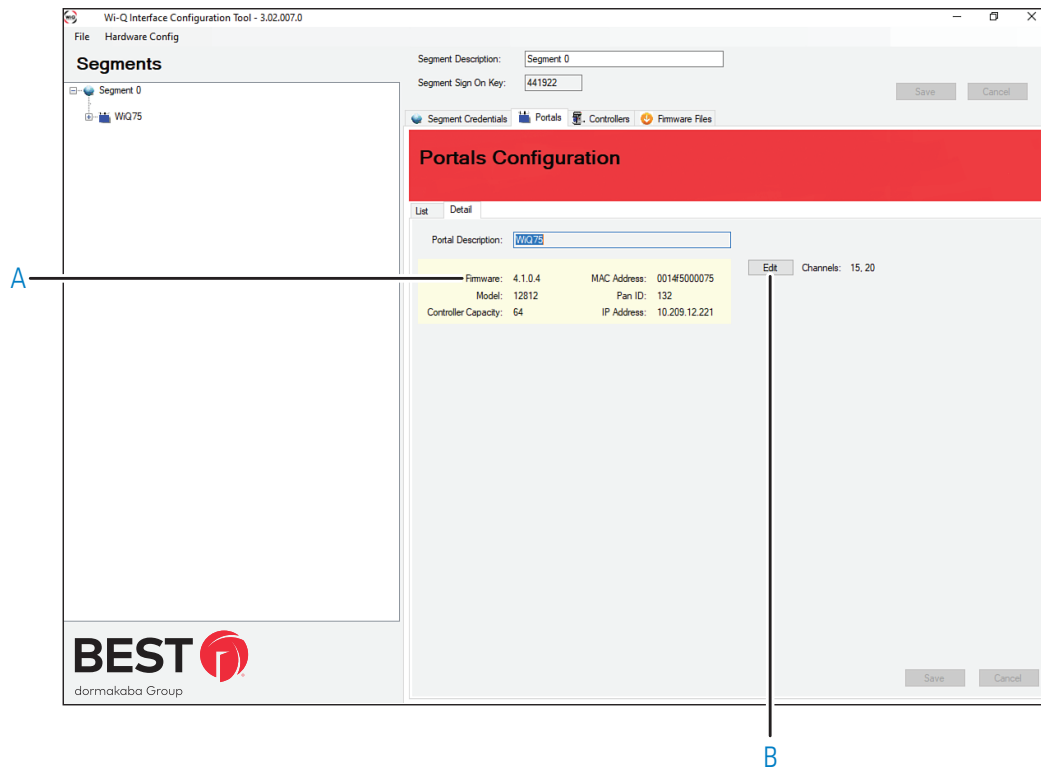
Figure 55 Portals List Tab



Note The options to Navigate, Delete and Reset the Wi-Q Gateway become available when you right-click on it within the segment tree.

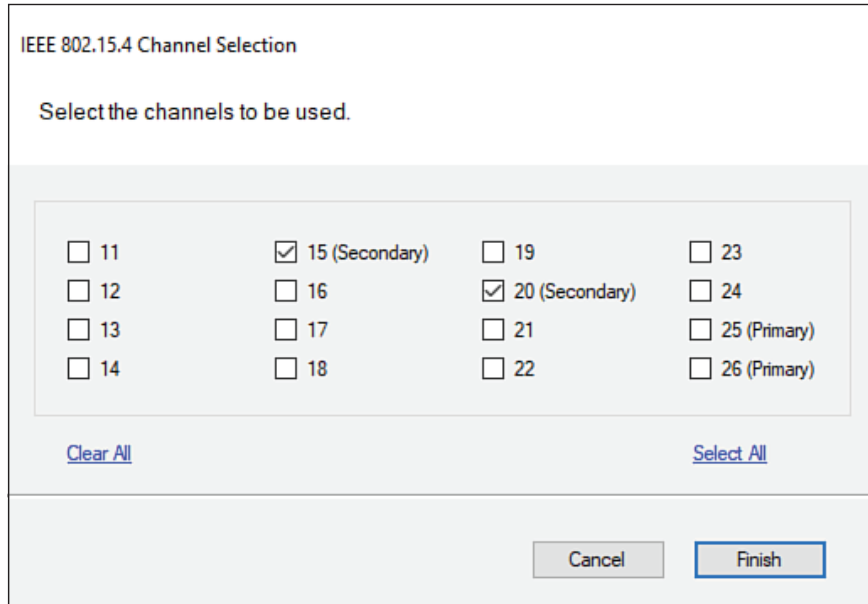
Clicking on the Description for a given Wi-Q Gateway displays detailed information about it in the Details tab ([Figure 56](#)).

Figure 56 Portals Detail Tab



The Details box (Item A) displays the selected Wi-Q Gateway's Firmware version, Model number, Controller Capacity, MAC Address, and Panel ID. Clicking on Edit (Item B) will open the Channel Selection window ([Figure 57](#)).

Figure 57 Portals Channel Selection Window



The dialog box is titled "IEEE 802.15.4 Channel Selection" and contains the instruction "Select the channels to be used." It features a grid of 16 checkboxes for channels 11 through 26. Channels 15 and 20 are checked and labeled as "Secondary". Channels 25 and 26 are labeled as "Primary". Below the grid are "Clear All" and "Select All" links. At the bottom are "Cancel" and "Finish" buttons.

Channel	Selected	Type
11	<input type="checkbox"/>	
12	<input type="checkbox"/>	
13	<input type="checkbox"/>	
14	<input type="checkbox"/>	
15	<input checked="" type="checkbox"/>	Secondary
16	<input type="checkbox"/>	
17	<input type="checkbox"/>	
18	<input type="checkbox"/>	
19	<input type="checkbox"/>	
20	<input checked="" type="checkbox"/>	Secondary
21	<input type="checkbox"/>	
22	<input type="checkbox"/>	
23	<input type="checkbox"/>	
24	<input type="checkbox"/>	
25	<input type="checkbox"/>	Primary
26	<input type="checkbox"/>	Primary

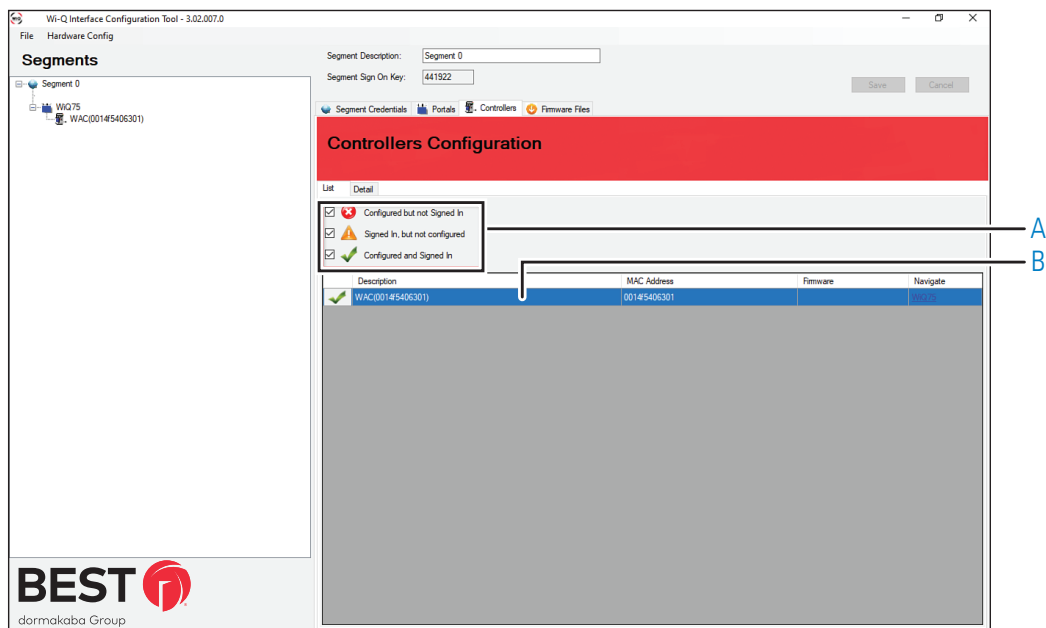
The channels selected for the Wi-Q Gateway must be enabled for the Controller as well. Channels 25 and 26 are selected by default. If you change the channel configuration, select Save to trigger the interface to send the updated information to your wireless hardware.

Controllers Tab

The Controllers List tab displays a list of BEST® Wi-Q Controllers along with their MAC address and current firmware version (Figure 58). Inside the Status Legend (Figure 58, Item A), three levels of configuration exist for Wireless Controllers: 1) Configured but not Signed In (2) Signed In, but not configured and (3) Configured and Signed In. Clicking the checkboxes next to the icons in the Status Legend will display Controllers matching those configurations in the Controllers list (Item B) below.

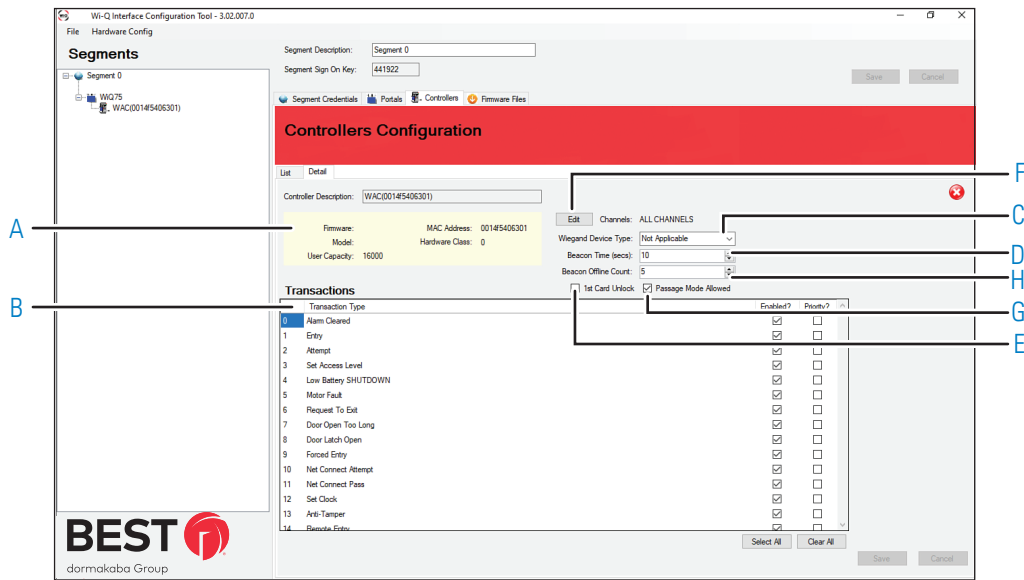
Note Controllers are locked to a Wi-Q Gateway the first time they are signed into the system. They can be forced to another Wi-Q Gateway using the Wi-Q Interface Configuration Tool if needed. See “Moving a Controller to a Different Wi-Q Gateway” on [page 84](#).

Figure 58 Controllers List Tab



Clicking on the Description for a given Controller displays detailed information about it in the Details tab (Figure 59).

Figure 59 Controllers Detail Tab



The Details box (item A) displays the selected Controller’s Firmware version, Model number, User Capacity, MAC Address, and Hardware Class.

The Transactions list (item B) allows transactions to be filtered and prioritized. The Enabled column enables/disables the transaction at the controller level, so if the checkbox is not checked, transactions of that type will not be sent. The Priority column enables/disables the transaction priority, which indicates whether or not the transaction is sent immediately or on the next beacon cycle. For a comparison chart of terms used here and in Alarm Monitoring, see “Events/Transactions” on [page 96](#).

The Wiegand Device Type field (item C) is only applicable to WACs and can be set to Proximity, Magnetic or Smart Card.

The Beacon Time (Item D) is the rate at which controllers send signals to Wi-Q Gateways to look for updates and send transactions. The value set to 60 seconds by default. The setting of this value directly affects the battery life of the controller.

The 1st Card Unlock checkbox (Item E) allows the controller to unlock the door when the first valid badge is presented to the controller. If you enable this feature, it must also be enabled in Readers and Doors. See "Add Signed On Wireless Controllers to Readers and Doors" on [page 77](#).

Selecting Edit (Item F) opens the Channel Selection window ([Figure 60](#)).

Figure 60 Controllers Channel Selection Window

IEEE 802.15.4 Channel Selection			
Select the channels to be used.			
<input type="checkbox"/> 11	<input checked="" type="checkbox"/> 15 (Secondary)	<input type="checkbox"/> 19	<input type="checkbox"/> 23
<input type="checkbox"/> 12	<input type="checkbox"/> 16	<input checked="" type="checkbox"/> 20 (Secondary)	<input type="checkbox"/> 24
<input type="checkbox"/> 13	<input type="checkbox"/> 17	<input type="checkbox"/> 21	<input type="checkbox"/> 25 (Primary)
<input type="checkbox"/> 14	<input type="checkbox"/> 18	<input type="checkbox"/> 22	<input type="checkbox"/> 26 (Primary)

[Clear All](#) [Select All](#)

Cancel Finish

The channels selected for the controller must be enabled at the Wi-Q Gateway as well. See "Portals Tab" on [page 78](#). Channels 25 and 26 are selected by default. If you change the channel configuration, select Save to trigger the interface to send the updated information to your wireless hardware.

Segment Tree Right-Click Options

Right-clicking on items from within the Wi-Q Interface Configuration Tool Segment tree provides the following additional options.

- Segment > Delete: Allows a Segment to be deleted if no Portals or Controllers are associated with it
- Portal > Reset: Resets the Wi-Q Gateway.
- Portal>Navigate: Opens up the webpage of the WiQ Gateway. For Wi-Q Gateway, login credentials is required to view the gateway configuration details.
- Controller>Navigate: Opens up the webpage of the Wi-Q Gateway that the controller is assigned to.
- Controller > Reset: Resets a Controller
- Controller > Deep Reset: Sends a deep reset to the Controller and returns it to its factory default state.
- Controller > Remove Association with Wi-Q Gateway: Disassociates a Controller from a Wi-Q Gateway. The Controller must be signed back in if it must be reassociated with the Wi-Q Gateway.
- Controller > Unlock Association with Wi-Q Gateway: Unlocks the Controller from the Wi-Q Gateway to which it is currently assigned. This option does not automatically remove it from the Wi-Q Gateway.
- Controller > Lock Association with Wi-Q Gateway: Locks a Controller to a Wi-Q Gateway. Selecting this option will bring up a Wi-Q Gateway dropdown list.

Moving a Controller to a Different Wi-Q Gateway

If you need to move a Controller to a different Wi-Q Gateway, perform the following steps:

- 1 Right-click on the Controller in the Segment Tree, and select Lock Association with Wi-Q Gateway.
- 2 Select the desired Wi-Q Gateway from the dropdown list and click OK. It can take up to 60 seconds for the message to be sent to the hardware and for the Controller to become locked to the desired Wi-Q Gateway.
- 3 In Alarm Monitoring, you will see that the Controller will fall offline beneath the Wi-Q Gateway to which it was originally associated.
- 4 Once the controller goes offline in Alarm Monitoring, delete the Controller from the Readers and Doors module.

Note You must wait to delete the Controller from OnGuard until after it goes offline in Alarm Monitoring. Failure to wait will result in a deep reset being sent to the Controller.

- 5 Add a new Controller in the Readers and Doors module, and assign it to the desired Wi-Q Gateway (Access Panel dropdown list).
- 6 Wait for the changes to be communicated to the system hardware, and then check that the Segment Tree reflects your update.

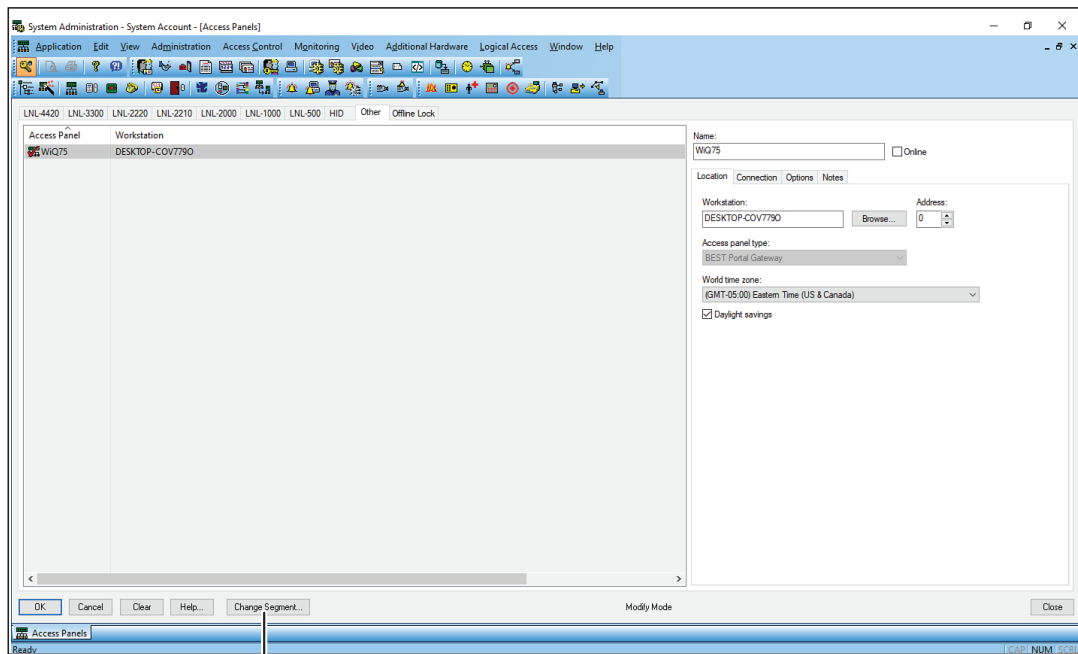
Moving a Wi-Q Gateway to a Different Segment

If you need to move a Wi-Q Gateway to a different Segment, perform the following steps in System Administration:

- 1 Make sure that you have segmentation enabled in (Administration > Segments > Segment Options).
- 2 Add additional segments as needed. See the System Administration User Guide for more information on adding segments.
- 3 In the Access Panels module, navigate to the Wi-Q Gateway that must be relocated. Click Modify.
- 4 Uncheck the Online checkbox next to the Name field.
- 5 Press OK and wait for the Wi-Q Gateway to go offline in Alarm Monitoring.
- 6 Once the Wi-Q Gateway is offline, click Modify on the Wi-Q Gateway again.

- 7 Click on Change Segment and select the segment to which the Wi-Q Gateway must be moved. [See Figure 61.](#)

Figure 61 Change Segment



Change Segment

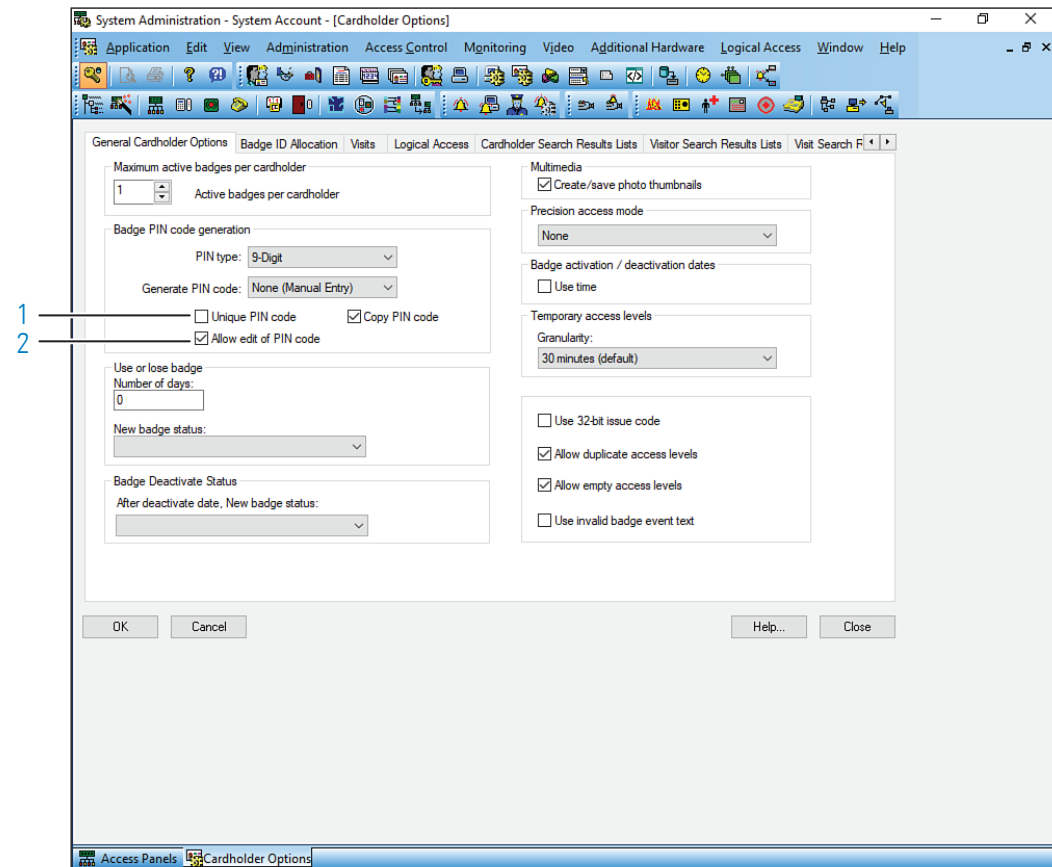
- 8 Check the Online checkbox again so that the Wi-Q Gateway will go back online.
- 9 When finished, click OK.

System Administration: Additional Notes

The following sections provide additional configuration information for System Administration.

Cardholder Options

Figure 62 Cardholder Options



Due to the translation of badges and PINs between OnGuard and Wi-Q, you must select the Unique Pin Code option (Figure 62, Item 1).

If Allow Edit of PIN Code is enabled (Item 2), see “Changing PIN values” on page 93.

Card Formats

The following card formats are supported by Wi-Q hardware within the OnGuard System:

- Magnetic
- Wiegand
- Smartcard
- I-Class Card

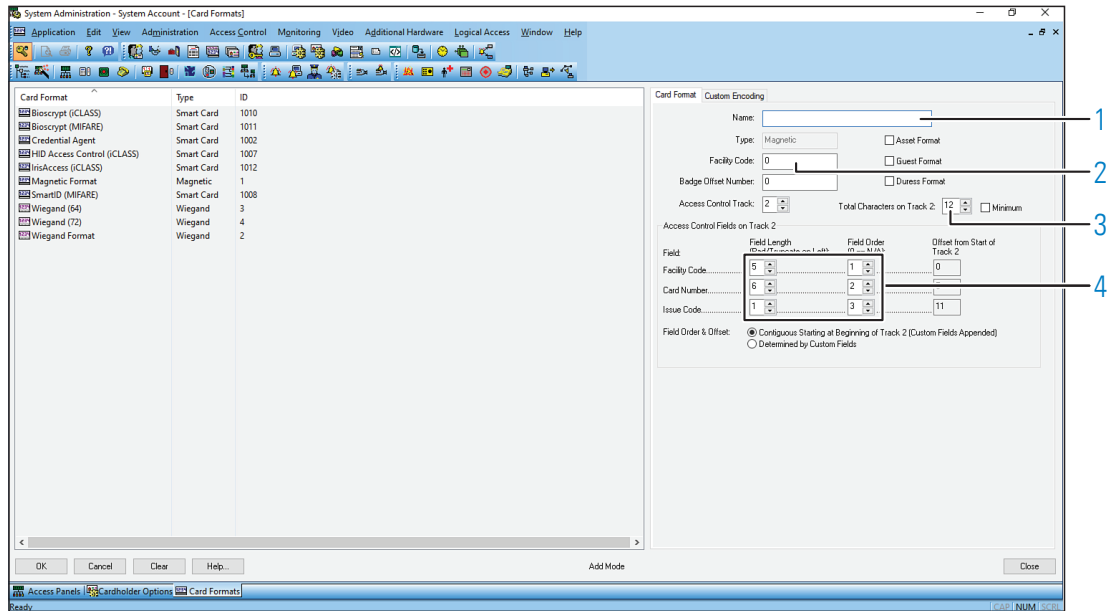
Note Smartcards and I-Class cards are configured in standard fashion in OnGuard, but Wi-Q hardware will recognize them as Wiegand format cards

All card formats supported by Wi-Q hardware must have IDs that range between 1 and 8. Wi-Q card formats match standard card formats. See the System Administration User Guide for more information on Card Formats.

If you need to add a new Magnetic card format or modify an existing one for your Wi-Q hardware in your existing OnGuard system, make sure to provide the following information ([Figure 63](#)).

Magnetic Card Format

Figure 63 Magnetic Type Card Format Configuration



1 Name

Provide a unique name for your application.

2 Facility Code

Add your facility code.

3 Total Characters on Track X

Set this to the number of characters on the given track.

Note This field corresponds with the track number in the Access Control Track field.

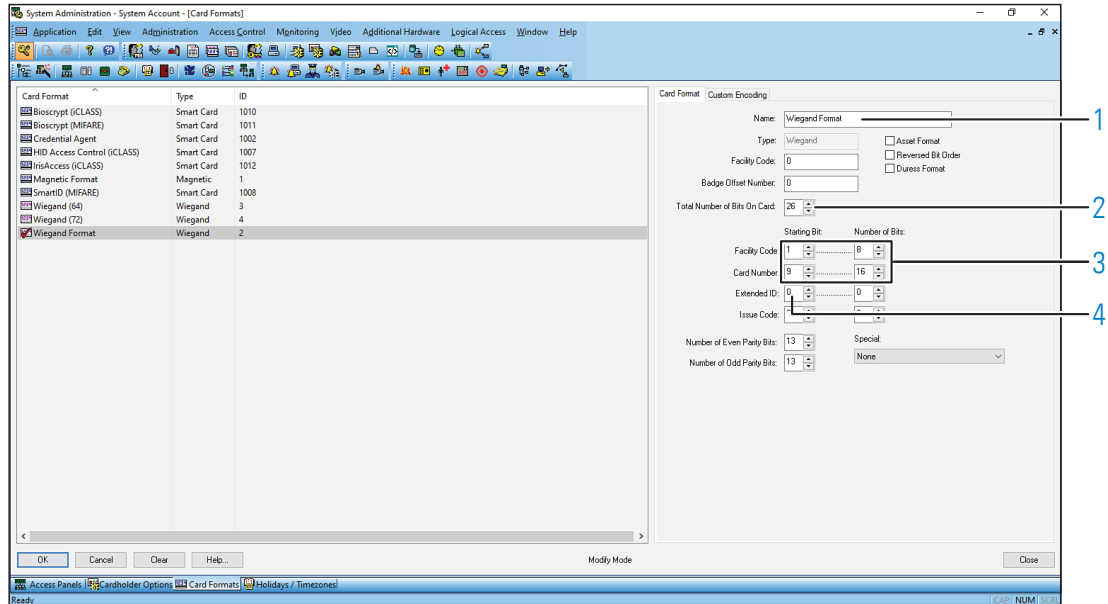
4 Field Length and Field Order

Fill in these fields for Facility Code, Card Number, and Issue Code.

Wiegand Card Format

If you need to add a new Wiegand card format or modify an existing one for your Wi-Q hardware in your existing OnGuard system, make sure to provide the following information (Figure 64).

Figure 64 Wiegand Type Card Format Configuration



1 Name

Provide a unique name for your application.

2 Total Number of Bits on Card

Change this field to the number of bits used.

3 Starting Bit and Number of Bits

Fill in these fields for Facility Code and Card Number

Note A Starting Bit offset is not required.

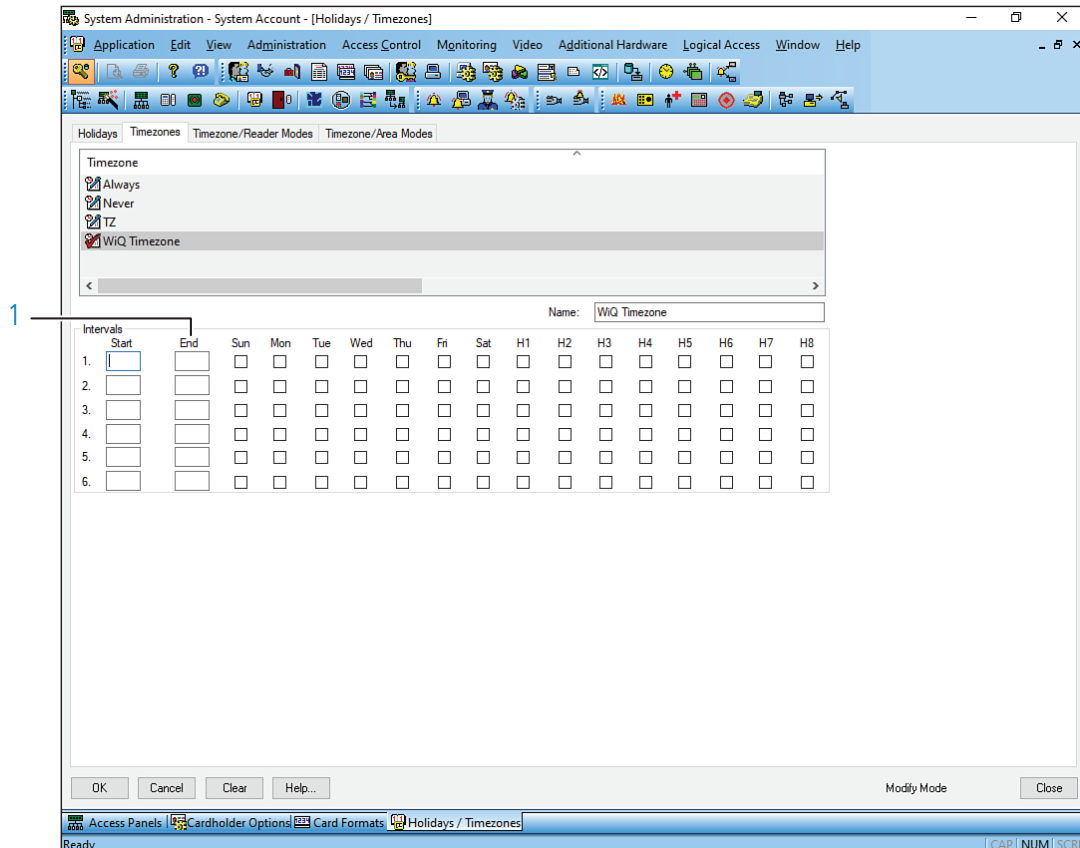
4 Issue Code

This field is not supported by Wi-Q hardware.

Timezones

See the System Administration User Guide for more information on setting up Timezones.

Figure 65 Timezones



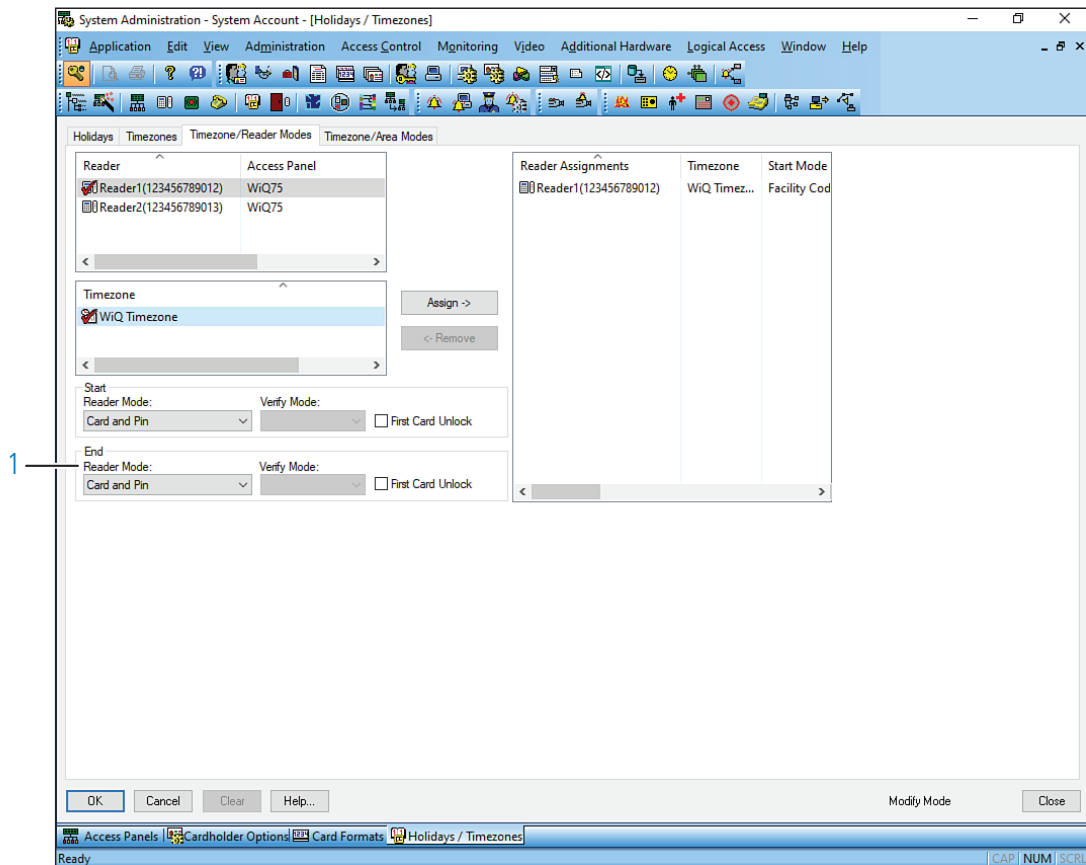
1 End

OnGuard only allows hours and minutes to be set. The Wi-Q Interface appends 0 seconds to the start and end times, with the exception of 23:59, which translates to 24:00:00.

Timezone/Reader Modes

See the System Administration User Guide for more information on timezone reader modes.

Figure 66 Timezone/Reader Modes



1 End Reader Mode

This feature is not supported by Wi-Q Interface. The controller will default back to the online reader mode set in the Readers and Doors configuration.

Cardholders

See the System Administration User Guide for more information on cardholders.

Figure 67 Cardholders

System Administration - System Account - [Cardholders: Adding All]

Application Edit View Cardholder Administration Access Control Monitoring Video Additional Hardware Logical Access Window Help

Cardholder Badge Access Levels Authorized Credential Device Owner Biometrics Visits Assets Directory Accounts Logical Access

Last name: Williams First name: Richard Middle name:

Cardholder ID: Badge type: Employee

Badge ID: 12345 Issue code: 0 Activate: 4/30/2020

Status: Active Deactivate: 4/30/2025

Embossed: PIN: Use limit:

Use extended strike/held times APB exempt Destination exempt

Allow access to: Last changed: Last printed:

Passage mode Deadbolt override Toolkit

Badge ID: Issue code: Prints: Activate: Deactivate:

OK Cancel Clear Clear All Capture Import

Person type: Cardholder

Readers and Doors Cardholders: Adding All

Adding All

Activate Date (1) is not supported by BEST® Wi-Q Hardware.

Changing PIN values

If Allow Edit of PIN Code is enabled in Cardholder Options (Figure 62), perform the following steps when changing the PIN value in order to have the old PIN removed from the controller:

- 1 Navigate to the Cardholders screen in System Administration (See Figure 67). Select the Badge tab, and click Modify for the badge on which you're changing the PIN.
- 2 From the Status dropdown list, select Lost. Then, click OK. This will trigger a "Delete Badge" event and remove the badge from all associated controllers. You must wait for an "Updated Credential Parameters" event to display in Alarm Monitoring application occur for each controller to ensure that the badge has been completely deleted.

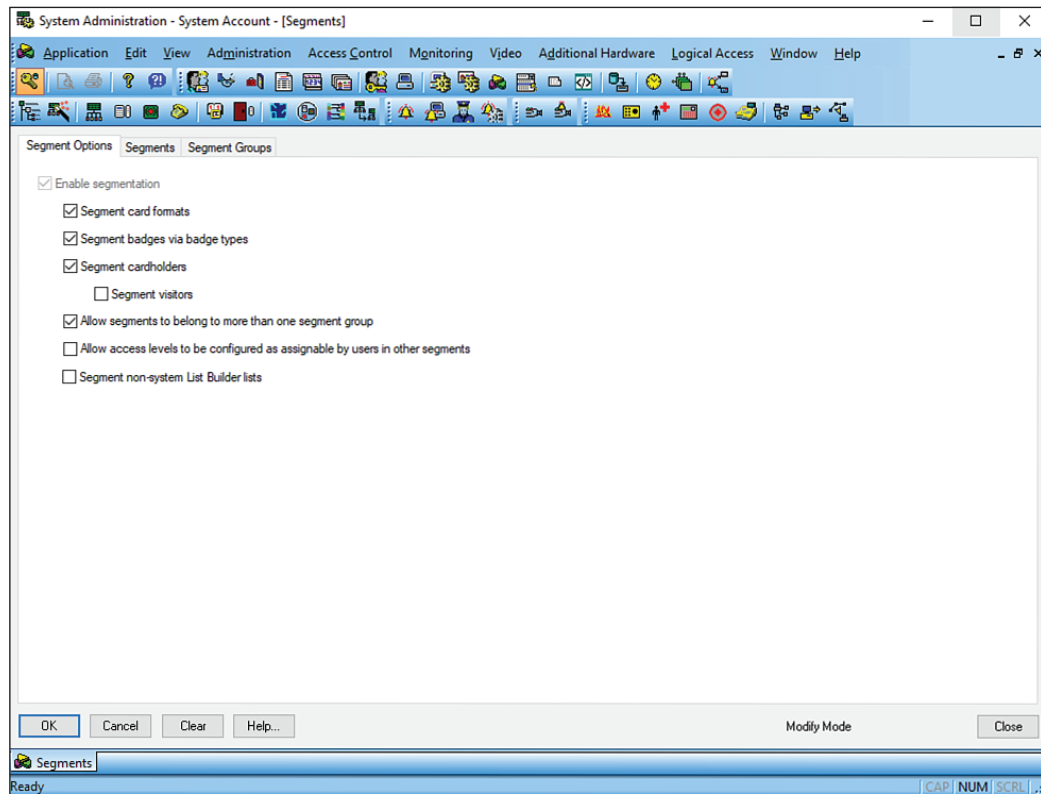
- 3 Once this has occurred, change the PIN value. Then, select Active from the Status dropdown list and click OK. The badge and new PIN will now be added to the associated controllers.

Note You must change the PIN value before you click OK. Failure to do so will cause the old PIN to be sent back to the controllers.

Segments

See the System Administration User Guide for more information on segments.

Figure 68 Segments

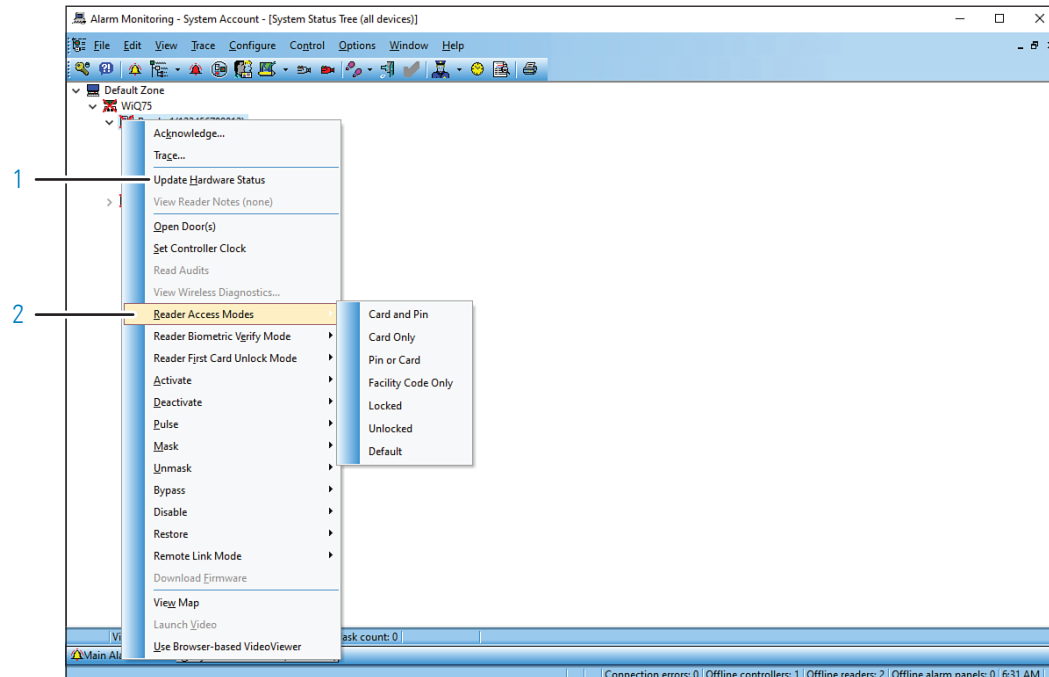


The boxes checked in [Figure 68](#) are the only configurations supported by BEST® Wi-Q. Other configurations may yield unexpected system behavior.

Alarm Monitoring

Alarm Monitoring receives events from BEST Wi-Q hardware. See Items 1 and 2 below for Alarm Monitoring features that are tailored for Wi-Q hardware. Consult the Alarm Monitoring User Guide for additional information.

Figure 69 Alarm Monitoring



1 Update Hardware Status

This option is available when right-clicking on a Controller or Wi-Q Gateway in the System Status Tree. Update Hardware Status will retrieve the current status of the selected Wi-Q Gateway or Controller (online or offline), and it will retrieve the current access mode of the selected Controller.

2 Reader Access Modes

Selecting a Reader Access Mode in Alarm Monitoring will override the Controller's access mode.

Note A change in timezone will force the Controller back to its default state.

Events/Transactions

The terms used for events in Alarm Monitoring differ from the terms used for transactions in the Wi-Q Interface Software Controllers Tab. The following chart compares these terms.

Table 6. Wi-Q Event/Transaction Comparison

Wi-Q Event/Transaction Comparison			
Event Name	Wi-Q Transaction Name	Generic Message Text	Description
Door Forced Open Canceled	Alarm Cleared		The door status contact was in alarm mode and has been returned to the normal state when the door is closed.
Access Granted	Entry		Normal entry
Invalid Badge	Attempt		Attempt was made but the badge is invalid
	Set Access Level		System Access level changed
Reader Low Battery	Low Battery SHUTDOWN		Batteries are too low to operate the controller board. Controllers will enter the failed low battery shutdown state at 4.3V.
	Motor Fault	Motor Failure	Motor failure at the door
Request to Exit	Request To Exit		Handle depressed and door opened without motor operation
Door Held Open	Door Open Too Long		Door switch monitor open at end of shunt time
Door Contact Tamper	Door Latch Open		Latch monitor open at end of shunt time
Door Forced Open	Forced Entry		Door switch monitor open with no REX or shunt
	Net Connect Attempt	Sign on attempt	Network connection was attempted (5678) or card
	Net Connect Pass	Sign on success	Controller associated with portal
	Set Clock	Set Clock	The date and time have been set at the controller. This is determined by the communication server's date and time.
	Anti-Tamper	Anti-Tamper	Maximum invalid attempts (6) has been reached
Valid Remote Access	Remote Entry		Remote entry through the door
Key Override	Key Bypass		Key was used to open door
Reader Low Battery	Low Battery		Controller battery is getting low
Access Granted on Facility Code	Entry Facility Code		Card user entered on segment match
	Toggle Unlock	Access Granted — Toggle Access Level Entry to Unlock	Toggle access level entry to unlock
	Toggle Lock	Access Granted — Toggle Access Level Entry to Lock	Toggle access level entry to lock
Access Granted	Entry Group Valid		Time zone group enabled
	Entry System	Access Granted — The system caused an entry	The system caused a entry (override at controller level)
	Issue Code Update Needed	Access Granted — Issue code advanced on entry	User issue code advanced on entry
	Entry with Low Battery	Access Granted — Low Battery	Allowed access with low battery warning in effect
Invalid PIN Number	Failed Invalid PIN		Access denied due to invalid pin
Invalid Facility Code	Failed Facility Code		Access denied due to invalid facility code

Wi-Q Event/Transaction Comparison

Event Name	Wi-Q Transaction Name	Generic Message Text	Description
Invalid Issue Code	Failed Issue Code		Access was not granted due to the issue code being out of range from what the device was expecting to see. For example, the issue code on the badge is 4 but the Reader is expecting 1.
Inactive Badge	Failed Card Expired		Access denied due to expired badge
Access Denied	Failed Invalid Card		The badge is not assigned to an access level that grants access to this door or during the time interval.
Invalid Access Level	Failed Group Violation		The badge has access to the reader via a timezone controlled group assignment but has tried the card outside of permitted timezone.
Denied Low Battery	Failed Low Battery Shutdown		Low battery shutdown in progress
Denied Low Battery	Failed Low Battery Warning		Batteries are too low to operate the controller board. If the battery voltage falls below 4.3V then the controller will delay entry and make a sound. If the battery voltage falls below 3.6 volts then the controller will go into alarm mode and deny entry.
Inactive Badge	Failed Expired Credentials		Access denied due to expiration date on credential
	Group Level Change Enabled	Access Level Enabled	Group Access level changed
	Group Level Change Disabled	Access Level Disabled	Group Access level changed
	Update User Parameters	Updated credential parameters	This unit has updated its Users
	Update Facility Parameters	Updated segment information	The unit has received the segment information.
	Update Timezones	Updated timezones	This unit has updated its Timezones
	Update Input Points	Updated I/O	This unit has updated its I/O
	Update Card Formats	Updated card formats	This unit has updated its Formats
	Update Configuration	Updated controller configuration	This unit has updated its Controller Configuration.
Reader Module Firmware Upgraded	Reader Firmware Update		Controller firmware has been updated
Door Held Open Canceled	Clear Door Open Too Long		Clear a door open too long alarm
Door Forced Open Canceled	Clear Forced Entry		Clear a forced entry alarm
Door Contact Tamper Canceled	Clear Latch Stuck		Clear a door latch stuck alarm
	Input Point — Normal	I/O input triggered with importance of normal	I/O input triggered with importance level of normal
	Input Point — Warning	I/O input triggered with importance of warning	I/O input triggered with importance level of warning
	Input Point — Alarm	I/O input triggered with importance of alarm	I/O input triggered with importance level of alarm
	DLP Supervision Fault	Door contact supervised input is faulted	Door latch position supervised input is faulted
	DPS Supervision Fault	Door position supervised input is faulted	Door position switch supervised input is faulted

Wi-Q Event/Transaction Comparison

Event Name	Wi-Q Transaction Name	Generic Message Text	Description
	REX Supervision Fault	Request To Exit supervised input is faulted	Request to exit supervised input is faulted
	KEY Supervision Fault	Key detect supervised input is faulted	Key detect supervised input is faulted
	Using Battery As Power Source	External Power Source	This unit has switched Power sources: external to battery power
	Using External Power Source	Battery Power Source	This unit has switched Power sources: battery to external power
	Bootloader Active	Bootloader Status	Contact Stanley Technical Support, and provide code and description.
	Firmware Update Failed	Firmware update failed	Contact Stanley Technical Support, and provide code and description.
	Set Preferred Portal Passed	Set preferred portal passed	A command to change Wi-Q Gateways was sent and the change was successful
	Set Preferred Portal Failed	Set preferred portal failed	A command to change PGs was sent and change failed
	Near User Capacity	Number of badges is nearing maximum allowed	75% of of 333 user overflow pages are assigned
	User Capacity Reached	Number of badges has reached maximum allowed	0 user overflow pages are available
	FIPS140 Connected	FIPS 140 connected	FIPS140 mode enabled and connected to FIPS140 PG

Firmware Updates

Firmware updates will be sent to you periodically by dormakaba Technical Support. You can upload these firmware files to your database by using the Firmware Files Tab in the Wi-Q Interface Configuration Tool. Then, you can Use the Firmware Reprogram feature inside the Configuration Tool to send the files to your wireless hardware. This section will guide you through the firmware update process.

Firmware File Types

Every Controller has two firmware files:

- **Application File:** Software that provides the access control decision-making functionality on a Controller
- **Bootloader File:** Software that executes the reprogramming session on the Controller

The application file is what is typically reprogrammed by the BEST Team, but it is possible that the bootloader file will require reprogramming as well. Controller firmware files will always have a “.binhe” file extension.

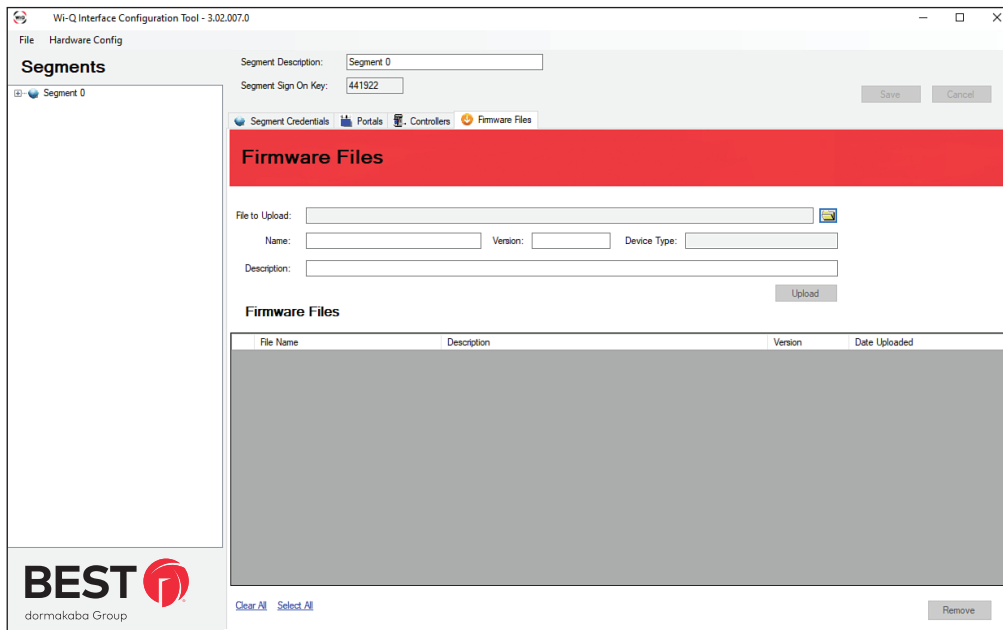
For Wi-Q Gateways, only one file is required for reprogramming, and the file name begins with the version number and ends with “image.bin.gzhe.”

Firmware Files Tab

Click on the Firmware Files tab in the Wi-Q Interface Configuration Tool, and perform the following steps to upload firmware files to your database.

- 1 Click on the Folder Icon to the right of the File to Upload field and browse to the location of your firmware files. [See Figure 70.](#)

Figure 70 Firmware Files Tab



- 2 If you are uploading a Controller firmware file, the firmware name, version number and device type are automatically populated.

If you are uploading a WiQ Gateway firmware file, the firmware name, version number and device type are automatically populated.

Note The version number of a Wi-Q Gateway firmware file is visible in the path to the file.

- 3 Provide a unique description of the firmware file in the Description field. If you are uploading a Controller firmware file, it is recommended that you build either "Boot" or "Application" into your description name, depending on the file type.
- 4 Click Upload. The files will then be added to the list of Firmware Files below and added to your database.

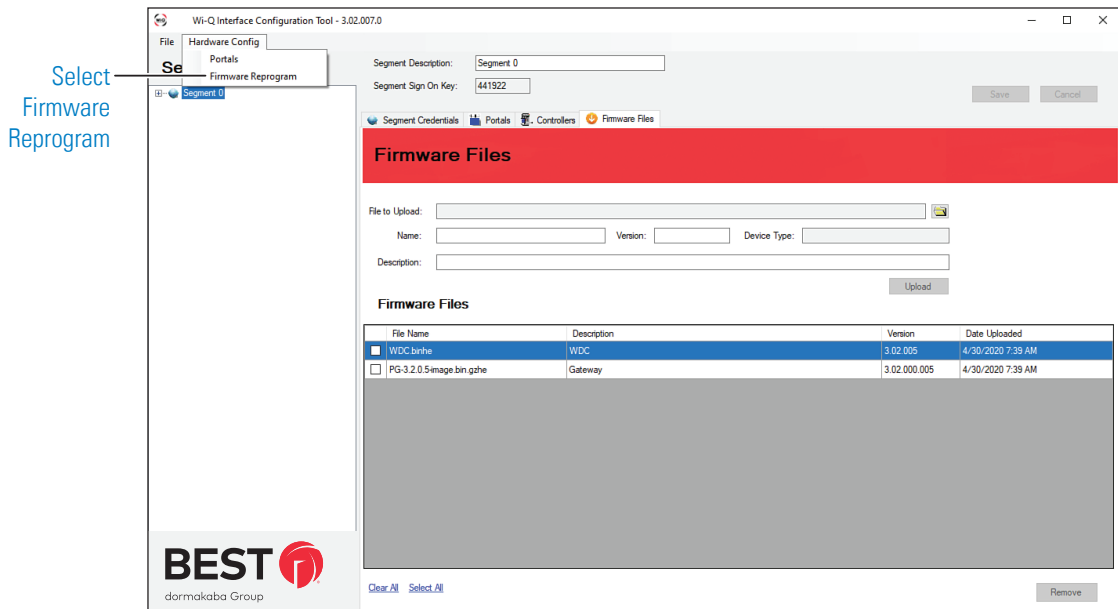
To avoid confusion between updates, it is recommended that you only keep the latest firmware files in your list. To remove older files, select the file (Check the checkbox of the file) you wish to delete and click on Remove.

Firmware Reprogram

Before you can reprogram your hardware, you must turn your Wi-Q Gateway offline in Access Panels of OnGuard application and then confirm that it is offline in Alarm Monitoring. Once your Wi-Q Gateway is offline, you are ready to reprogram your hardware with the latest firmware files. Perform the following steps.

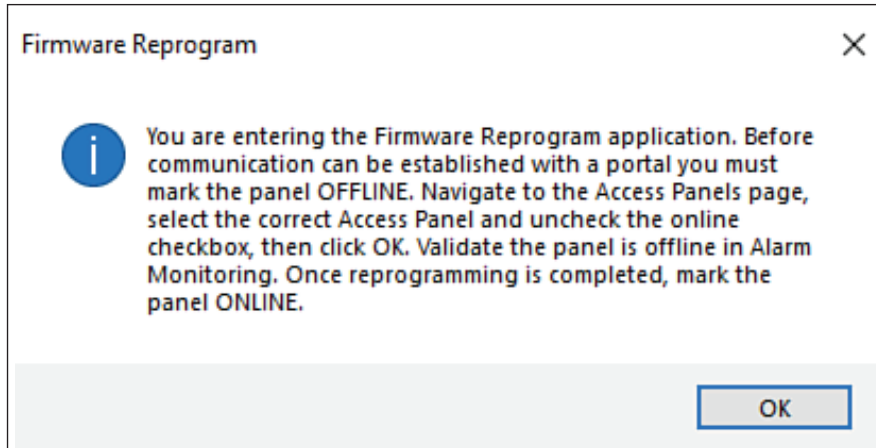
- 1 Inside the Configuration Tool, click on Hardware Config at the top left of the screen and select Firmware Reprogram. [See Figure 71.](#)

Figure 71 Navigate to Firmware Reprogram



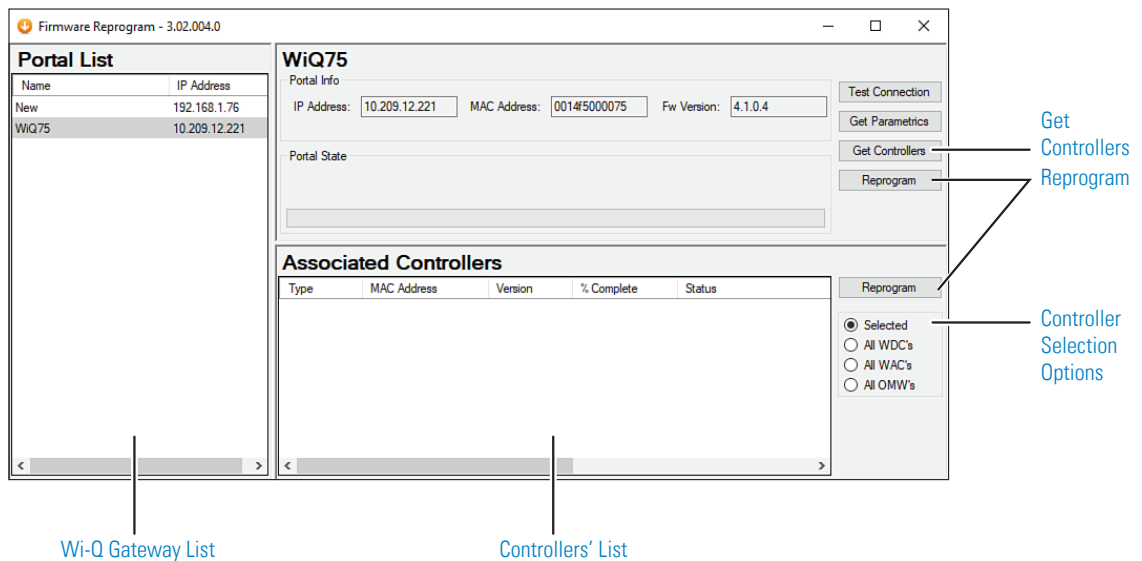
- 2 The following message will pop up to remind you that your Wi-Q Gateways must be turned offline in OnGuard. If you have not done so already, mark them offline and confirm that they are off in Alarm Monitoring. Then click OK.

Figure 72 Reminder message to turn Wi-Q Gateways offline



- 3 The Firmware Reprogram window will open. A list of all Wi-Q Gateways in your system is located on the left side of the screen. Selecting a Wi-Q Gateway will change the top section of the window to show the selected Wi-Q Gateway's IP address, MAC address and current firmware version. [See Figure 73.](#)

Figure 73 Firmware Reprogram



- 4 **If you are reprogramming a Wi-Q Gateway**, select the Portal and click Reprogram. You may reprogram multiple Portals simultaneously, but you must select them individually and click on Reprogram for each one.

If you are reprogramming a Controller, select the Portal that your Controller is associated with and click Get Controllers. A list of online Controllers associated with

your Portal is generated at the bottom of the screen. If a Controller is offline, it will not show up in the list. Choose your selection option on the right. Then click Reprogram.

Note You can only reprogram one type of Controller at a time.

5 A window will pop up with a dropdown list of available firmware files. Select your file and press OK.

Note If you are reprogramming both the Bootloader and Application files on a Controller, you must update the Bootloader file first.

6 Hardware reprogramming can take between three and five minutes. Wi-Q Gateway update progress is visible in the Portal State section. Controller update progress and status is visible in the Controllers section.

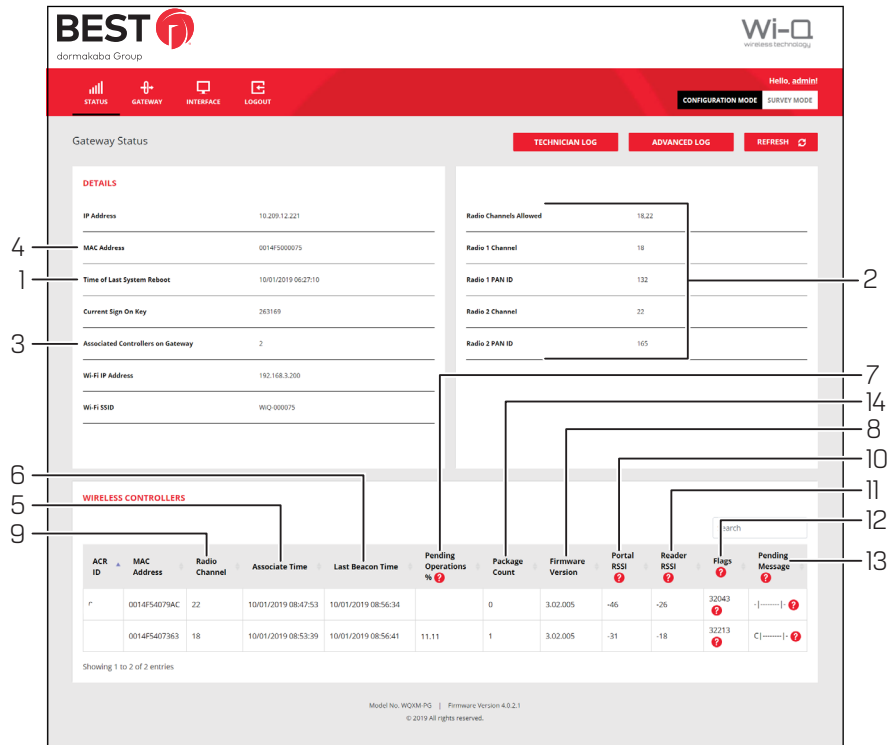
5 Advanced Troubleshooting

This section provides an overview on the Wi-Q Gateway status webpage. You can access the status webpage for a specific Wi-Q Gateway in one of two ways:

- Inside the Portal Configuration Module, locate the desired Portal in the list and click on its hyperlink. See Figure 44 on [page 69](#).
- Type your desired Wi-Q Gateway's IP address directly into your internet browser.

Your browser will display the status of your Wi-Q Gateway and associated devices. See [Figure 74](#) on [page 104](#).

Figure 74 Wi-Q Gateway Status Webpage



Clicking on Hyperlink will open the login page of the gateway webpage. You need login credentials to view the status page.

The Wi-Q Gateway Status webpage provides the following information:

- 1 **Time of Last System Reboot**
Last time Wi-Q Gateway was reset or rebooted.
- 2 **Radio and Channel**
Shows the channel associated with each radio in the Wi-Q Gateway.
- 3 **a) Associated Controllers on Gateway in the Details section**
b) Wireless Controllers section will display the complete details of associated controllers
Shows which devices are associated with the Wi-Q Gateway.
- 4 **MAC Address**
Column shows the MAC Address of the Wi-Q Gateway.
- 5 **Associate Time**
Column shows the time that the Controller last associated with the Wi-Q Gateway.

- 6 **Last Beacon Time**
Column shows the time of the last Controller beacon.
- 7 **Pending Operations %**
Column shows progress percentage of pending operations.
- 8 **Firmware Version**
Column shows the firmware version number of associated Controller.
- 9 **Radio Channel**
Column shows which radio the Controller is connecting to in the Wi-Q Gateway. Radio 18 is on the right side of the Wi-Q Gateway and Radio 22 is on the left side of the Wi-Q Gateway.
- 10 **Portal RSSI**
Column shows the signal strength of the Controller as received at the Wi-Q Gateway. This signal strength ranges from -18 (highest) to -91 (lowest).
- 11 **Reader RSSI**
Column shows the signal strength of the Wi-Q Gateway as received at the Controller. This signal strength ranges from -18 (highest) to -91 (lowest).
- 12 **FLAGS**
Column shows the current operational status of the associated device.
- 13 **Pending Message**
Column shows the abbreviation of the message currently in operation.
- 14 **Package Count**
Displays the number of packets being sent to the controller.

Status Flags in the FLAGS Column

The following is a list of the bits in the FLAGS column and their corresponding Wi-Q Gateway status flags and definition.

Note The typical Wi-Q device status code is 00032043. This is the example used in the chart below.

Table 7. Example Chart

Table 7. Bit			Table 7. Wi-Q Gateway Status Flag	Table 7. Definition
Right END	3	Bit 0	CONTROLLER_IS_ASSOCIATED	Set when the Controller is first associated with the Wi-Q Gateway.
		Bit 1	CONTROLLER_IS_VALID	Set during association, after the Wi-Q Gateway receives a beacon from the Controller.
		Bit 2	CONTROLLER_CONFIG_REQUIRED	Set during association, cleared by Wi-Q Gateway Communication Service after Controller configuration.
		Bit 3	CONTROLLER_ASSOC_PENDING_LIF	Set during association to indicate that Wi-Q Gateway requires LIF (Lock Information Frame) data.
	4	Bit 4	CONTROLLER_BEGIN_TRANSMISSION	Set when Wi-Q Gateway first transmits data to the Controller.
		Bit 5	CONTROLLER_DEEP_RESET_PENDING	Wi-Q Gateway must disassociate Controller when it receives the next beacon.
		Bit 6	CONTROLLER_VALID_INTERVALS	Set when Controller interval assignment has been received from the PC Communication Service.
		Bit 7	NOT USED	
	0	Bit 8	CONTROLLER_RETRY_LIMIT_EXCEEDED	Set when the retry limit on any command has been hit; used to limit downloads to firmware only.
		Bit 9	NOT USED	
		Bit 10	NOT USED	
		Bit 11	NOT USED	
	2	Bit 12	NOT USED	
		Bit 13	CONTROLLER_PREFERRED_PG_ENABLED	Set when Controller is locked to the Wi-Q Gateway.
		Bit 14	CONTROLLER_FIRMWARE_PENDING_DN	Set when the firmware commit has been sent to indicate that the disassociation is pending.
		Bit 15	CONTROLLER_FIRMWARE_PENDING	Set when firmware update is scheduled for the Controller, cleared when firmware commit is sent.
	3	Bit 16	CONTROLLER_REPORT_TIME_UPDATED	Set during association and when report time is updated.
		Bit 17	CONTROLLER_LIF_IS_VALID	Set when a LIF beacon is received.
Left END		Bit 18-31	NOT USED	

Update Flags in the PEND Column

At the bottom of the Gateway Status webpage will display the list of associated Wi-Q Controllers and their attributes.

Figure 75 Wi-Q Controllers

WIRELESS CONTROLLERS												
ACR ID	MAC Address	Radio Channel	Associate Time	Last Beacon Time	Pending Operations %	Package Count	Firmware Version	Portal RSSI	Reader RSSI	Flags	Pending Message	
	0014F540D26D	25	10/01/2019 04:41:45	10/03/2019 09:19:26		0	3.02.005	-69	-31	32043	-1-----1	
	0014F540D28B	25	10/01/2019 04:26:21	10/03/2019 09:19:56		0	3.02.005	-70	-70	32043	-1-----1	
	0014F540D270	26	10/01/2019 03:46:56	10/03/2019 09:20:01		0	3.02.005	-66	-38	32043	-1-----1	
	0014F540D2B1	26	10/01/2019 03:57:58	10/03/2019 09:19:29		0	3.02.005	-75	-46	32043	-1-----1	
	0014F540D247	26	10/01/2019 04:01:42	10/03/2019 09:20:22		0	3.02.005	-55	-28	32043	-1-----1	
	0014F540D26C	26	10/01/2019 05:29:43	10/03/2019 09:20:22		0	3.02.005	-53	-23	32043	-1-----1	
	0014F540D26C	26	10/02/2019 10:49:29	10/03/2019 09:20:22		0	3.02.005	-53	-23	32043	-1-----1	
	0014F540D246	26	10/01/2019 04:21:55	10/03/2019 09:20:30		0	3.02.005	-50	-27	32043	-1-----1	

- **ACR ID** – The Reader ID when the Wi-Q Gateway is in Mercury Mode. This field will be blank when Mercury Mode is not in use.
- **MAC Address** – The Reader’s unique Media Access Control address that uniquely addresses the device on the network.
- **Radio Channel** – The channel the door controller is communicating on with the Gateway.
- **Associate Time** – The date and time the Wi-Q Door Controller associated with the Gateway.
- **Last Beacon Time** – The last date and time the Wi-Q Door Controller beamed information up to the Gateway.
- **Pending Operations** – Progress percentage of pending messages from the door controller to the Gateway.
- **Package Count** – The number of pending messages in the current queue that the Gateway has received from the Wi-Q Door Controller.
- **Firmware Version** – The current version of door controller firmware on the Wi-Q Device.
- **Portal RSSI** – Wi-Q Gateway RSSI is the how well the Gateway received a signal from the Wi-Q Door Controller. The signal strength ranges from -18 (highest/best) to -91 (lowest/worst). Ideally, this value should be -75dB or better.
- **Reader RSSI** – Reader RSSI is the how well the Wi-Q Door Controller receives a signal from the Gateway. The signal strength ranges from -18 (highest/best) to -91 (lowest/worst). Ideally, this should be -65dB or better.
- **Flags** – The Flags indicate the device status. Common device statuses for Wi-Q Controllers when they are connected to a Gateway are below:
 - **010001** – Controller initial connection to the Gateway.
 - **30207** – Controller connected to the Gateway and is waiting for segment updates.
 - **30063** – Controller has a deep reset command pending.
 - **30017** – Controller waiting to be pulled into the segment and has not received segment updates.
 - **30007** – Controller has received segment updates and is waiting in the “New Segment Items” folder in Wi-Q AMS Configuration software.
 - **30043** – Controller is signed in to the ACS, connected, configured, and not locked to

the Gateway.

- **30053** – Controller is taking configuration updates.
- **32043** – Controller is signed in to the ACS, connected, configured, and locked to the Gateway.
- **32243** – Controller is locked to Wi-Q Gateway but has not been added to an access level or a direct assignment to a User. No user credentials are assigned to the controller in the software.
- **38053** – Controller has a firmware update pending.
- **38043** – Controller is receiving a firmware update.
- **32207** – Controller completed the firmware update and is waiting for updates from the Wi-Q Gateway.

Pending Messages– The letters in the pending messages column are update messages that are being sent to the controller.

- **S** – Segment information (pin length, DST Times)
- **C** – Card formats
- **L** – Controller configuration (beacon time settings, channels, transaction masks, etc.)
- **U** – User credentials and properties
- **T** – Timezone intervals
- **I** – WAC I/O
- **F** – Firmware
- **P** – Ping (missing LIF data after association or updates)

A Glossary

access level	An access control relationship made between a reader or readers and a time zone or time zones. An access level is assigned to a badge ID for the purpose of granting access through a reader or readers during a specified time.
activation/deactivation date	The date that a credential becomes active or expires.
badge	The credential or token that carries a cardholder's data.
badge ID	Part of the access control information that is encoded to a token. This information, usually numerical, is unique to a particular credential holder.
card format	The way that data is arranged and ordered on the card.
cardholder	An individual who is issued a particular credential.
chassis type	The designation that defines the physical lock type. Three types exist: cylindrical, mortise, or exit hardware. See those terms for more information.
communication server	The server application designed to provide network services to access panels, readers, PCs and PDAs.

credential	A physical token, usually a card or fob, encoded with access control information.
cylindrical	Lock chassis that installs into a circular bore in the door.
directional antenna	An antenna type optimized to focus signal from point-to-point over longer distances and through obstacles.
ethernet	The most common networking standard in the world, formally known as IEEE 802.3.
exit hardware	Lock chassis type that supports exit hardware trim lock.
extended unlock	The extra period of time the lock will unlock when an authorized credential with extended unlock privileges is presented.
guest	A feature that enables you to add and delete cardholders to and from a lock without having to go out to a lock to reprogram it.
Host	the computer on which Wi-Q Interface software is installed and set up to integrate Wi-Q gateways and readers into OnGuard.
IP address	The numeric address (like 192.168.1.1) that identifies each device in a TCP/IP network. input A hardware connection point used for status reporting of a particular sensor.
issue code	Part of the access control information contained on a credential that allows reuse of the badge ID when a credential is lost, damaged, or stolen. Usually one or two digits in length, this code increments forward when creating a new credential. Access is granted only when the badge ID and the issue code match the current database information.
MAC address	The Media Access Control number (MAC). A unique, 12-digit number assigned by the manufacturer of a network device.
mortise	A lock chassis that installs into a mortised cavity in the edge of a door.

omni-directional antenna	An antenna type optimized to provide signal coverage in all directions.
packet	A discrete chunk of data, being transferred on a TCP/IP or other addressable network.
Wi-Q gateway	The Wi-Q Gateway is a wireless device connected to the Host computer through a secure IP address to transfer data signals from wireless reader locks to and from the Host computer.
request to exit	A sensor usually installed on the non-secure side of the door that will mask the door position switch upon activation.
segment code	Part of the access control information that can be encoded to a credential. This information, usually numerical, is unique to a group of credentials. Usually this feature is used to authenticate a credential to a particular organization.
sign-on key	Number generated within Wi-Q Interface Software to establish the connection between the readers and the Wi-Q Gateway, and ultimately to a segment in the software.
site survey kit	The Wi-Q Technology Site Survey Kit tool used to determine optimum Wi-Q Gateway location to verify signal strength before permanently installing the Notes hardware.
time interval	A specific range of time, which corresponds to a particular day or days of the week. A time zone can be comprised of several, individual intervals.
timezone	A defined range of time for assignment to various access control activities. A time zone may be applied to a reader or readers when creating an access level, to a reader to change the mode of operation, to a relay to activate and deactivate, to an input to mask and unmask, and a host of other operations. Dual access The requirement for the presentation of two separate, authorized credentials in order to gain entry through an access controlled opening.

unlock duration

The time that the lock momentarily unlocks. Use limit A configuration limiting a credential to a defined number of uses.

Wi-Q Technology

Provides efficient, online access control decisions at the door.

wireless access controller

Wireless access controller provides additional capability to connect stand-alone controllers and locks.

wireless controller

The wireless lockset that controls user access at the door and grants user requests according to how they are configured in OnGuard.

B Lock installation



Installation Instructions for Wi-Q™ Technology 9KQ Cylindrical Locks

Planning the installation

Contents

These installation instructions describe how to install your 93KQ Cylindrical Lock. Topics covered include:

Planning the installation..... 1
Preparing the door and door jamb..... 2
Installing the lock..... 7
Completing the installation..... 13

Patents

Products covered by one or more of the following patents:
 5,590,555 5,794,472 5,083,122 6,720,861

Site survey

Use the following survey to record information about the installation site. You need this information to determine how to prepare the door for the lock.

Door information

Door handing and bevel:

- Left hand (LH)
- Left hand, reverse bevel (LHRB)
- Right hand (RH)
- Right hand, reverse bevel (RHRB)

Door thickness: _____ inches (1 3/4" to 2 1/4")

Environment information

Ambient temperature:

- Is within specifications. See the tables below.

This product meets the following Locked Door Outdoor test requirements for ANSI/BHMA 156.25:

Side of door	Range
Outside	-31°F to +151°F (-35°C to +66°C)

This product meets the following Full Indoor test requirements for ANSI/BHMA 156.25:

Side of door	Range
Inside and outside	+32°F to +120°F (0°C to +49°C)

Components checklist

Use the following checklist to make sure that you have the items necessary to install your Electronic Wireless Cylindrical Lock.

Components provided in the box:

- Chassis with outside lever and outside rose liner assembly
- Top and bottom inside covers
- Fire plate
- Battery holder with batteries
- Inside rose liner
- Outside escutcheon assembly
- Inside lever
- Throw member package
- Latch
- Hub washers
- Trim hole insert package
- Plastic bushing package
- Escutcheon screw package
- Door status switch assembly
- Strike package
- Bar code ID sticker (for your records)
- Installation template and instructions

Other components:

- Core and control key
- Temporary operator card

Special tools checklist

Use the following checklist to make sure that you have the special tools necessary to install your Electronic Wireless Cylindrical Lock.

- KD303 Drill jig
- T20 TORX® bit driver
- KD325 Strike plate locating pin
- KD315 Faceplate marking chisel

Preparing the door and door jamb

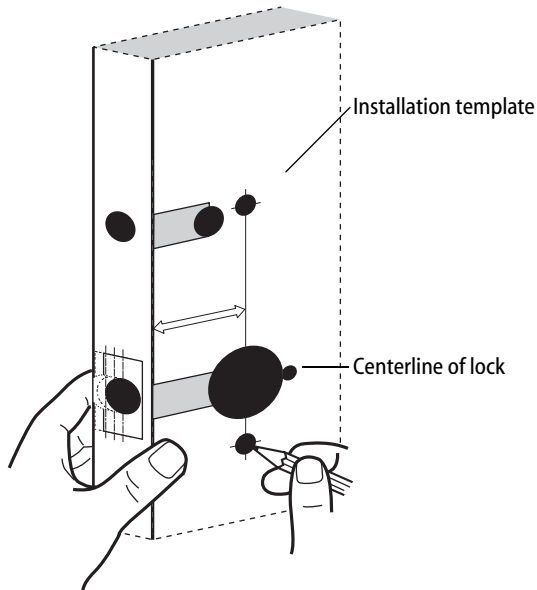


Figure 1 Positioning the template

1 Position template and mark drill points

Note: If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement. For dimensions for preparing metal doors, see the Q01 and G02 Templates—Installation Specifications for 93KQ Cylindrical Locks.

Note: If the door is a LH or RH door, mark the inside of the door. If the door is a LHRB or RHRB door, mark the outside of the door.

For uncut doors and frames

- 1 Measure and mark the horizontal centerline of the lever (the centerline for the chassis hole) on the door and door jamb. Mark the vertical centerline of the door edge.

Note: The recommended height from the floor to the centerline of the crossbore or chassis hole is 38".

- 2 Fold the Q05 Template—Installation Template for 93KQ Cylindrical Locks on the dashed line and carefully place it in position on the high side of the door bevel.

Note: For steel frame applications, align the template's horizontal centerline for the latch with the horizontal centerline of the frame's strike preparation.

- 3 Tape the template to the door.
- 4 Center punch the necessary drill points. Refer to the instructions on the template.

For doors with standard cylindrical preparation

- 1 Fold the Q05 Template—Installation Template for 93KQ Cylindrical Locks on the dashed line. Looking through the hole from the opposite side of the door, align the template so that you see the template outline of the 2 1/8" diameter chassis hole.
- 2 Tape the template to the door.
- 3 Center punch the necessary drill points. Refer to the instructions on the template.

Preparing the door and door jamb

2 Drill holes and mortise for latch face

- 1 Drill the holes listed below:
 - upper and lower trim holes
 - ◆ 5/8" diameter
 - ◆ through door
 - harness hole
 - ◆ 3/4" diameter
 - ◆ through door
 - motor wire hole
 - ◆ 7/16" diameter
 - ◆ through door
 - ◆ before drilling chassis hole
 - chassis hole
 - ◆ 2 1/8" diameter
 - ◆ through door
 - ◆ after drilling motor wire hole
 - latch hole
 - ◆ 1" diameter
 - ◆ meets chassis hole
 - door status switch hole
 - ◆ 1" diameter
 - ◆ meets harness hole
 - anti-rotational hole, see "Use drill jig to drill through-bolt holes" on page 5.
 - ◆ 5/16" diameter
 - ◆ through door

Note 1: To locate the center of a hole on the opposite side of the door, drill a pilot hole completely through the door.

Note 2: For holes through the door, it is best to drill halfway from each side of the door to prevent the door from splintering.

- 2 Mortise the edge of the door to fit the latch face.
- 3 Drill the holes for the screws used to install the latch.

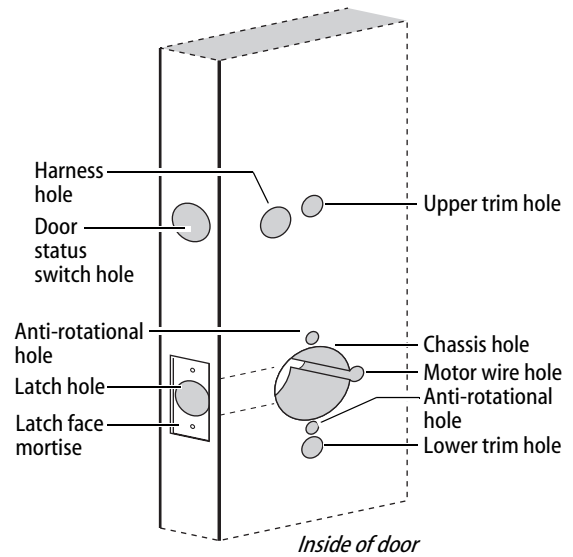


Figure 2 Drilling holes and mortising for the latch face

Preparing the door and door jamb

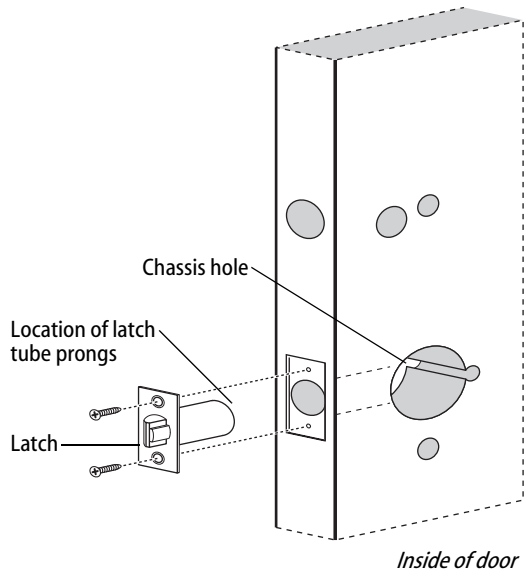


Figure 3 Installing the latch in the door

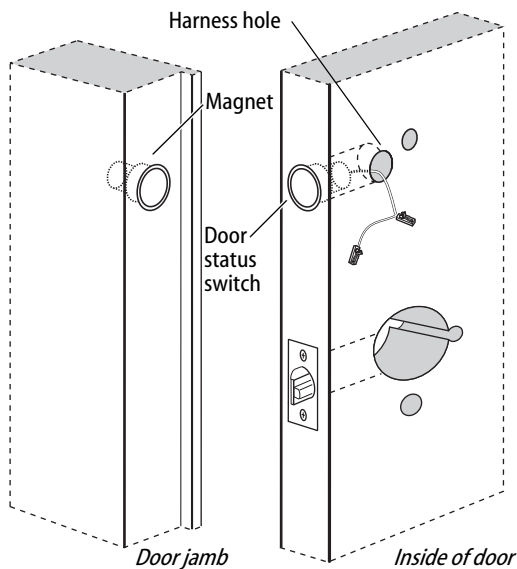


Figure 4 Installing the door status switch and magnet

3 Install latch

- 1 Install the latch in the door.
Note: The latch tube prongs should be centered and should project into the chassis hole.
- 2 Check that the door swings freely.

4 Install door status switch and magnet

- 1 On the door jamb, mark the drill point for the 1" diameter magnet hole. This hole should be directly opposite the door status switch reader harness hole when the door is closed.
- 2 Drill a 1" diameter hole for the magnet, at least 1 3/4" deep.
- 3 Insert the magnet in the hole.
- 4 Insert the door status switch assembly into the door status switch hole in the edge of the door, feeding the connectors out the harness hole to the inside of the door, as shown in Figure 4.

Preparing the door and door jamb

5 Use drill jig to drill through-bolt holes

- 1 Press the drill jig (KD303) onto the door, engaging it with the latch tube prongs (see the close-up in Figure 5). Make sure the front edge of the jig is parallel with the door edge.
- 2 Drill the through-bolt holes (5/16" diameter) halfway into the door.
- 3 Turn over the drill jig and repeat steps 1 and 2 from the opposite side of the door.

Note: Replace the drill jig after 10 door preparations.

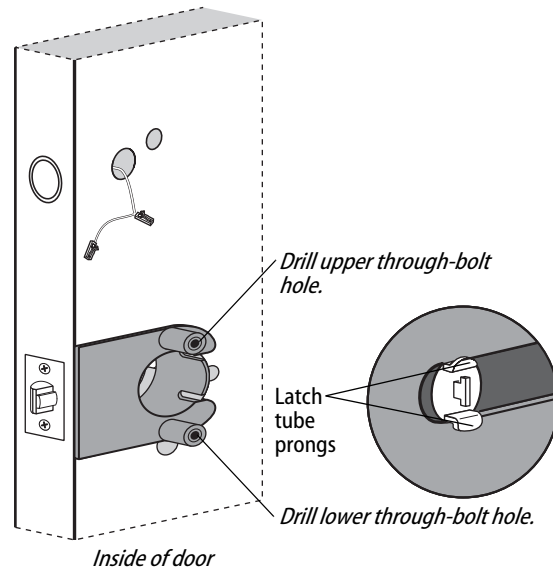


Figure 5 Installing the drill jig and drilling the through-bolt holes

Preparing the door and door jamb

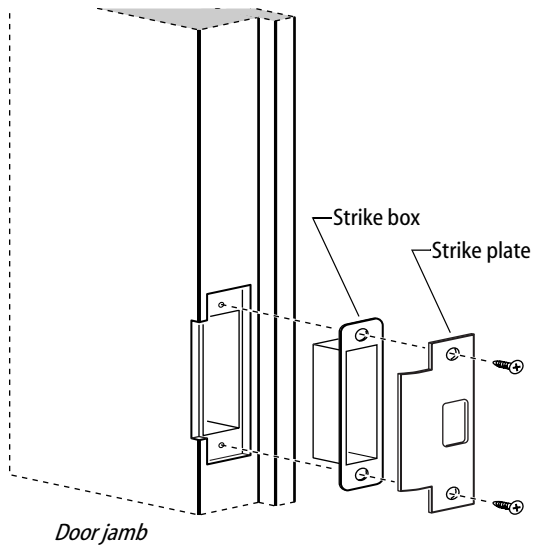


Figure 6a Installing the strike box and strike plate

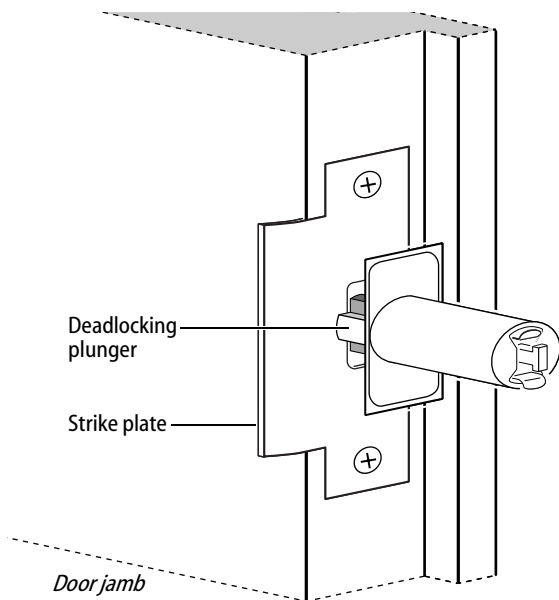


Figure 6b Aligning the deadlocking plunger with the strike plate

6 Install strike box and strike plate

- 1 In alignment with the center of the latchbolt, mortise the door jamb to fit the strike box and strike plate.
- 2 Drill the holes for the screws used to install the strike box and strike plate.
- 3 Insert the strike box and secure the strike with the two screws provided.
- 4 Check the position of the deadlocking plunger against the strike plate.

Caution: The deadlocking plunger of the latchbolt must make contact with the strike plate, as shown in Figure 6b. The plunger deadlocks the latchbolt and helps prevent someone from forcing the latch open when the door is closed.

Installing the lock

7 Remove outside lever or knob

- 1 Insert the control key into the core and rotate the key 15 degrees to the right.
- 2 Insert a flat blade screwdriver into the figure-8 core hole and into the lever.
- 3 Press the screwdriver blade in the direction of the arrow in Figure 7.

Note: You cannot remove the lever if the screwdriver blade is inserted too far past the keeper.

- 4 Slide the lever or knob off of the sleeve.

Caution: Be careful that you do not disconnect the lever keeper spring.

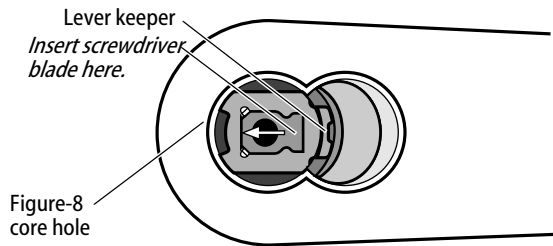


Figure 7 Removing the outside lever

8 Adjust for door thickness

- 1 Determine the door's thickness.
- 2 Pull the rose locking pin and rotate the outside rose liner until the proper groove on the through-bolt stud lines up with the hub face.

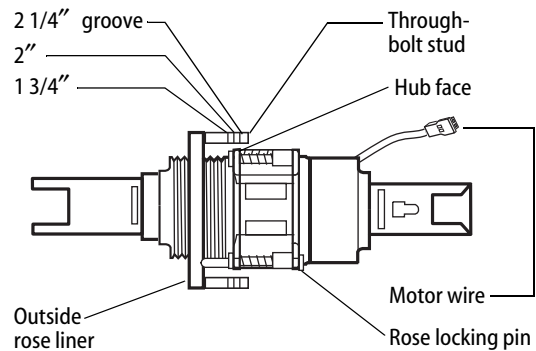


Figure 8 Adjusting the rose liner for the door thickness

Installing the lock

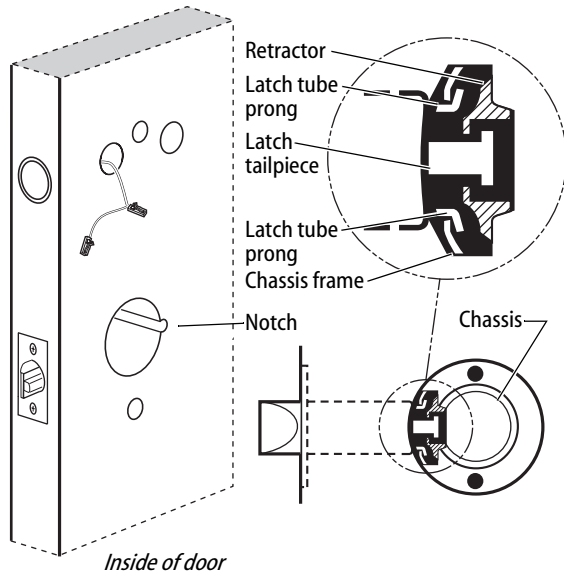


Figure 9 Installing the lock chassis and engaging the retractor in the latch

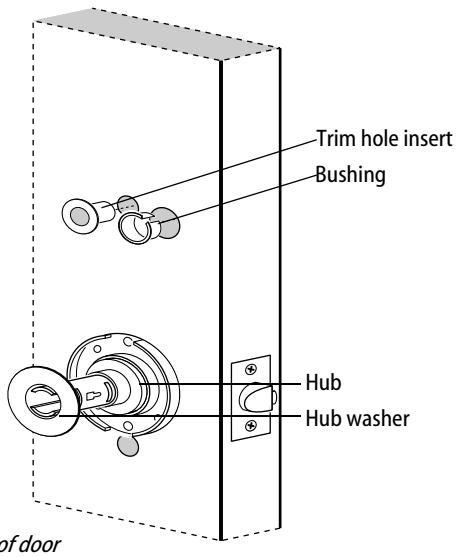


Figure 10 Installing the outside trim hole insert, bushing, and hub washer

9 Install lock chassis and engage retractor in latch

From the outside of the door, insert the lock chassis into the 2 1/8" chassis hole, routing the motor wire through the notch.

Caution: Make sure that the latch tube prongs engage the chassis frame and that the latch tailpiece engages the retractor.

10 Install the trim hole insert, bushing, and hub washer on outside of door

- 1 On the outside of the door, insert the trim hole insert into the upper trim hole, as shown in Figure 10.
- 2 Insert the bushing into the harness hole.
- 3 Slide a hub washer over the chassis sleeve so it rests on the hub.

Installing the lock

11 Install fire plate

Position the fire plate on the inside of the door so that the chassis fits through the square opening in the fire plate, as shown in Figure 11.

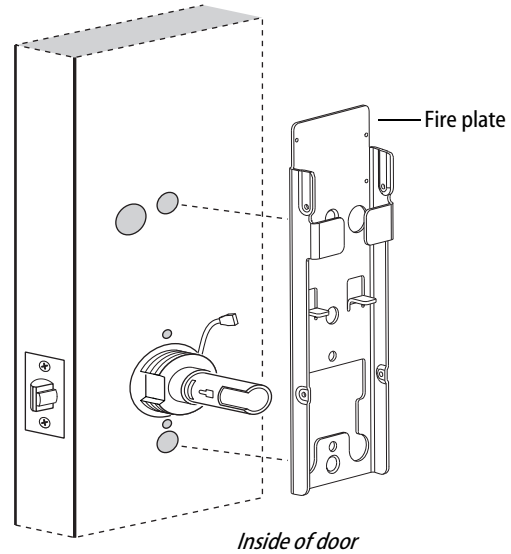


Figure 11 Installing the fire plate

12 Install through-bolts and inside rose liner

- 1 Place the inside rose liner on the chassis, aligning the holes in the rose liner with the holes prepared in the door, as shown in Figure 12.

Caution: Make sure that the motor wire is pulled toward the top of the fire plate and avoid routing it over any surface that could damage the sleeving or wire insulation.

- 2 Install the through-bolts through the rose liner and door in the top and bottom holes.

Caution: Make sure that there is clearance for the motor wire between the rose liner and the door.

- 3 Tighten the rose liner to the door and fire plate with the through-bolts.
- 4 Install the hub washer over the rose liner.

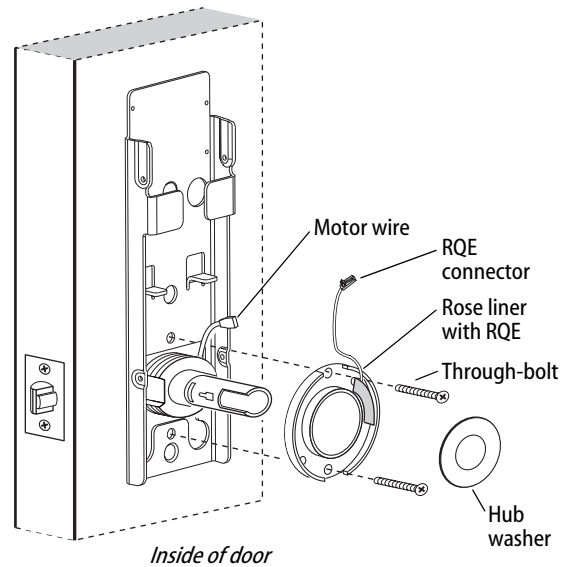


Figure 12 Installing the through-bolts and rose liner (9K shown)

Installing the lock

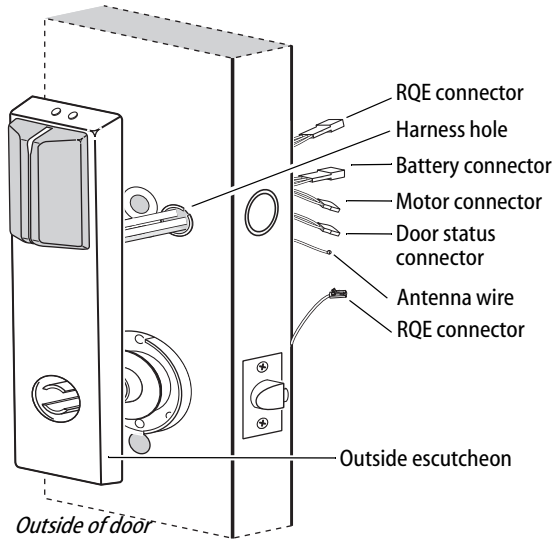


Figure 13 Feeding the wire harness connectors through the harness hole

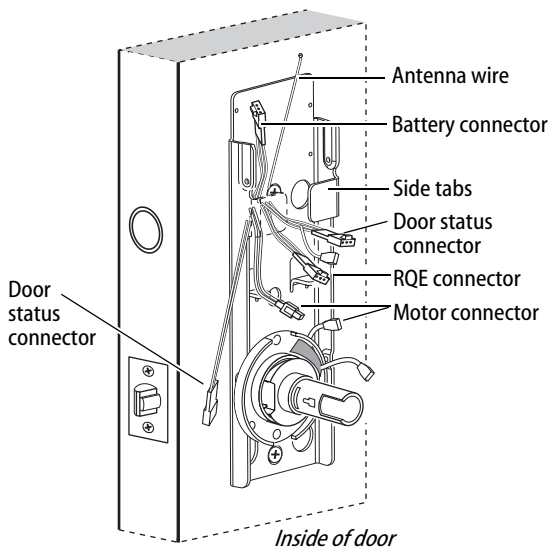


Figure 14 Routing the wires on the fire plate

13 Route wire harness and position outside escutcheon

- 1 From the outside of the door, feed the motor connector, battery connector, door status switch, and antenna wire, through the harness hole.

Caution: When routing the connectors, make sure the wire harness is not routed across any sharp edges or over any surface that could damage its sleeving or wire insulation.

- 2 On the inside of the door, insert the two countersunk mounting screws into the holes at the top and bottom of the fire plate.
- 3 Tighten the mounting screws until the fire plate is securely mounted to the door.

14 Route wires on fire plate

- 1 Route the motor connector wire, RQE connector, and door status connector underneath the side tabs as shown in Figure 14.
- 2 Route the battery connector and antenna wire above the side tabs. See Figure 15 for additional detail.

Installing the lock

15 Connect motor wires, RQE, and door status switch

1 From the inside of the door, make the following connections:

- ◆ Motor
- ◆ RQE
- ◆ Door status switch

Wire connection	Color	No. of wires	No. of pins
Motor	Yellow-Gray	2	2
RQE	Orange-Brown	2	3
Door status	White	2	2

2 Insert the plastic wire tie through the mounting clip and secure the wires as shown in Figure 15. See Figure 15 for additional detail.

Caution: When making the motor connection, make sure:

- ◆ there are no loose wire connections where the wires are inserted into the connectors
- ◆ the connectors are firmly mated.

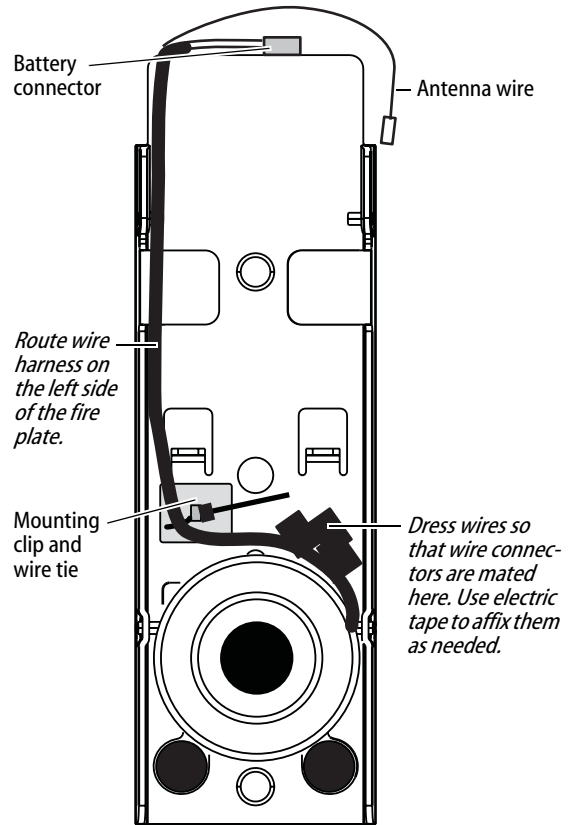


Figure 15 Routing the wires (view of the inside escutcheon)

Installing the lock

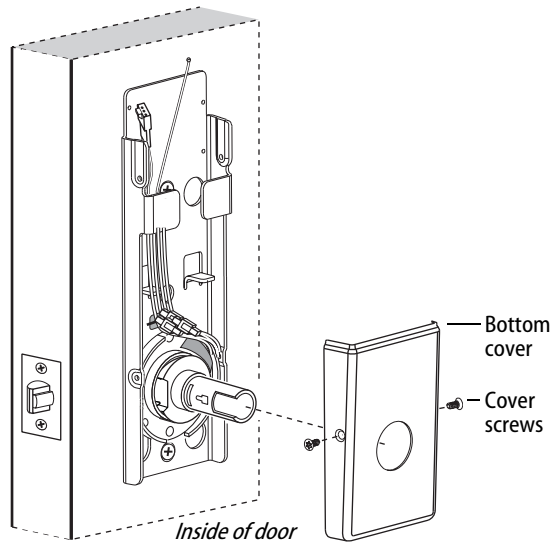


Figure 16 Installing the bottom cover

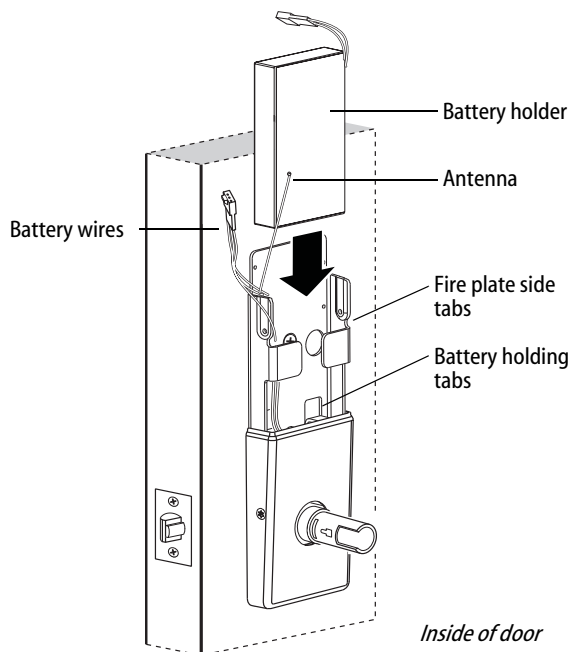


Figure 17 Installing the battery holder, eight-cell

16 Install bottom cover (inside escutcheon)

- 1 **Making sure that the cover does not pinch the wires**, guide the bottom cover over the chassis onto the fire plate.
- 2 Use two cover screws to secure the cover to the side of the fire plate, as shown in Figure 16.

Note: Phillips Type 2 and T20 Torx options are available for the cover mounting screws.

Caution: Dress all wires away from possible pinch points before putting the bottom cover in place.

17 Install battery holder

- 1 Position the battery wires against the fire plate side wall, as shown in Figure 17.
- 2 Slide the battery holder behind the fire plate side tabs until it rests on the bent battery holding tabs.

Caution: When routing the battery wires, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

- 3 Connect the battery holder to the battery connector on the wire harness.

Caution: When connecting the battery holder, make sure:

- ◆ there are no loose wire connections where the wires are inserted into the connectors.
- ◆ the connectors are firmly mated.

Completing the installation

18 Install inside and outside levers

Note: To use a core and throw member from a manufacturer other than BEST with a Electronic Stand-alone Lock, see the Installation Instructions for 9K Non-interchangeable Cores & Throw Members (T56093) and skip task 19.

- With the handle pointing toward the door hinges, position a lever on the outside sleeve and push firmly on the lever until it is seated. Repeat, placing the other lever on the inside sleeve.

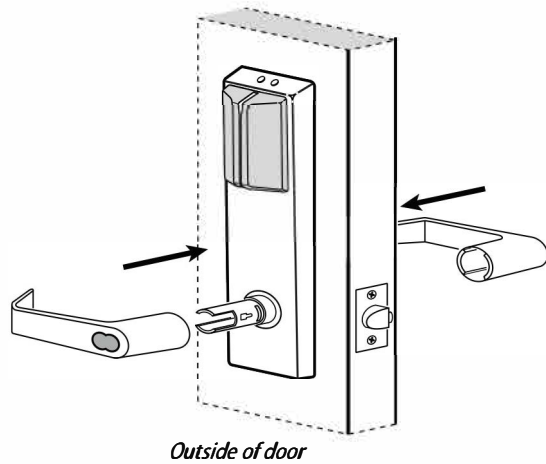


Figure 18 Installing the levers

19 Install core and throw member

1. **For 6-pin core users only:** Install the plastic spacer (not shown, supplied with permanent cores) on the throw member.
2. Insert the control key into the core and rotate the key 15 degrees to the right.
3. Insert the throw member into the core.
4. Insert the core and throw member into the lever with the control key while keeping the throw member in line with the cam inside the lever.

Caution: The control key can be used to remove cores and to access doors. Provide adequate security for the control key.

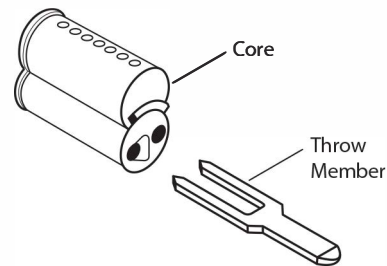


Figure 19a Installing the throw member.

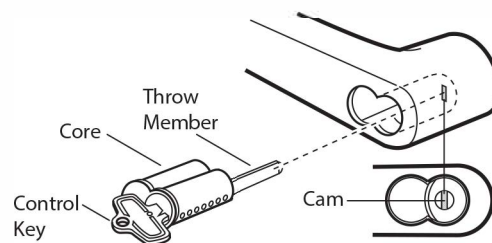


Figure 19b Installing the core

Completing the installation

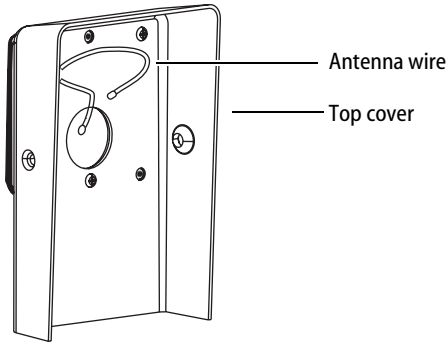


Figure 20a Inside view of top cover

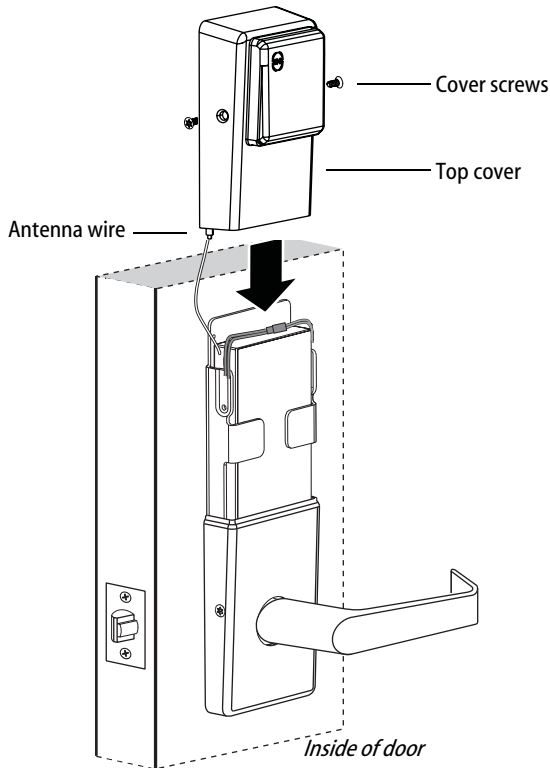


Figure 20b Installing the top cover

20 Install top cover (inside escutcheon)

- 1 Connect the antenna to its mating connector.
- 2 Place the top cover against the door and above the fire plate. Slide the top cover down toward the bottom cover as shown in Figure 20b.

Caution: As you slide the top cover onto the fire plate, feed the antenna wire down into the bottom cover. Be sure not to pinch the antenna wire on the bottom cover as you slide the top cover into place.

- 3 Use two cover screws to secure the cover to the side of the fire plate, as shown in Figure 20b.

Note: Phillips Type 2 and T20 Torx options are available for the cover mounting screws.

Completing the installation

21 Test lock

For 9KQ Locks with keypad:

To test the lock for proper operation before the lock is programmed, follow these instructions:

- 1 Press **1234**.
- 2 Press #.

The green light flashes and the locking mechanism unlocks.

- 3 Turn the lever and open the door.

For all other locks:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the lock. This card is for temporary use only. After permanent cards have been programmed for the lock, the temporary card should be deleted.

- 1 Use the temporary operator card to activate the lock.

Note: If the lock has a proximity card reader, it may have already been activated by the presence of an object near the card reader.

- 2 Use the temporary operator card to access the lock.
- 3 The green light flashes and the locking mechanism unlocks.
- 4 Turn the lever or knob and open the door.
- 5 With the door closed, insert and turn the key to unlatch the door.

If the mechanism doesn't unlock, refer to the following table. For additional troubleshooting instructions, see the Service Manual.

LEDs	Sounder	You should
Single red flash	—	Use the card at a moderate speed.
Red flashes	3 short tones	Use the temporary operator card provided with the lock.
Green flashes	—	Check the motor connection.
—	—	Check the battery connection.

©2019 a Product Group of dormakaba USA Inc.
T82619/Rev E 3109013 ER-7991-12 November 2019

BEST
a Product Group of dormakaba USA Inc.

Contents

These installation instructions describe how to install your 45HQ Mortise Lock. Topics covered include:

Preparing the door 1
Configuring and installing the mortise case.....3
Installing the trim4
Completing the installation.....9

Patents

Products covered by one or more of the following patents:
 6,720,861

1 Identify holes to drill

1 Determine the lock function to be installed.

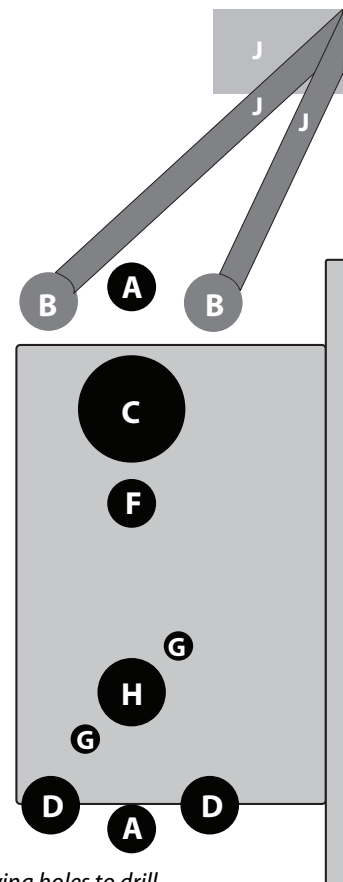
Caution: Determine the inside and outside, hand, and bevel of the door.

2 See the *Holes by Function* table and Figure 1 to determine the holes to be drilled for the lock function.

Holes by Function	Functions			
	DV		TV	
Holes to drill	I/S	O/S	I/S	O/S
A Forged trim (2 holes) [†]	Through door		Through door	
B Harness [†]	Through door		Through door	
C Standard cylinder		■		■
D Sensor & motor wire (2 holes)	■		■	
F Thumb turn			■	
G Trim mounting (2 holes) [‡]	Through door		Through door	
H Lever ^{††}	Through door		Through door	
J Door sensing channel (2 holes)	DO NOT DRILL		See Figure 1	

[†] Determine trim holes based on trim type.

[‡] Because these holes pass through the mortise pocket, it is recommended that each hole be drilled separately rather than straight through.



For hole sizes, see the Q06 Template (T82606).

Figure 1 Identifying holes to drill

Preparing the door

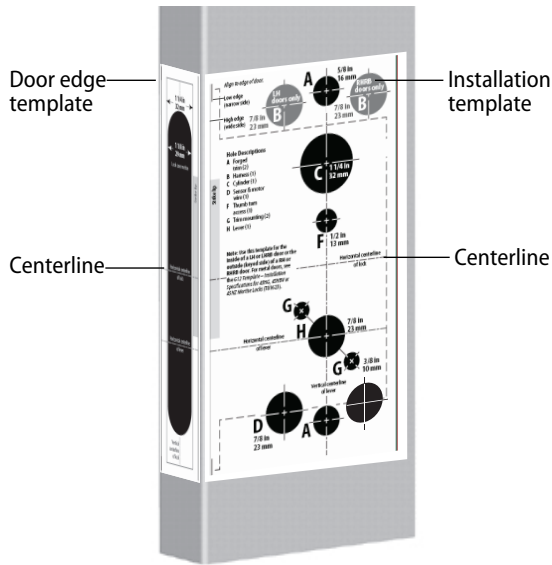


Figure 2 Aligning the templates

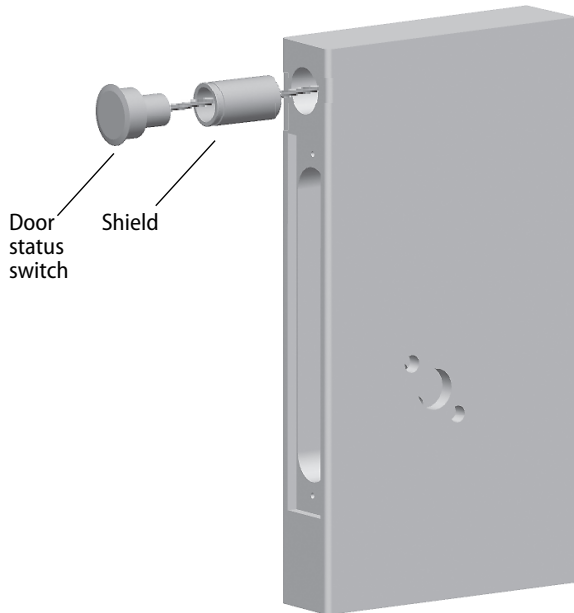


Figure 3 Installing the door status switch

2 Align templates

Note: If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement. For dimensions for preparing metal doors, see the Q03 Template—Installation Specifications for 45HQ Mortise Locks (T82603).

- 1 Separate the four templates provided on the Q06 Template—Installation Template for 45HQ Mortise Locks (T82606).
- 2 Position one of the door edge templates on the door, making sure that the lock case mortise shown on the template aligns with the mortise pocket prepared in the door.
- 3 Using the centerlines on the door edge template as a guide, position the appropriate door template on each side of the door. You need to take the bevel into account. Tape the templates to the door.

3 Center punch and drill holes

- 1 Center punch the necessary drill points. See the instructions on the template.
- 2 Drill the holes.

Note 1: To locate the center of a hole on the opposite side of the door, drill a pilot hole completely through the door.

Note 2: For holes through the door, it is best to drill half-way from each side of the door to prevent the door from splintering.

4 Install door status switch (optional for deadbolt TV function locks only)

- 1 Position the shield on the door status switch with the notch facing downwards (towards the mortise pocket).

Caution: Make sure the wires are not routed across any sharp edges or over any surface that could damage its sleeving.

Configuring & installing the mortise case

- 2 Feed the wires for the door status switch into the door status switch hole and through the channel into the mortise cavity and out through one of the sensor and motor wire holes.
- 3 Press fit the door status switch assembly into the door status switch hole.

5 Rotate latchbolt (if necessary)

Note: If a function specific mortise case was ordered, some steps for configuring the case have already been performed at the factory.

- 1 Determine whether you need to rotate the latchbolt to match the handing of the door.

Note: The angled surface of the latchbolt must contact the strike when the door closes.

- 2 If you need to rotate the latchbolt, insert a flat blade screwdriver into the latch access point approximately 1/2" into the case and press to extend the latch out of the case. See Figure 4.
- 3 Rotate the latchbolt 190 degrees (slightly past 180 degrees) and allow it to retract into the case.

6 Position hub toggles (if necessary)

- 1 Check whether the hub toggles are in the proper position for the lock. See the table below and Figure 5.

Hub toggle positions

Function	Hub toggle positions
DV, TV	Inside down (always unlocked) & outside up (lockable)

Note 1: For LH & LHRB doors, the inside is the back side of the case and the outside is the cover side of the case. For RH & RHRB doors, the inside is the cover side of the case and the outside is the back side of the case. The cover is mounted to the case with four screws.

Note 2: Two RQE status switches are installed in the mortise case. However, only the switch for the inside of

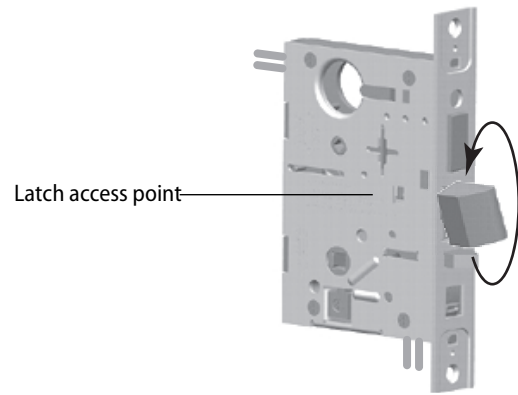


Figure 4 Rotating the latchbolt

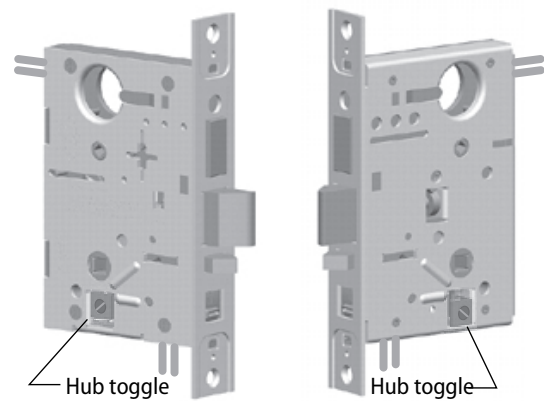


Figure 5 Positioning hub toggles

Installing the trim

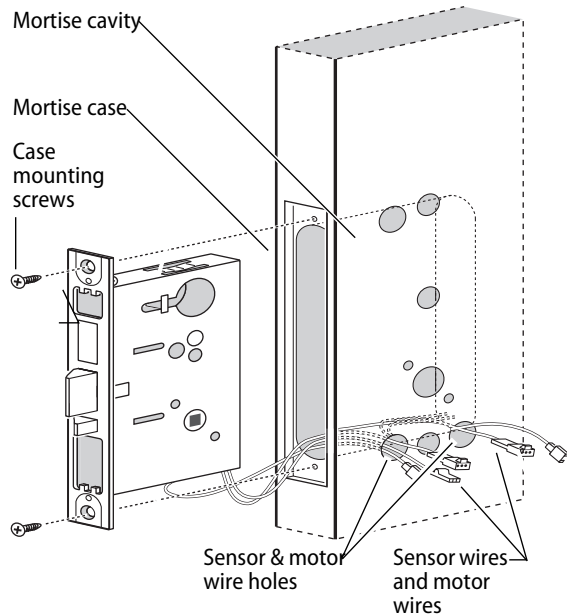


Figure 7 Installing the mortise case (inside of door)

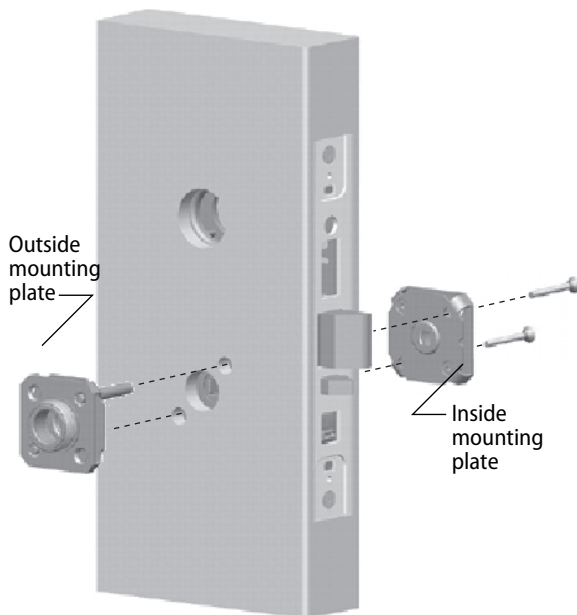


Figure 8 Installing the trim mounting plates

the lock needs to be connected. Before you install the mortise case in the door, determine whether you need to connect the 'Case Side' pair of RQE wires or the 'Cover Side' pair of RQE wires, based on the handing of the door.

- 2 To change the position of a hub toggle, remove the toggle screw, move the toggle into the desired position, and re-tighten the screw.

7 Install mortise case

- 1 Drill the holes for the case mounting screws.
- 2 Insert the mortise case into the mortise cavity, while feeding the sensor and motor wires into the mortise cavity and out the two sensor & motor wire holes to the inside of the door as shown in Figure 7.

Note: The armored front of the mortise case self-adjusts to the door bevel.

- 3 Secure the mortise case with the case mounting screws.

8 Install trim mounting plates

- 1 Insert the outside trim mounting plate through the door and mortise case.
- 2 Position the inside trim mounting plate opposite the outside trim mounting plate and screw them securely in place.

Caution: Do not overtighten the trim mounting plate screws. Overtightening may damage the locking mechanism.

- 3 By temporarily installing a lever, test the lock to make sure that it doesn't bind.

Installing the trim

9 Install concealed cylinder & core

- 1 Use a cylinder wrench to thread the cylinder into the mortise case so that the groove around the cylinder is even with the door surface as shown in Figure 8.

Caution: A malfunction can occur if the cylinder is threaded in too far.

- 2 Secure the cylinder in the mortise case with the cylinder retainer screw.
- 3 Insert the control key into the core and rotate the key 15 degrees to the right.
- 4 With the control key in the core, insert the core into the cylinder.
- 5 Rotate the control key 15 degrees to the left and withdraw the key.

Caution: The control key can be used to remove cores and to access doors. Provide adequate security for the control key.

10 Install trim hole insert and bushing

- 1 Insert the trim hole insert into the upper trim hole on the outside of the door, as shown in Figure 9.
- 2 Insert the bushing into the harness hole on the outside of the door, as shown in Figure 9.

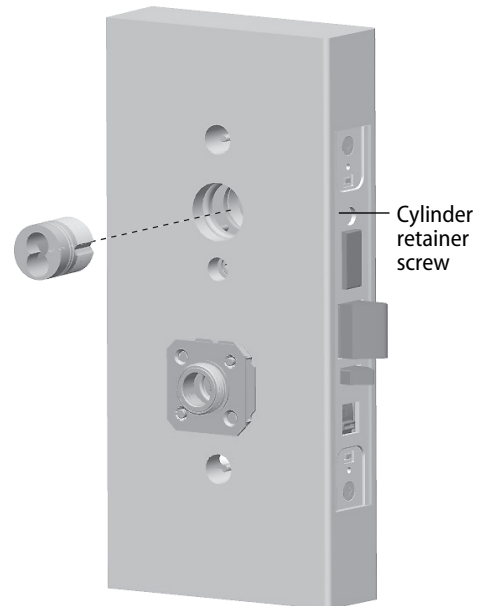


Figure 8 Installing the concealed cylinder

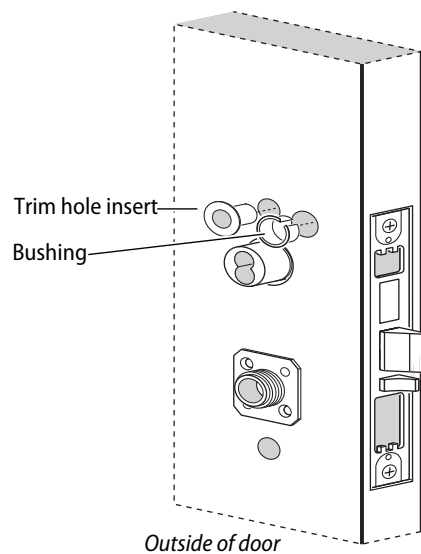


Figure 9 Installing the trim hole insert and bushing

Installing the trim



Figure 10 Feeding the wire harness connectors through the harness hole

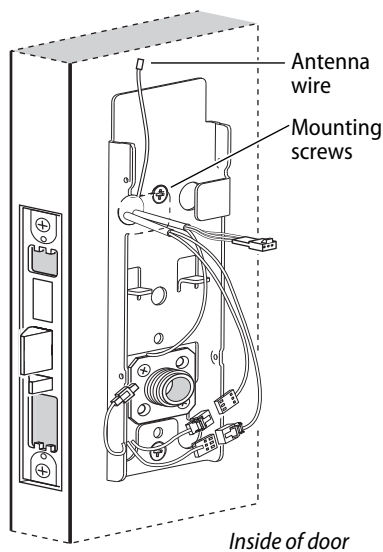


Figure 11 Installing the fire plate

11 Route wire harnesses and position outside escutcheon

- 1 From the outside of the door, feed the motor connector, battery connector, and sensor connectors through the harness hole.

Caution: When routing the connectors, make sure the harnesses are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

- 2 Perform these steps:
 - a Firmly press the outside escutcheon in position on the door. The core should be flush with the outer surface of the escutcheon.
 - b If necessary, adjust the cylinder depth plus or minus one turn so that the core is flush with the outer surface of the escutcheon.
 - c Secure the cylinder in the mortise case with the cylinder clamp screw.
- 4 Rest the outside escutcheon on the door by inserting the trim studs into the trim holes.

12 Install fire plate

- 1 From the inside of the door, feed the wiring through the fire plate harness hole.
- 2 Position the fire plate on the door so that the inside mounting plate fits through the square opening in the fire plate.
- 3 Insert the two counter sunk mounting screws into the holes at the top and bottom of the fire plate.
- 4 Tighten the mounting screws until the fire plate is securely mounted to the door.

Installing the trim

13 Connect wire harnesses

- From the inside of the door, make the following connections:

Wire connection	Colors	No. of wires	No. of pins
Motor	Yellow-gray	2	2
Key override sensor	Gray	2	3
Deadbolt sensor	Blue	2	3
RQE	Orange-brown	2	3
Door sensing	White	2	2
Latchbolt sensing	Purple	2	2

- Insert the plastic wire tie through the mounting clip and secure the wires as shown in Figure 12.

Note: It is physically possible to connect the key override sensor connector from the mortise case to the battery connector from the wire harness. To avoid this mistake, connect only the connectors with matching wire colors.

Caution: When making the motor connection and sensor connections, make sure:

- ◆ there are no loose wire connections where the wires are inserted into the connectors
- ◆ the connectors are firmly mated

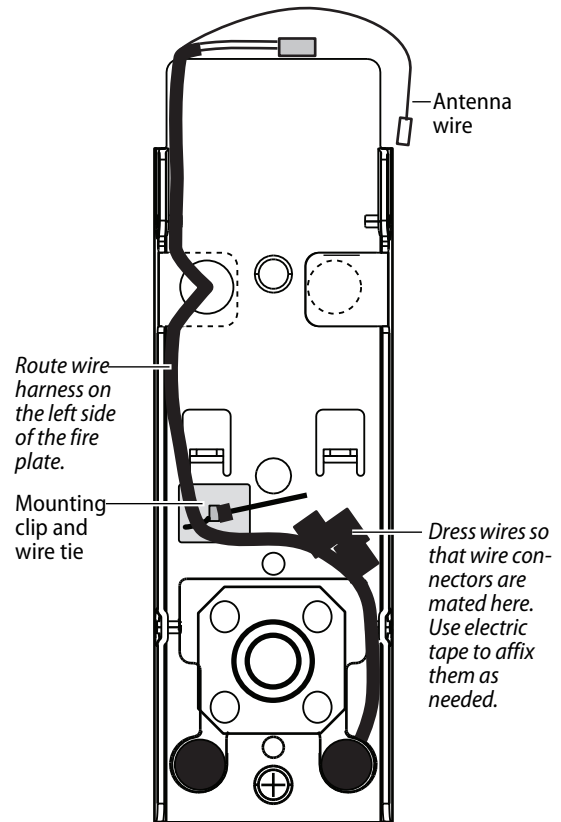


Figure 12 Routing the wires

Installing the trim

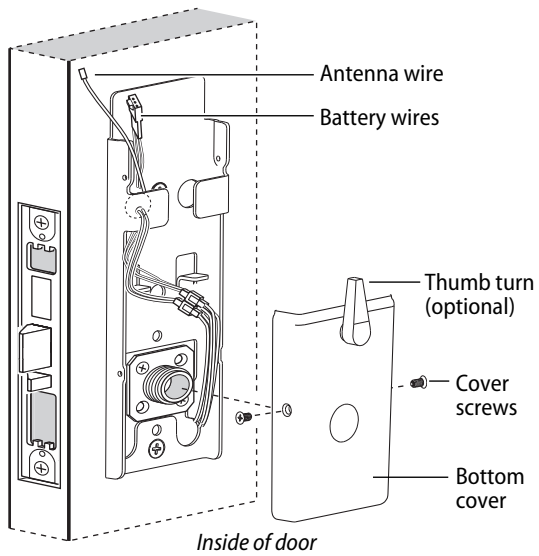


Figure 13 Installing the bottom cover

14 Install bottom cover (inside escutcheon)

- 1 Position the battery wires above the side tabs and against the side of the fire plate, as shown in Figure 13.
- 2 **Optional for Thumb Turn option only:** Make sure that the Thumb Turn is in the upright position, as shown in Figure 13.
- 3 **Making sure that the cover does not pinch the wires,** guide the bottom cover over the chassis onto the fire plate.

Note: Phillips Type 2 and T20 Torx options are available for the cover mounting screws.

Completing the installation

15 Install battery holder

- 1 Position the battery wires against the fire plate side wall, as shown in Figure 14.
- 2 Slide the battery holder behind the fire plate side tabs until it rests on the bent battery holding tabs.

Caution: When routing the battery wires, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

- 3 Connect the battery pack to the battery connector on the wire harness.

Caution: When connecting the battery pack, make sure:

- ◆ there are no loose wire connections where the wires are inserted into the connectors.
- ◆ the connectors are firmly mated.

16 Install inside and outside levers

- 1 Unscrew the inside spindle one full turn to allow the spindles to turn freely.
- 2 With the handle pointing toward the door hinges, insert the outside lever and spindles assembly into the lock from the outside of the door.
- 3 Slide the inside lever onto the inside spindle and secure it with the set screw.
- 4 Making sure that the core is positioned properly in the outside escutcheon (DV and TV function Locks only) and the escutcheons are aligned properly on the door, tighten the escutcheon mounting screws.

Note: If a core is not available, you can use the cylinder wrench to help you align the core opening in the escutcheon.

- 5 Turn the levers to check that they operate smoothly.

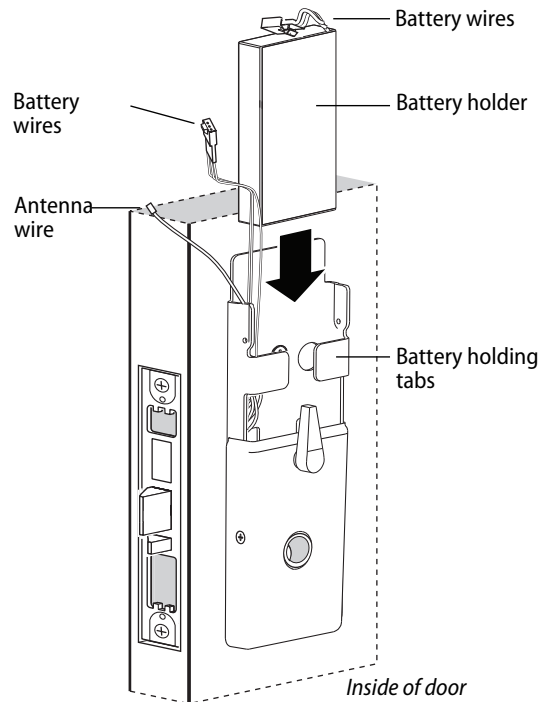


Figure 14 Installing the battery holder

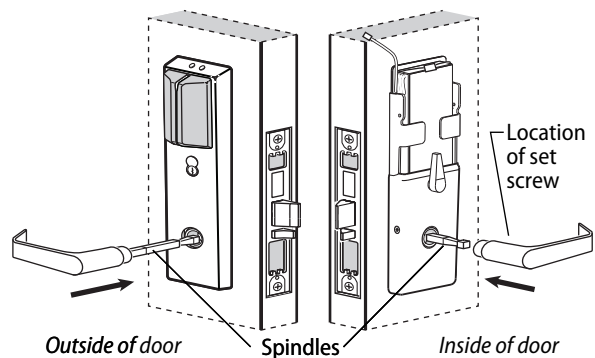


Figure 15 Installing the levers

Completing the installation

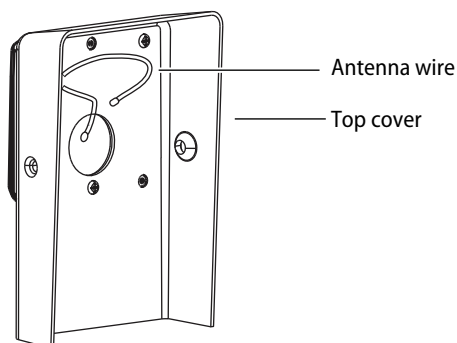


Figure 16 Inside view of top cover

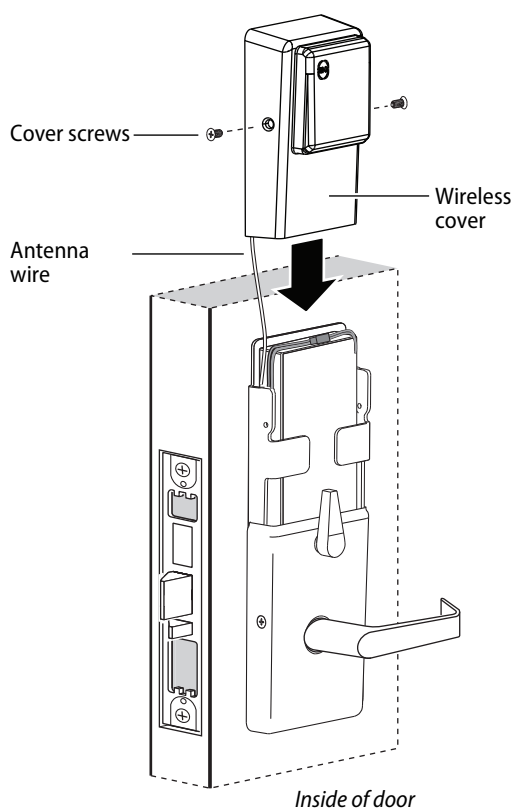


Figure 17 Installing the top cover

17 Install top cover (inside escutcheon)

- 1 Connect the antenna to its mating connector.
- 2 Place the top cover against the door and above the fire plate. Slide the top cover down toward the bottom cover as shown in Figure 17.

Caution: As you slide the top cover onto the fire plate, feed the antenna wire down into the bottom cover. Be sure not to pinch the antenna wire on the bottom cover as you slide the top cover into place.

- 3 Use two cover screws to secure the cover to the side of the fire plate, as shown in Figure 17.

Note: Phillips Type 2 and T20 Torx options are available for the cover mounting screws.

18 Install mortise case faceplate

- 1 Secure the mortise case faceplate to the mortise case with the faceplate mounting screws.
- 2 Check the lock for proper operation.

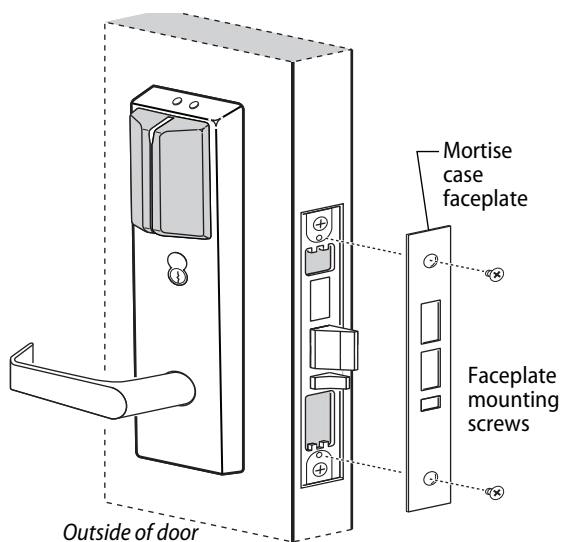


Figure 18 Installing the mortise case faceplate

Completing the installation

19 Install strike box and strike plate

- 1 Insert the strike box into the mortise in the door jamb. Place the strike plate over the strike box and secure the strike with the screws provided.
- 2 Check the position of the auxiliary bolt against the strike plate.

Caution: The auxiliary bolt must make contact with the strike plate. The auxiliary bolt deadlocks the latchbolt and prevents someone from forcing the latch open when the door is closed. If the incorrect strike is installed, a lock-in can occur.

Note: The recommended gap between the door and jamb is 1/8".

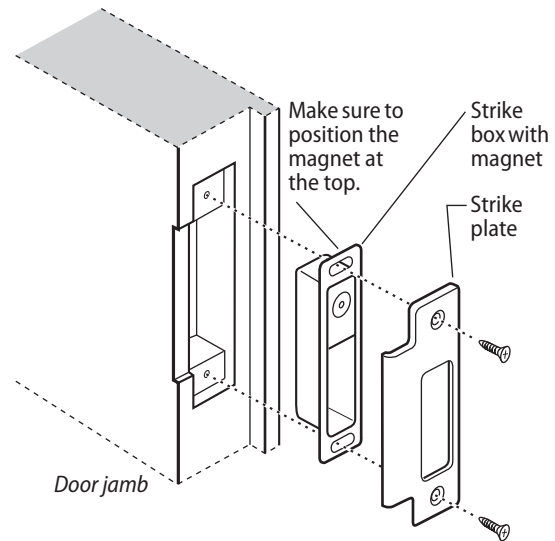


Figure 19a Installing the strike box and strike plate

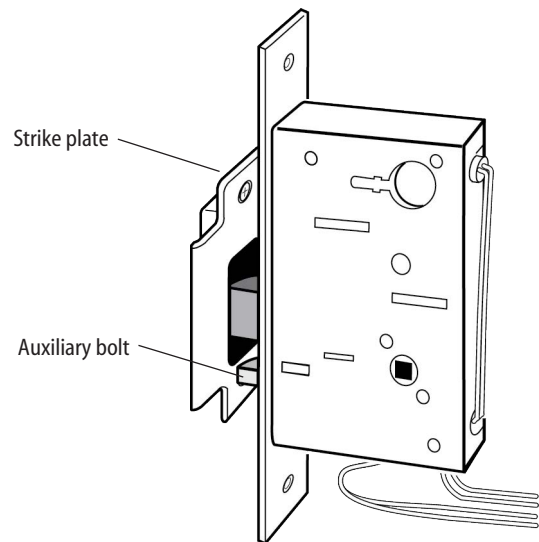


Figure 19b Positioning the strike

Testing the lock

20 Test lock

For 45HQ Locks with keypad

To test the lock for proper operation before the lock is programmed, follow these instructions:

- 1 Press **1234**.
- 2 Press **#**.
The green light flashes and the locking mechanism unlocks.
- 3 Turn the lever and open the door.

For all other locks:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the lock. This card is for temporary use only. After permanent cards have been programmed for the lock, the temporary card should be deleted.

- 1 Use the temporary operator card to activate the lock.
Note: *If the lock has a proximity card reader, it may have already been activated by the presence of an object near the card reader.*
- 2 Use the temporary operator card to access the lock.
The green light flashes and the locking mechanism unlocks.
- 3 Turn the lever and open the door.

If the mechanism doesn't unlock, refer to the following table. For additional troubleshooting instructions, see the Service Manual.

LEDs	Sounder	You should
Single red flash	—	Use the card at a moderate speed.
Red flashes	3 short tones	Use the temporary operator card provided with the lock.
Green flashes	—	Check the motor connection.
—	—	Check the battery connection.

For all locks

- 1 Insert and turn the key to unlatch the door.

For all TV function locks

- 2 From the inside of the door, turn the turn knob and make sure that the deadbolt operates properly.

Introduction

These installation instructions describe how to install your BEST® Wi-Q Technology™ EXQ Series Exit Hardware Trim. Electronic Stand-Alone Exit Hardware Trim is available for use with the following types of wide stile exit devices: Precision® brand manufactured by BEST (2000 Series), Von Duprin® (98/99 Series), and Sargent® (8800 Series).

Not all features are available for all exit device configurations. The table below details what sensors are available for which exit device configurations:

Device	DS ^a	TS ^b	LS ^c
Precision			
Rim (2100)	■	■	■
Surface Vertical (2200)	■	■	■
Mortise (2300)	■		
Wood Door Concealed (2700)	■	■	■
Concealed Vertical (2800)	■	■	■
Von Duprin^d			
Rim	■	■	
Surface Vertical	■		
Concealed Vertical	■		
Sargent^e			
Rim ^f	■		

- a. Door position sensing
- b. Request-to-exit (PHI touchbar monitoring)
- c. Latch sensing
- d. Von Duprin is a registered trademark of Von Duprin, Inc.
- e. Sargent is a registered trademark of Sargent Mfg. Co.
- f. Latch must have lift-type trim input (8863)

Contents

These instructions cover the following topics:

<i>Planning the installation</i>	1
<i>Preparing the door</i>	3
<i>Installing the exit hardware and trim</i>	7
<i>Completing the installation</i>	16

Site survey

Use the following survey to record information about the installation site and hardware application.

Exit hardware type:

- rim
- mortise
- surface vertical rod
- concealed vertical rod

Door handing and bevel:

- Left-hand reverse bevel (LHRB)
- Right-hand reverse bevel (RHRB)

Door type:

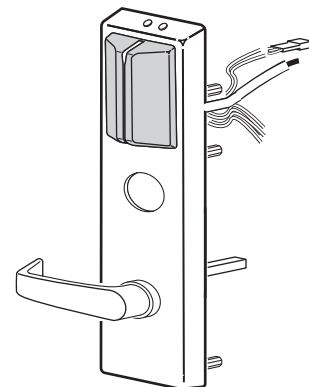
- Wood
- Metal

Door thickness: _____ inches (1-3/4" to 2-1/4")

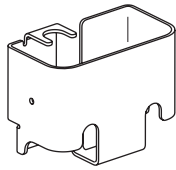
Components checklist

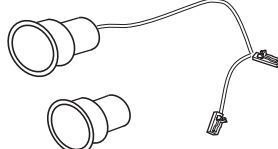
Use the following checklist to make sure that you have the items necessary to install your EXQ Exit Hardware Trim.

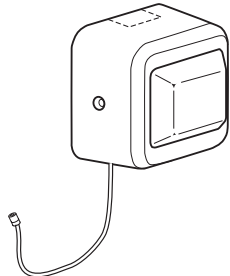
- Escutcheon and lever assembly

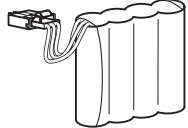


Installation Instructions for Wi-Q Technology™ EXQ Exit Hardware Trim

- Battery bracket 

- Door position switch with magnet 


- Battery cover with antenna 

- Battery pack 

- Battery cover screw package

- Bar code ID sticker (for your records)

- Cable ties, butt-splices, and tape

- Installation templates and instructions 

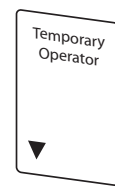
- 7-pin core (only included if ordered with trim)



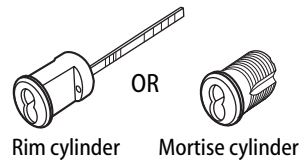
- Cylinder mounting sleeve (for Von Duprin functions only)



- Temporary operator card



- Key cylinder and keys (only included if ordered with trim).



Tools required

Use the following checklist to make sure that you have the tools necessary to install your EXQ Exit Hardware Trim.

- Electric drill (preferably corded)
- Jigsaw
- Wire snips
- Wire strippers
- Phillips screwdriver
- Measuring tape
- Straight edge
- Square
- Pencil/marker
- 7/16" dia drill bit
- 7/8" dia drill bit
- 1" dia hole saw

For Precision® Hardware and Sargent installations

- 1-3/8" dia hole saw (EV function only)
- 1-1/8" dia hole saw

For Von Duprin® installations

- 2" dia hole saw
- 3/4" dia hole saw

For BEST® cylinders

- BEST ED211 cylinder wrench

For surface vertical exit devices

- Razor blade

Preparing the door

1 Mark centerlines

Note 1: If retrofitting to an existing exit hardware installation, skip this task. Instead, remove the exit hardware from the door.

Note 2: If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement.

- 1 Prepare the push side of the door according to the exit device manufacturer's installation instructions.

Note: The tape-on template supplied with the EXQ trim will supersede the exit device template in the trim area.

- 2 Transfer horizontal and vertical centerlines to the outside of the door face.

Note: When measuring from the edge of the door, take into account the door bevel (if any).

2 Determine required door prep

- 1 Determine which template is applicable (Q08 for Precision and Sargent, Q07 for Von Duprin) and discard the other one.
- 2 Based on the kind of exit device you have, use the table below to locate the appropriate door preparation.
- 3 On the template, circle the holes needed for your installation and cross out those that are not applicable.

	Device	Figure
Precision	Rim (2100)	Figure 2
	Surface Vertical (2200)	Figure 3
	Mortise (2300)	Figure 4
	Wood Door Concealed (2700)	Figure 3
	Concealed Vertical (2800)	Figure 3
Von Duprin	Rim (with RQE)	Figure 5
	Rim (without RQE)	Figure 7
	Surface Vertical	Figure 7
	Concealed Vertical	Figure 7
	Sargent Rim	Figure 6

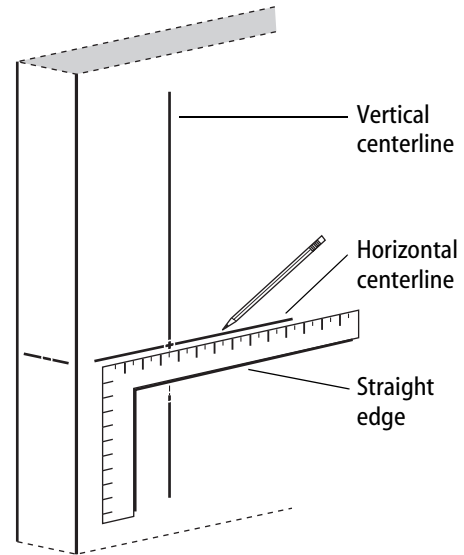


Figure 1 Marking centerlines on outside door face

Note: Follow the Precision 2300 door preparation for Sargent, ignoring any steps directly pertaining to the mortise lock or key cylinder.

Preparing the door

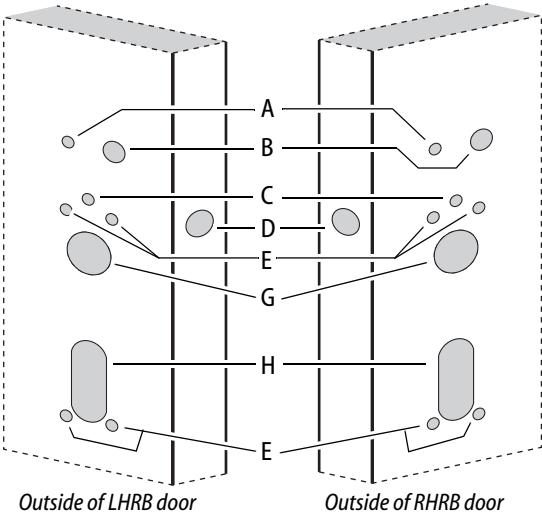


Figure 2 Outside door prep for use with Precision exit hardware, 2100 Series

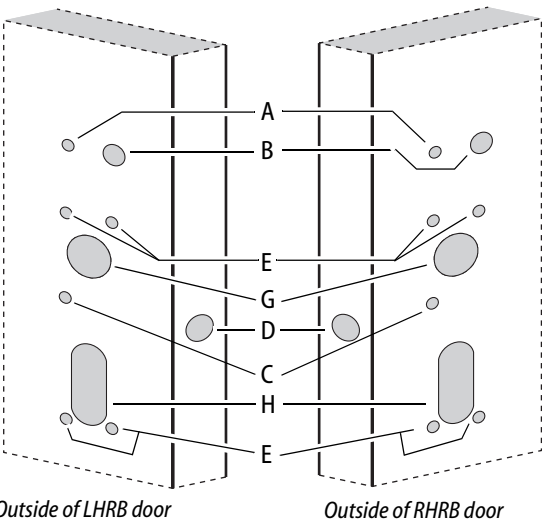


Figure 3 Outside door prep for use with Precision exit hardware, 2200, 2700, and 2800 Series

Hole	Description	Instructions
A	Battery bracket hole	7/16" diameter, thru door
B	Battery bracket/harness hole	7/8" diameter, thru door
C	Sensor harness routing hole	7/16" diameter, thru door
D	Door sensing switch mounting hole and channel	1" diameter hole, drilled 1-3/4" deep, then 7/16" channel to intersect door sensing wire routing hole.
E	Escutcheon mounting holes	7/16" diameter, thru door
F	Door sensing switch magnet hole (in door frame or opposing door leaf)	1" diameter hole, drilled 1-3/4" deep (NOT SHOWN).
G	Cylinder hole	Precision: 1-3/8" diameter, thru door (for 2300, only into mortise cavity) Von Duprin: 2" diameter thru door
H	Lift finger slot	Precision/Sargent: 1-1/8" diameter slot, thru door Von Duprin: 3/4" diameter slot, thru door

Preparing the door

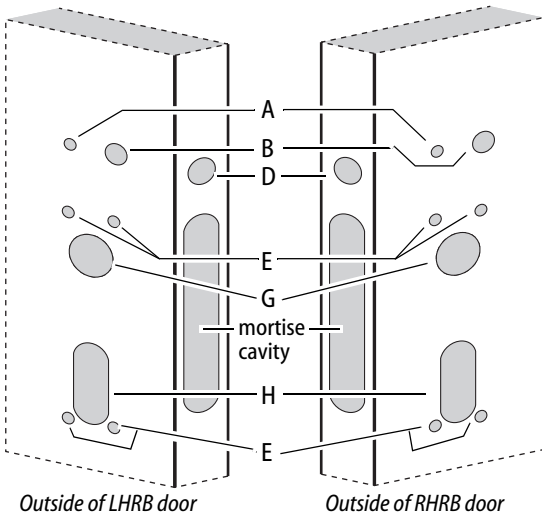


Figure 4 Outside door prep for use with Precision exit hardware, 2300 Series

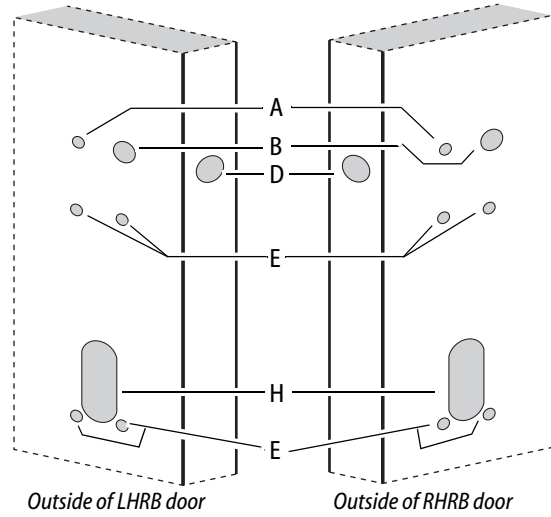


Figure 6 Outside door prep for use with Sargent 8863 exit hardware

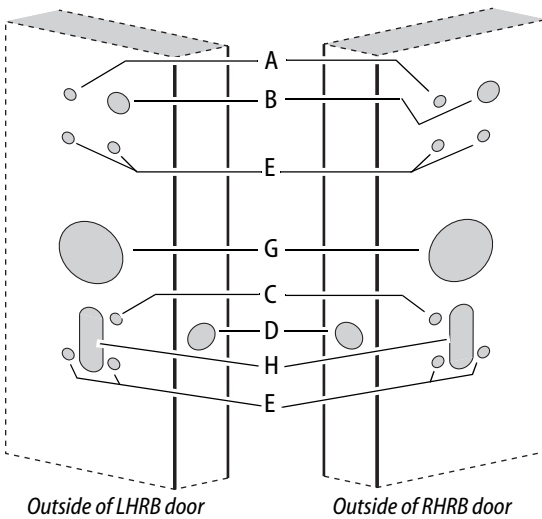


Figure 5 Outside door prep for use with Von Duprin exit hardware, Rim **with** RQE only

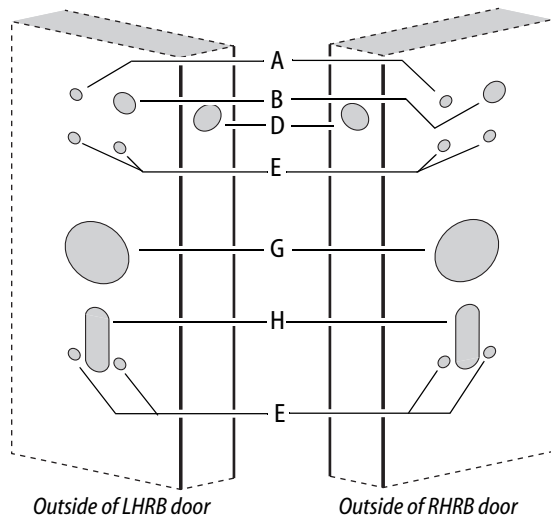


Figure 7 Outside door prep for use with Von Duprin exit hardware. Use for all Von Duprin vertical rods and rim **without** RQE

Preparing the door

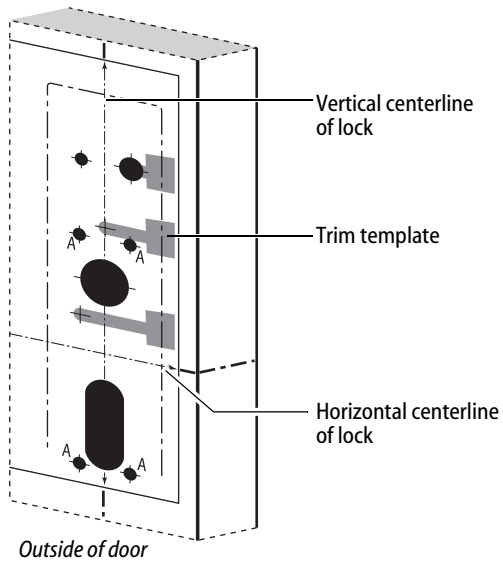


Figure 8 Positioning the trim template, Q08 LHRB shown

3 Position trim template and mark drill points

1 For new installations

- Cut the applicable template along the dashed lines.
- Align the horizontal and vertical centerlines marked on the template with the centerlines marked on the **OUTSIDE** of the door (from step 1). See Figure 8.

For retrofit installations

Align the mounting holes for the escutcheon and lock stile case shown on the template with the mounting holes already present in the door.

Note: The outside escutcheon is mounted using the four lock stile case mounting holes ('A' holes); these holes must be 7/16" in diameter and drilled completely through the door.

- Tape the template to the **OUTSIDE** of the door in the properly aligned position.
- Center punch the necessary drill points. Refer to the instructions on the template and the figures of the previous step.

4 Mortise for mortise case and faceplate (mortise exit devices only)

Note: If retrofitting the EXQ Exit Hardware Trim to an existing exit hardware installation, skip this task.

Mortise the edge of the door for the mortise case and faceplate; follow the instructions provided by the exit hardware manufacturer.

Installing the exit hardware and trim

5 Drill holes

Caution: Double-check for the correct lock function, hand, and bevel before drilling.

- 1 Drill the trim holes that are required for your application; follow the instructions on the trim template and refer to the figures in step 2.

Note 1: To locate the center of a hole on the opposite side of the door, drill a small pilot hole through the door.

Note 2: For holes through a wood door, drill halfway from each side of the door to keep the door from splintering.

6 Install mortise case (mortise exit devices only)

Install the mortise case in the door; follow the instructions provided by the exit hardware manufacturer.

7 Install door sensing switch

- 1 Clip off the purple wires and connector and remove.
- 2 Clip off the connector from the white door sensing harness (with black sleeving) and leave as much wire as possible. See Figure 9. These wires will be butt-spliced to the sensing harness from the trim. See "Route sensor wires" on page 14.
- 3 Route the door sensing switch wires through the channel and out through the wire routing hole to the exit device side. See Figure 9.
- 4 Press-fit the door sensing switch into the 1" diameter hole in the door.
- 5 Mark and drill 1" diameter hole in the frame, aligned with the door position switch (for the magnet).

Note: For double-door applications, this hole will be into the edge of the opposing door leaf (not the frame).
- 6 Press-fit the door sensing magnet into the 1" diameter hole in the frame.

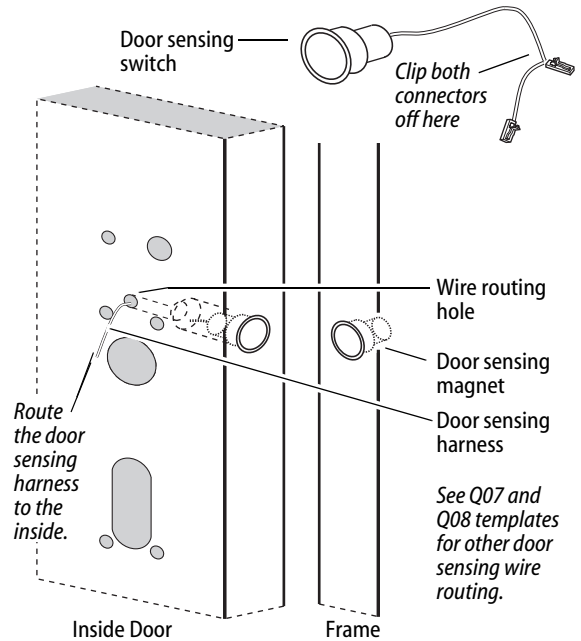


Figure 9 Installing the door sensing switch and magnet, Precision 2100 shown

Installing the exit hardware and trim

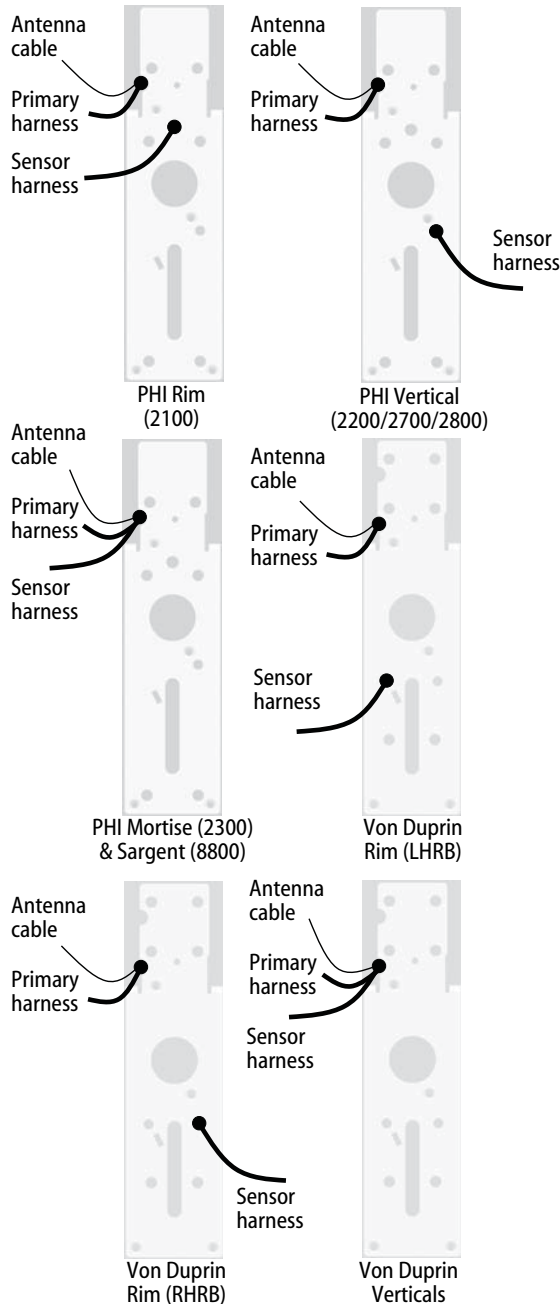


Figure 10 Variations of EXQ Trim rear view

8 Re-route sensor harness (if applicable)

Looking at the back of the trim, compare it to the pictures in Figure 10. If your trim does not match the proper picture, then follow the applicable steps below to re-route the sensor harness.

Installing the exit hardware and trim

- 1 Carefully peel the black gasket off of the back of the trim. Set it aside to be re-applied later.
- 2 Remove the backplate from the trim by removing the four screws that attach it.
- 3 While the gasket and backplate are removed, change the handing of the trim if necessary.
Do so by removing the four threaded guide pins and retaining ring as shown in Figure 11, pulling out and flipping the lever 180 degrees, and then reassembling.

For Precision 2100 devices

- 4 Re-route the sensor harness out through the alternate wire-routing hole as shown in Figure 12.
- 5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.
- 6 Reapply the gasket.

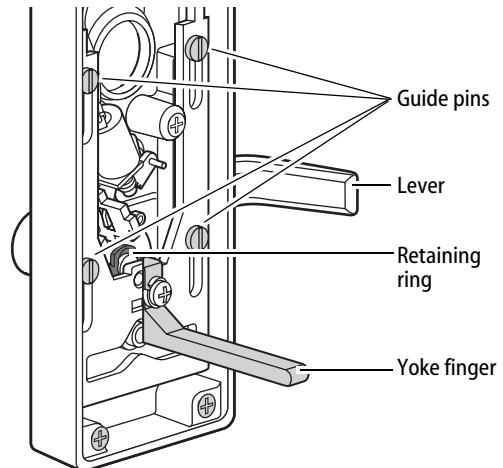


Figure 11 Changing the hand of the trim (if needed)

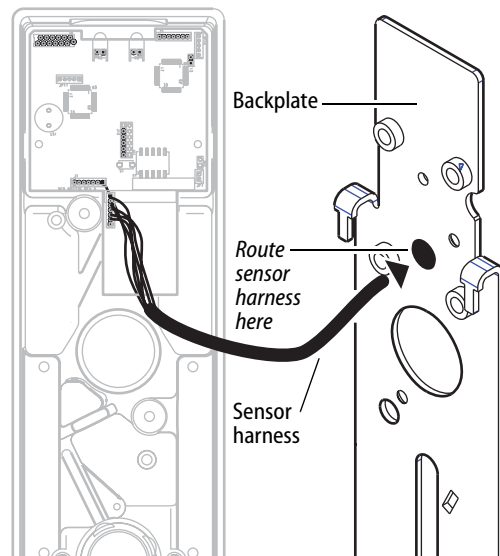


Figure 12 Re-routing the sensor harness for Precision 2100 exit devices

Installing the exit hardware and trim

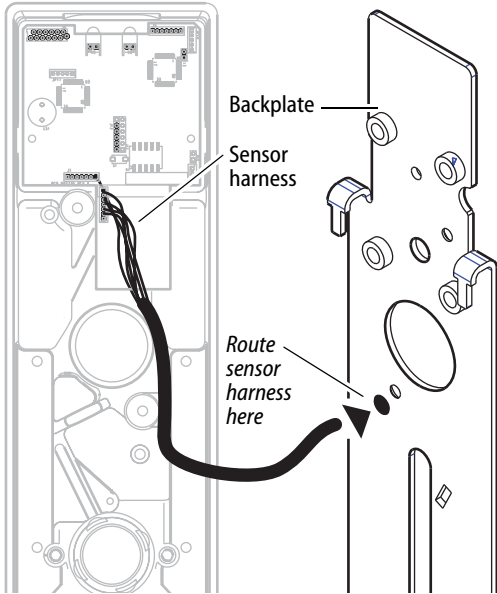


Figure 13 Re-routing the sensor harness for Precision 2200, 2700 and 2800 exit devices

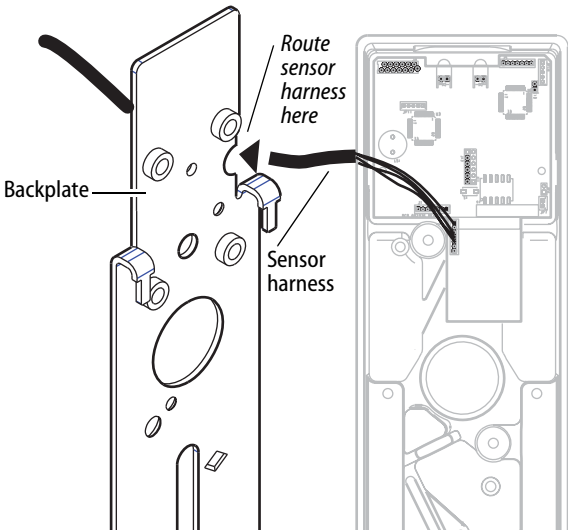


Figure 14 Re-routing the sensor harness for Precision 2300 and Sargent 8800 exit devices

For Precision 2200, 2700 and 2800 devices

- 4 Re-route the sensor harness around the cylinder hole and around the escutcheon boss, then out through the alternate wire-routing hole as shown in Figure 13.
- 5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.
- 6 Reapply the gasket.

For Precision 2300 and Sargent 8800 devices

- 4 Re-route the sensor harness toward the top of the escutcheon to the same area as the battery cable, antenna cable and relay shunts. See Figure 14.
- 5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.
- 6 Reapply the gasket.

For Von Duprin Rim devices with RQE

- 4 Re-route the sensor harness around the cylinder hole and around the escutcheon boss, then out through one of the alternate wire-routing holes (based on handing) as shown in Figure 15.
- 5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.
- 6 Reapply the gasket.

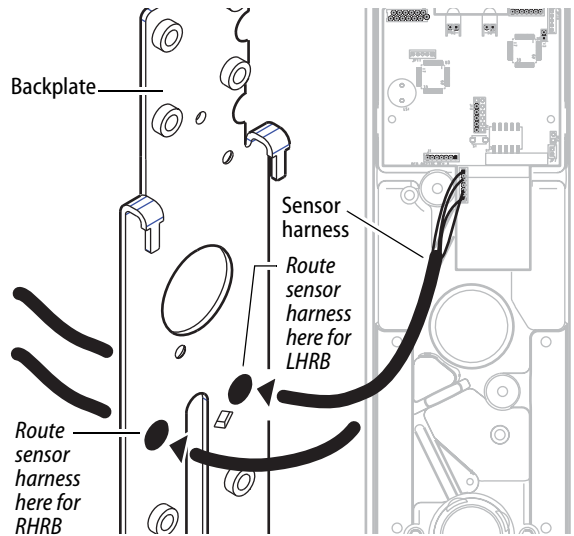


Figure 15 Re-routing the sensor harness for Von Duprin with RQE

Installing the exit hardware and trim

For Von Duprin vertical rod devices and rim without RQE

- 4 Re-route the sensor harness as shown in Figure 16.
- 5 Reattach the backplate ensuring that the springs are properly seated and wires are not pinched.
- 6 Reapply the gasket.

9 Install cylinder (Von Duprin only)

- 1 To determine the correct spindle length, try the cylinder in the door while holding the escutcheon and lock stile case in place.
Then break off the spindle at the groove where it will engage correctly with the latching mechanism.
If necessary break off the mounting screws as shown in Figure 17.
- 2 From the front of the escutcheon, insert the cylinder into the cylinder opening.
- 3 Holding the cylinder in position in the escutcheon, insert the cylinder mounting sleeve through the back of the escutcheon, over the cylinder.
- 4 Orient the cylinder and clamp plate as shown in Figure 17. From the back of the escutcheon, secure the cylinder and mounting sleeve using the clamp plate and mounting screws.

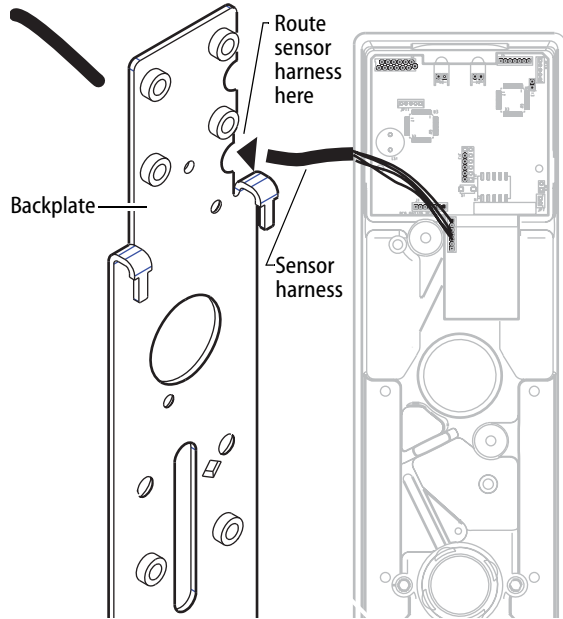


Figure 16 Re-routing the sensor harness for Von Duprin vertical rod and rim without RQE exit devices

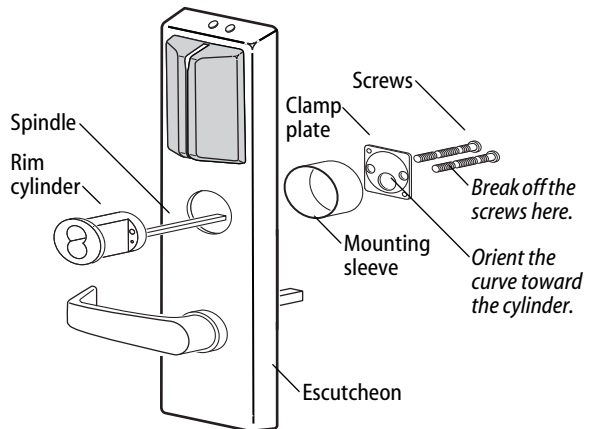


Figure 17 Installing the cylinder for Von Duprin rim and rod exit devices

Installing the exit hardware and trim

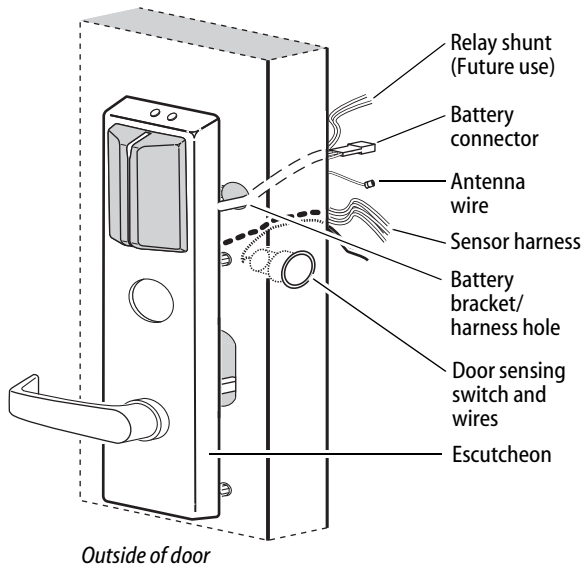


Figure 18 Feeding the wires through the door

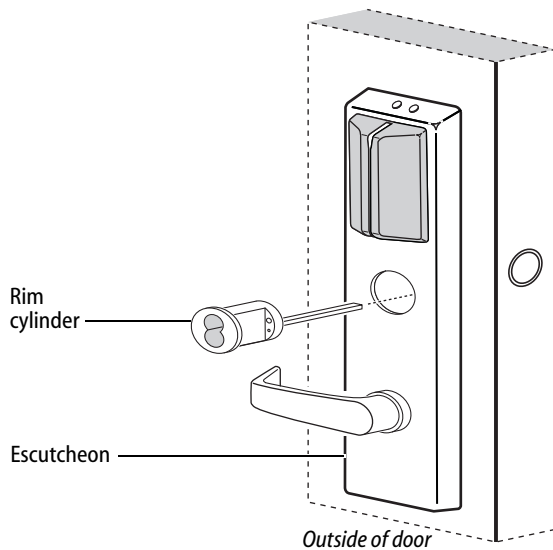


Figure 19 Installing the cylinder

10 Route wire harnesses and position escutcheon

- 1 From the outside of the door, feed the antenna wire and battery connector (with relay shunt) through the battery bracket/harness hole as shown in Figure 18.

Caution 1: When routing the connectors, make sure the harnesses are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

Caution 2: Do not strain the wire harness either by pulling too hard on it or by dangling the escutcheon from it.

- 2 Route the sensor harness through the door (same hole as the door sensing wires).
- 3 Rest the escutcheon on the door by inserting the trim studs into the mounting holes.

11 Install cylinder (Precision devices)

For rim and vertical rod exit device installations (rim cylinder)

- 1 To determine the correct spindle length, try the cylinder in the door while holding the escutcheon and lock stile case in place.

Then break off the spindle at the groove where it will engage correctly with the latching mechanism.

Break off the mounting screws at the groove where they will secure the clamp plate to the cylinder.

- 2 Insert the cylinder through the cylinder opening in the escutcheon and into the door as shown in Figure 19.
- 3 Orient the cylinder and clamp plate as shown in Figure 20. From the inside of the door, secure the cylinder using the clamp plate and mounting screws.

Installing the exit hardware and trim

For mortise exit device installations (mortise cylinder)

- 1 For doors less than 2" in thickness, place the cylinder ring provided on the cylinder.
- 2 Rotate the cylinder cam to the 12 o'clock position, as shown in Figure 21.
- 3 Using a cylinder wrench (ED211), insert the cylinder through the cylinder opening in the escutcheon and screw the cylinder into the mortise case. Make sure that the figure-8 hole is in the 12 o'clock position.

Caution: Do not screw the cylinder in too tightly. Doing so may cause users to be locked out.

12 Install exit hardware and secure escutcheon

For Precision 2200, 2700 and 2800 exit devices only

- Drill a 5/16" hole through the front part of the chassis as shown in Figure 22. (This hole is used to pass the sensor harness and door position switch wires into the chassis area.)

For all exit devices

- 1 Make any adjustments to the exit hardware necessary for compatibility with lever function outside trim.
- 2 Install the exit hardware (lock stile case, touch bar assembly, latches and rods [if applicable], and related hardware); follow the instructions provided by the exit hardware manufacturer.

Note: The escutcheon is secured on the outside of the door by the screws used to mount the lock stile case on the inside of the door.

Caution: When securing the escutcheon, make sure that it does not pinch any wires.

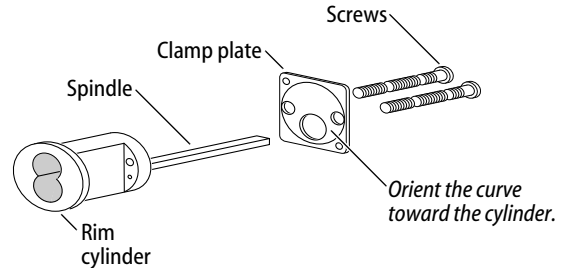


Figure 20 Rim cylinder components

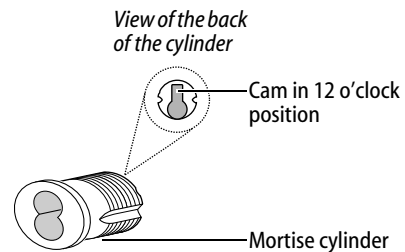


Figure 21 Mortise cylinder components

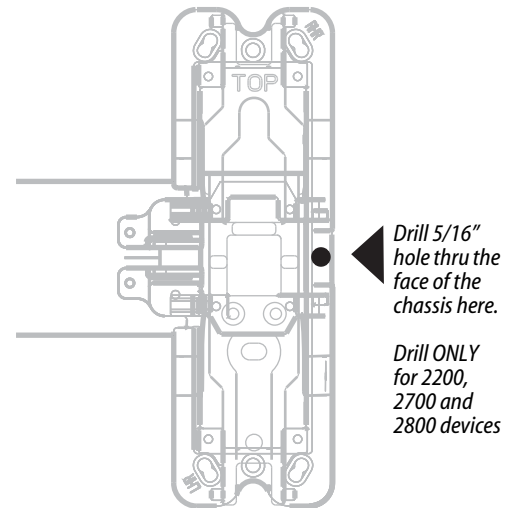


Figure 22 Drilling 5/16" hole for Precision 2200, 2700, and 2800 exit devices only

Installing the exit hardware and trim

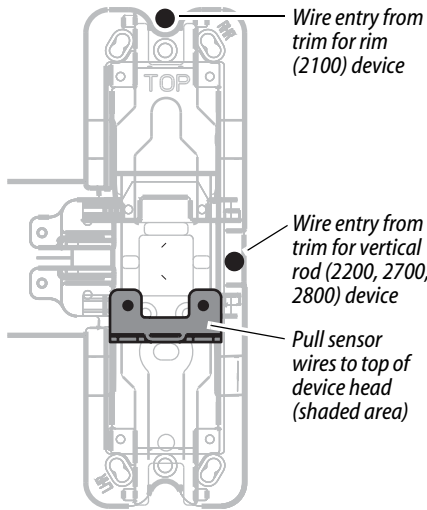


Figure 23 Pulling sensor harnesses to the top of the device head

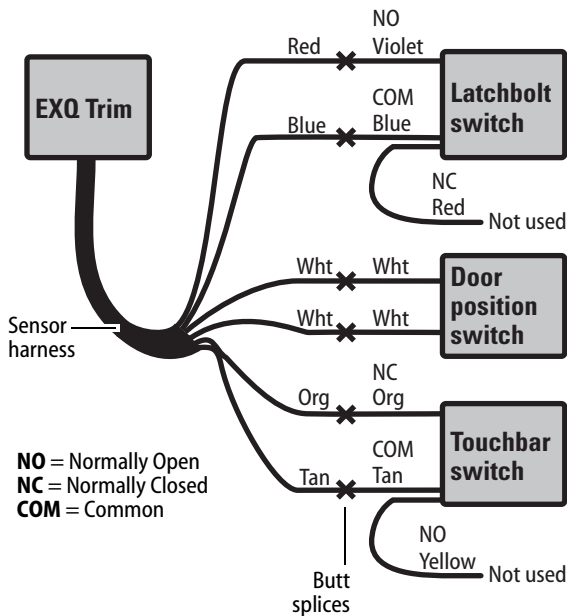


Figure 24 Schematic diagram for connecting Precision sensor harness wires

13 Route sensor wires

Use the following table to determine sensing wire functions:

Wire function	Colors	No. of wires
Touchbar monitoring (RQE)	Orange and tan	2
Door sensing	White	2
Latchbolt sensing	Red and blue	2

- 1 Pull wires from the sensor harness, door position switch, latchbolt switch, and touchbar switch to the top of the device head as shown in Figure 23.

Note: For Precision 2300, Sargent 8800, or any Von Duprin application without RQE, pull the door position switch and sensor harness wires into the battery bracket area rather than the device head.

Note: For Von Duprin applications with RQE, touchbar switch wires must be re-routed into the device head in such a way as to avoid any pinching or contact with moving parts. The sensor harness can be routed into the head area through any suitable hole in the chassis.

- 2 Cut the wires to the appropriate length (that is, remove the excess to leave minimal slack after the spliced connections).
- 3 Strip the wire ends for connection using the butt-splices.
- 4 Make wire connections as detailed in Figure 24 or Figure 25 using the butt-splices (provided).

Note: For Sargent devices, connect the door position switch to the two white sensor harness wires.

Note: In the case of unused wires, be sure to cover the ends with electrical tape.

Installing the exit hardware and trim

- 5 Make sure to route and dress the wires so that they do not interfere with any moving parts.
- 6 Tape the wires to the device head (some tape is provided).

Note: For Precision 2200, 2700, and 2800 exit devices, use cable ties in addition to the tape, to hold wires as shown in Figure 26.

- 7 Install the case cover.

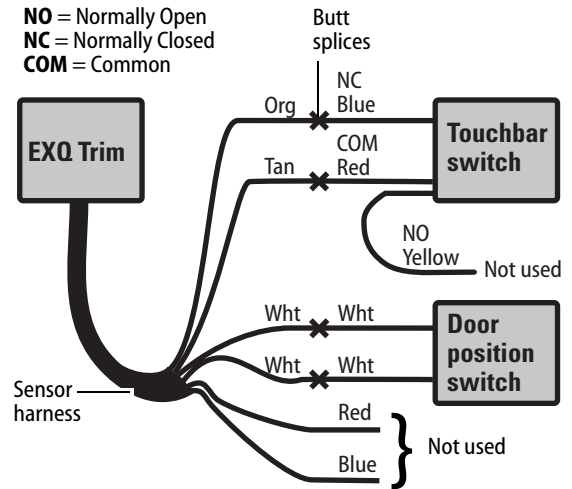


Figure 25 Schematic diagram for connecting Von Duprin sensor harness wires

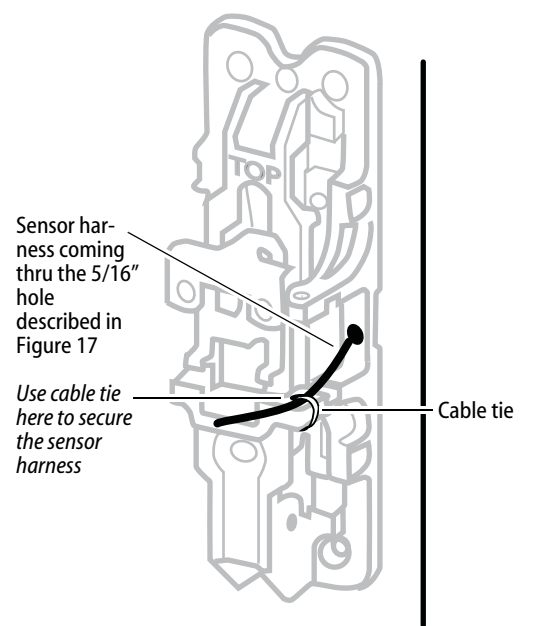


Figure 26 Using cable ties to hold wires for Precision 2200, 2700, and 2800 exit devices

Installing the exit hardware and trim

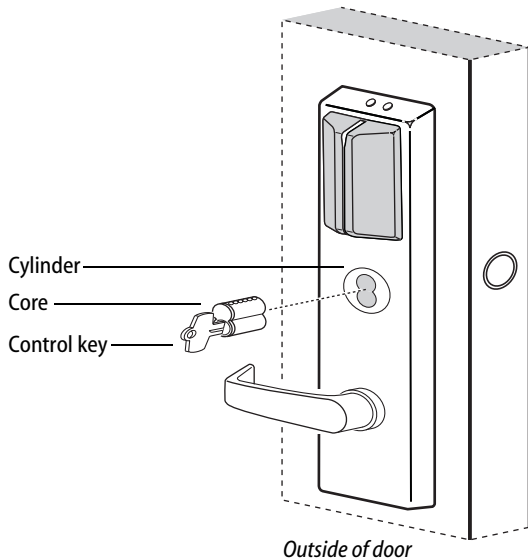


Figure 27 Installing the core

14 Install core

- 1 Insert the control key into the core and rotate the key 15 degrees to the right.
- 2 With the control key in the core, insert the core into the cylinder as shown in Figure 27.
- 3 Rotate the control key 15 degrees to the left and withdraw the key.

Caution: The control key can be used to remove cores and to access doors. Provide adequate security for the control key.

15 Install mortise case faceplate (mortise exit devices only)

- 1 Secure the mortise case faceplate to the mortise case; follow the instructions provided by the exit hardware manufacturer.
- 2 Check the lock for proper operation.

16 Install strike(s)

Note: If retrofitting the trim to an existing exit hardware installation, skip this task.

- 1 Install the strike(s) in the door frame or door stop; follow the instructions provided by the exit hardware manufacturer.
- 2 Check the lock for proper alignment between the strike(s) and latch(es).

Completing the installation

17 Install battery bracket on door

- 1 Position the battery bracket on the inside of the door as shown in Figure 28.

Note: If installing with a surface rod exit device, the battery bracket is mounted over the upper rod.

- 2 Secure the battery bracket to the door using two of the mounting screws provided.

Note: For doors less than 2" in thickness, use the 1 1/4" screws. For doors 2" or greater, use the 1 3/4" screws.

Caution: When routing the wire harness, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation. Keep away from any moving parts.

- 3 Tape all wires to the bracket using the tape provided.

Note: For Precision 2300, Sargent 8800, or any Von Duprin exit device without RQE, sensor harness and door position switch wires will also be run into this area of the battery bracket.

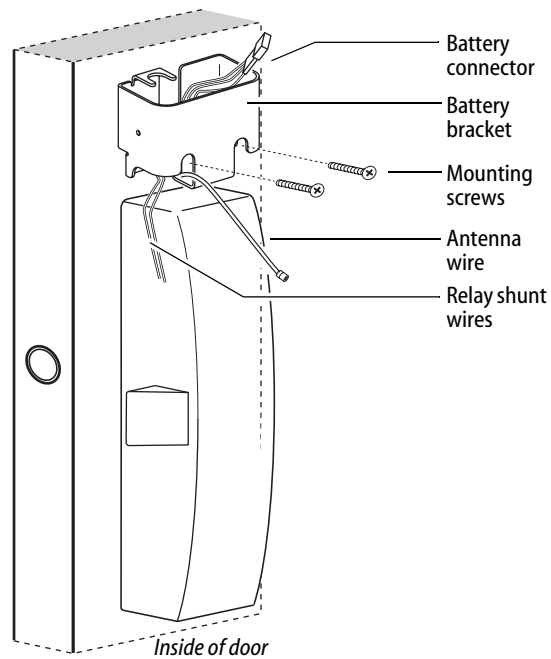


Figure 28 Installing the battery bracket on the door

Completing the installation

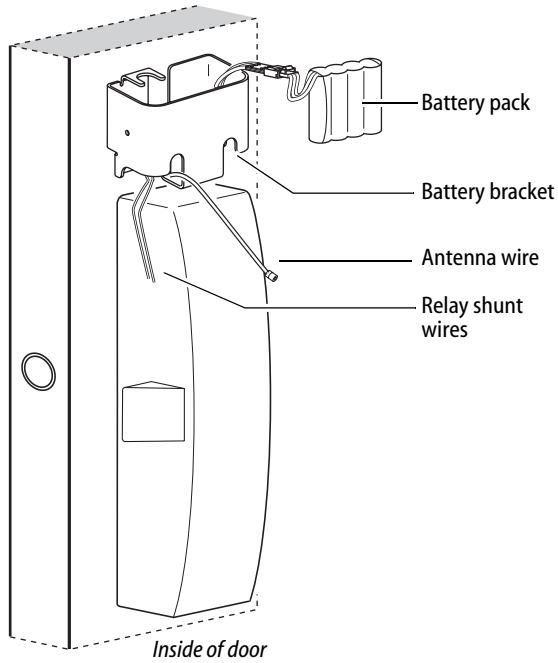


Figure 29 Connecting the battery pack

18 Install battery pack in bracket

- 1 Connect the battery pack to the battery connector on the wire harness as shown in Figure 29.

Caution: When connecting the battery pack, make sure:

- there are no loose wire connections where the wires are inserted into the connectors
- the connectors are firmly mated.

- 2 Place the battery pack in the holder inside the battery bracket and dress the wire harness inside the bracket.

Caution: The battery pack fit will be snug. Make sure you do not damage the sleeving on the battery pack. Doing so may cause the batteries to drain.

- 3 If installing with a surface vertical rod device, dress the wire harness inside the bracket to the left of the rod so that the harness will not interfere with the movement of the rods.

We recommend that you loosely coil the harness and use a cable tie to secure the coil. To avoid damaging the harness, do not put any sharp bends in it or flex it close to the connectors.

Caution: Failure to dress the wire harness away from the rod could damage the wire harness, causing the lock's electronics to not work properly.

Completing the installation

19 Install battery/antenna cover

- 1 **If installing with a surface vertical rod exit device,** carefully use a razor blade to remove the knockouts for the rod from the battery cover. See Figure 30.
- 2 Connect the antenna to its mating connector.
- 3 Coil the antenna wire carefully inside the battery cover.

Caution: Carefully bend, but do not twist or kink the antenna wire. Doing so may significantly reduce or completely interrupt signal transmission.

- 4 **Making sure that the battery/antenna cover does not pinch any wires,** place the battery/antenna cover over the bracket and battery.
- 5 Secure the battery cover with the provided self-tapping screws.

Caution: Tighten screws firmly but do not over-tighten. Over-tightening may strip screw holes or crack the cover.

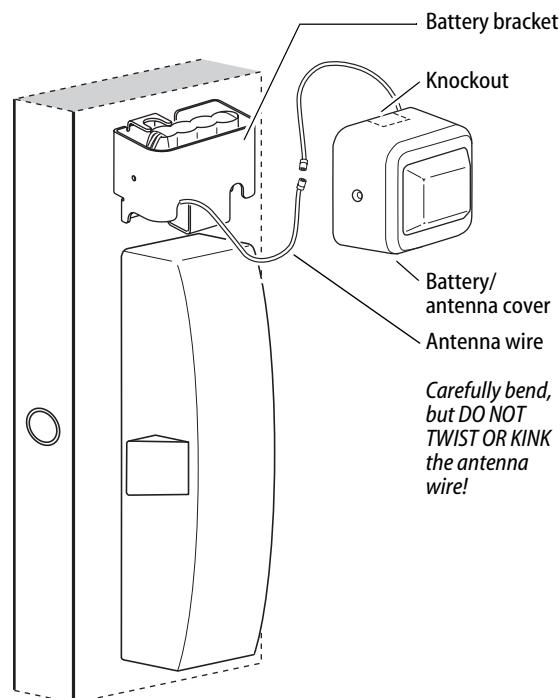


Figure 30 Installing the battery cover over the battery bracket and connecting the antenna

Completing the installation

20 Test lock

For EXQ Locks with keypad only:

To test the lock for proper operation before the lock is programmed, follow these instructions:

- 1 Press **1234**.
- 2 Press **#**.
The green light flashes and the locking mechanism unlocks.
- 3 Turn the lever and open the door.

For all other locks:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the lock. This card is for temporary use only. After permanent cards have been programmed for the lock, the temporary card should be deleted.

- 1 Use the temporary operator card to activate the lock.
- 2 Use the temporary operator card to access the lock.
The green light flashes and the locking mechanism unlocks.
- 3 Turn the lever or knob and open the door.
- 4 With the door closed, insert and turn the key to unlatch the door.

If the mechanism doesn't unlock, refer to the following table.

LEDs	Sounder	You should
Single red flash	1 short tone	Use the card at a moderate speed.
Single red flash	3 short tones	Use the temporary operator card provided with the lock. or Perform a door reset to restore to the factory default settings (the lock may already be associated/programmed)
Alternating red and green flashes	none	Check the motor connection.
none	none	Check the battery connection.

Important: When the trim and exit hardware installation is complete, perform all testing specified by the exit hardware manufacturer.

©2019 dormakaba USA Inc.
T82621/Rev E 3108554 ER-7991-12 November 2019

Installation Instructions for BEST Wi-Q™ Technology WQX-WAC Wireless Access Controllers

Introduction

The WQX Wireless Access Controller (WAC) controls access to one door or access point. It runs on four AA batteries, or can be externally powered with a DC power supply. The WAC can be purchased integrated in a box with power supply or can be purchased stand-alone. If purchased as a stand-alone unit the power supply powering the WAC (WQX alone with no other devices connected) must be able to deliver at least 500mA.^a

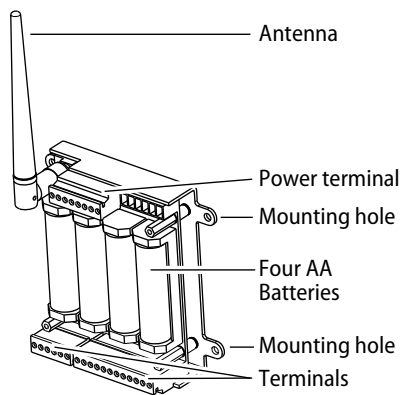


Figure 1 Wireless Access Controller, shown without cover

Site survey

If a site survey has not been completed, contact your dormakaba Representative.

Components checklist

Use the following checklist to make sure that you have the items necessary to install your Wireless Access Controller.

- a. Power for WAC device only. Calculate power requirements for attached readers separately.

Components provided in the box

- Wireless Access Controller with antenna
- Batteries
- Documentation

Optional components

- Indoor ceiling mount omni-directional antenna
- Indoor wall mount directional antenna
- Outdoor mount directional antenna
- Outdoor mount omni-directional antenna
- Enclosure

1 Mount Wireless Access Controller

The standard WAC comes with a small antenna, but you may need a supplemental antenna for your application. See the *Site Survey Tool Quick Reference Guide* for more antenna information.

- 1 Determine the appropriate location for the wireless single door controller, making sure that the antenna will have maximum exposure for signal transmission.
- 2 Mount the Wireless Access Controller box.
- 3 Screw on antenna as shown in Figure 1 so that it's vertical and upright.
- 4 Install batteries if needed.

2 Install other hardware as necessary

Make sure all other system components are mounted and installed. System components may include:

- Electronic or electric lock or strike
- Request-to-exit switch
- Power supply for lock or strike
- Reader: either magstripe, proximity, keypad or combination readers. The default reader is a Weigand, 26-bit, 8-bit word type.

Planning the installation

Manufacturer	Part number
BEST	909028065
Indala	FP2511A
XceedID	XF-1050-B
HID	5355AGK00
Essex	KTP-163-SN

- Sensors: door, latch, deadbolt, key, and/or other.
Note: Some sensors may be included inside the lock. The BEST 45HW may include door, latch, deadbolt, and key sensors.

3 Pull wire and make connections to wireless access controller

- 1 Determine what connections you need to make based on your application.
- 2 Using Figure 2 and Table 1 make the connections.

Table 1 WAC Connections and descriptions

Terminal	Description
Strike NC	Normally-closed terminal where the locking mechanism connects
Strike COM	Common return path for current through the locking mechanism
Strike NO	Normally-open terminal where the locking mechanism connects
SHUNT NC	Normally-closed relay terminal that shunts door force alarm if access is granted or RQE is activated
SHUNT COM	Return path for the shunt relay
SHUNT NO	Normally-open terminal for the shunt relay
KEY	Detects and reports a key-over-ride event

Table 1 WAC Connections and descriptions

Terminal	Description
GND	Return path for the key-over-ride switch and RQE
RQE	Request-to-exit input
DS	Door status input
GND	Return path for door status and latch status
LS	Latch status input
WIEGAND 0	Wiegand D0 terminal
GND	Ground (the wiegand reader must be grounded at this point)
WIEGAND1	Wiegand D1 terminal
RED	Red LED control input
GND	LED ground point
GRN	Green LED control input
ANT	Antenna connection
Negative DC terminal	Power connection
Negative DC terminal	Power connection. Use the extra negative DC terminal to 'daisy-chain' power to another wireless access controller or reader. ^a
Positive DC 9–24V terminal	Power connection
Positive DC 9–24V terminal	Power connection. Use the extra positive DC terminal to 'daisy-chain' power to another wireless access controller or reader. ^a

- a. Make sure the power supply is of appropriate wattage to supply enough power.

Important note: When using the WAC to daisy-chain other devices, be sure that the other devices will accept the voltage supplied to the WAC.

Planning the installation

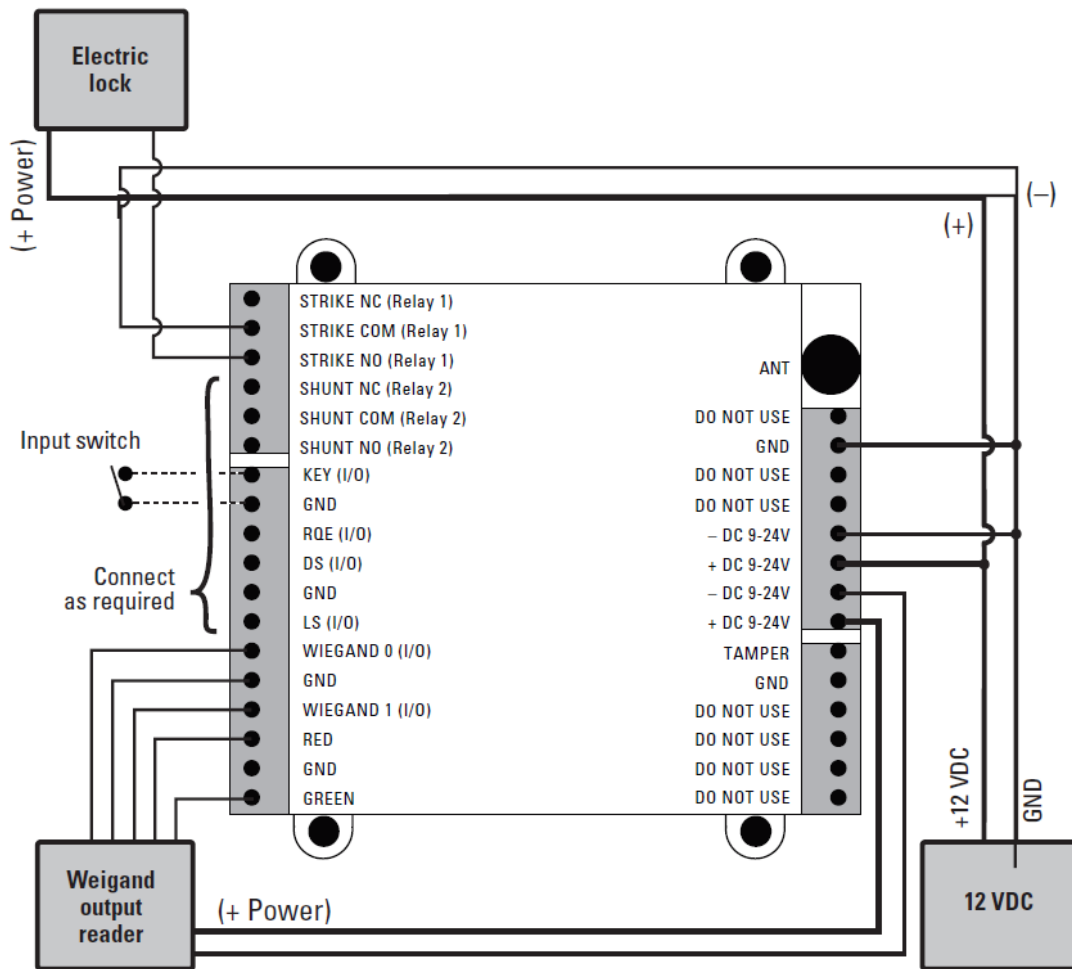


Figure 2 Wireless Access Controller, typical installation.
See Table 1 for a description of connections.

Planning the installation

4 Sign on WAC

The process of bringing a WAC into the BEST Wi-Q™ Access Management System (AMS) is known as signing on.

If the connected reader doesn't have a keypad, a sign-on keypad is required. If no wired keypad is installed, a sign-on keypad is available as accessory WQD-WAC-PAD.

Connect the sign-on keypad to the WAC Wireless Access Controller

- 1 Once the WAC is wired, connect the sign-on keypad to the WAC reader terminal.

Signing on a WAC Wireless Access Controller

- 2 Enter **5678** on the keypad.

This will cause the green LED to blink the on the WAC three times.

- 3 Enter the sign-on key for the facility in the AMS database.

Note: *The sign-on key can be found under the facility sign-on credential field in the Wi-Q Technology™ Access Management System (AMS). Refer to the BEST Wi-Q AMS User Guide.*

You should see the red and green LEDs blinking and the blue light turns ON to indicate that the radio on the board is active. Once the reader signs on to one of the Wi-Q gateways in your facility, the green LED on the WAC blinks three times. At this point the WAC should appear under the New Facility Item folder in AMS (it may take up to 2 minutes for this to occur).

5 Test WAC

For Wireless Access Controller with keypad only:

To test the WAC for proper operation before it's programmed, follow these instructions:

- 1 Press **1234**.
- 2 Press **#**.

The green light flashes and the locking mechanism unlocks or you should hear a relay click.

- 3 Operate the lock and open the door.

For Wireless Access Controllers wired to card readers:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the device. This card is for temporary use only. After permanent cards have been programmed into the device, the temporary card will no longer unlock the lock (once users are programmed into the WAC).

- 1 Using the installed reader to access the lock, present the temporary operator card to gain access.

The green light flashes and the locking mechanism unlocks.

If the mechanism doesn't unlock, use the on-board LEDs and refer to the following table.

WAC on-board LEDs	You should
Single red flash	Use the card at a moderate speed.
Three red flashes	Use the temporary operator card provided with the lock. or Perform a deep reset to restore to the factory default settings (the lock may already be associated/programmed)

Planning the installation

WAC on-board LEDs	You should
none	Check the battery connection.
no blue light	Reset. Sign-on the WAC using the sign-on procedure.

LEDs	You should
Single red flash	Use the card at a moderate speed.
Three red flashes	Use the temporary operator card provided with the lock.

Resetting the WAC

The WAC has two reset functions:

- **Soft reset** – restores previous functionality. Use this under normal operation. It will reset the WAC, but DOES NOT ERASE USERS.
- **Hard reset** – restores factory settings. Use this reset only when moving the WAC or after exhausting all other troubleshooting options.

Using the soft reset function

- Hold the reset button until the green LED flashes five times and then release. See Figure 3.
Lights will alternate red/green rapidly.
The WAC is restored to its previous functionality

Using the hard reset function

Caution: Use this procedure only to restore the factory default settings. Performing these steps will erase all user data that may have been programmed into the WAC.

- Hold the reset button for up to 30 seconds — until the green LED flashes and then the red LED flashes three times. Then release. See Figure 3.
All users are erased and the WAC is restored to its factory default settings.

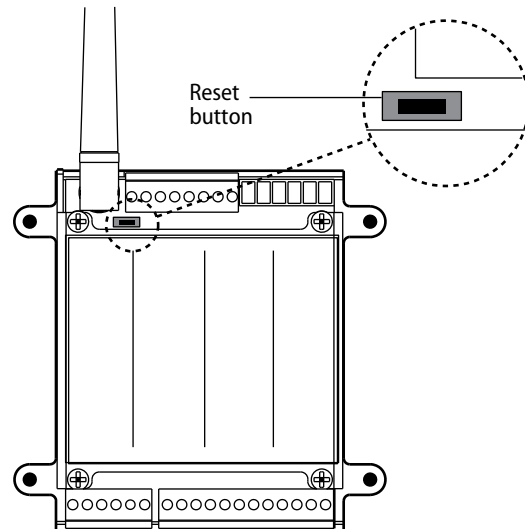


Figure 3 Using the reset button

Installation Instructions for BEST Wi-Q™ Technology WQX-WAC Wireless Access Controllers



BEST 

dormakaba Group

6161 East 75th Street
Indianapolis, IN 46250 USA
Phone 1-800-392-5209

<https://dhwsupport.dormakaba.com/hc/en-us>

BEST
OMNILOCK