Integration Note

Manufacturer:	Baldwin, Kwikset, Schlage, Yale
Model Number(s):	**Baldwin 8252.112.AC3, 8252.112.AC3X, 8285.150.AC3, 8285.150.AC3X** **Kwikset Deadbolt 99100-0xx (where xx = 04, 05, 06, 011, 012, 013, 014)** **Schlage Deadbolt BE369, BE469** **Schlage Lever FE599, FE599NX** **Yale Deadbolt ARYD210, ARYD220** **VeraEdge Z-Wave Protocol Adapter**
Core Module Version:	5.7 or newer required
Document Revision Date:	4/4/2016

OVERVIEW AND SUPPORTED FEATURES

The Baldwin, Kwikset, Schlage, and Yale Door Locks are wireless Z-Wave Door Locks. The Baldwin, Kwikset and Yale Door Locks have a motorized deadbolt which can be extended or retracted via Z-Wave commands. The Schlage BE369 Door Lock receives Z-Wave commands which enable the deadbolt to be manually extended or retracted using the exterior knob. The Schlage FE599 Door Lock receives Z-Wave commands which enable the exterior lever to open the door latch.   These Door Locks are remote controllable over Z-Wave 900mhz wireless mesh networks via the use of a VeraEdge adapter, enabling 2-way control and feedback from **g!**.

In addition to being controlled by Z-Wave commands, these Door Locks can be secured and unsecured by entering a user code on the keypad attached to the Lock, by turning an interior lever, or by using a physical key (as in traditional door locks).

The **g!** System will support up to 32 Door Locks in a Z-Wave network.

Note: Z-Wave RF operates at 900MHz. Any other devices operating on the same frequency may cause interference and might need to be relocated or removed. Leviton recommends the system in installations of 7500 square feet or less and installing devices typically no more than 30 feet apart. A maximum of 232 devices can be included in a Z-Wave network. Additional information can be found at www.z-wave.com.

THE BALDWIN, KWIKSET AND YALE DOOR LOCKS SUPPORT THE FOLLOWING FEATURES:

Secure Lock: The Lock can be secured (ie, deadbolt extended) either by Z-Wave command, pressing a "lock" button on the exterior keypad, interior lever, or a traditional physical key.

Unsecure Lock: The Lock can be unsecured (ie, deadbolt retracted) either by Z-Wave command, user access code, interior lever, or a traditional physical key.

THE SCHLAGE BE369 DEADBOLT DOOR LOCKS SUPPORT THE FOLLOWING FEATURES:

Secure Lock: The definition of "Secure Lock" for the Schlage Deadbolt is different from the definition used for the Baldwin, Kwikset and Yale Locks. To "Secure a Lock" means to enable the deadbolt to be extended. The deadbolt can be extended in the following ways:

1. Send the "Secure Lock" Z-Wave command to the Lock; within 5 seconds, turn the exterior knob to extend the deadbolt.

2. Press the button labeled "Schlage" on the keypad; within 5 seconds, turn the exterior knob to extend the deadbolt.

3. Insert a physical (traditional) key into the key hole and turn the exterior knob to extend the deadbolt.

4. Turn the interior lever to extend the deadbolt.

Unsecure Lock: The definition of "Unsecure Lock" for the Schlage is different from the definition used for the Baldwin, Kwikset and Yale Locks. To "Unsecure a Lock" means to enable the deadbolt to be retracted. The deadbolt can be retracted in the following ways:

1. Send the "Unsecure Lock" Z-Wave command to the Lock; within 5 seconds, turn the exterior knob to retract the deadbolt.

2. Enter a user access code on the keypad; within 5 seconds, turn the exterior knob to retract the deadbolt.

3. Insert a physical (traditional) key into the key hole and turn the exterior knob to retract the deadbolt.

4. Turn the interior lever to retract the deadbolt.

THE SCHLAGE FE599 LEVER DOOR LOCKS SUPPORT THE FOLLOWING FEATURES:

Secure Lock: The definition of "Secure Lock" for the Schlage Lever is different from the definition used for the Baldwin, Kwikset and Yale Locks.. To "Secure a Lock" means to enable the exterior lever to operate the door latch. The door latch can be operated in the following ways:

1. Send the "Secure Lock" Z-Wave command to the Lock; the exterior lever will not be able to operate the door latch.

2. Press the button with the lock icon on the interior side of the Lock; the exterior lever will not be able to operate the door latch.

Unsecure Lock: The definition of "Unsecure Lock" for the Schlage is different from the definition used for the Baldwin, Kwikset and Yale Locks. To "Unsecure a Lock" means to enable the lever to operate the door latch. The door latch can be operated in the following ways:

1. Send the "Unsecure Lock" Z-Wave command to the Lock; the exterior lever will now be able to operate the door latch.

2. Enter a user access code on the keypad; for a period of 5 seconds, the exterior lever will be able to operate the door latch.

3. Insert a physical (traditional) key into the key hole and turn the key clockwise; the exterior lever will now be able to operate the door latch. (NOTE: To remove the key, turn the key counter-clockwise to the original position and remove the key. Doing this will resecure the Door Lock by disabling the exterior lever.)

4. Turn the interior lever to operate the door latch.

ALL DOOR LOCKS SUPPORT THE FOLLOWING FEATURES:

Auto Discovery: Door Locks may be auto-detected and added into **g!**.

Shared Z-Wave Network: A single Z-Wave network may contain Door Locks, Thermostats, and Lights. All three may be controlled over a single VeraEdge Z-Wave adapter. See the appropriate Z-Wave Thermostats and Z-Wave Lighting Integration Notes for details.

ALL DOOR LOCKS SUPPORT THE FOLLOWING EVENTS:

Battery Alert: The battery level is low and should be replaced soon.

Failed user code attempt at lock: A user failed to enter a valid user code after multiple attempts. The exact number of attempts is defined by the Door Lock itself. Refer to the appropriate Door Lock documentation.

Secured: The Door Lock is "secured" – for Baldwin, Kwikset and Yale Locks, this means the deadbolt is extended; for the Schlage Locks, this means the deadbolt or door latch cannot be operated from the outside knob/lever.

Unsecured: The Door Lock is "unsecured" – for Baldwin, Kwikset and Yale Locks, this means the deadbolt is retracted; for the Schlage Lever Door Lock, this means the exterior lever will operate the door latch; for the Schlage Deadbolt Door Lock, this means the deadbolt can be operated by the exterior knob.

There are 5 types of "Unsecured" Events:

1. By any method – Lock unsecured by any of the following methods
2. Manually –
   a. For Baldwin, Kwikset and Yale: Lock unsecured by using a traditional key from the outside, or by manually turning the knob/lever on the inside
   b. For Schlage Deadbolt: Lock unsecured by using a traditional key from the outside, or by manually turning the knob/lever on the inside, or by entering the User Code and then manually turning the exterior knob
   c. For Schlage Lever: pressing the Unlock Icon on the interior side of the Lock
3. By the controller – the **g!** System sent the command to unsecure the Lock
4. By the master code – the master code was entered on the keypad to unsecure the Lock (currently, only the Yale Locks have this feature)
5. By user X (where X = 1-30) – User X Access Code was entered on the keypad to unsecure the Lock

> **Note:** Using the traditional key or entering the User Code does NOT generate the "Unsecured" event for the Schlage Lever Lock.

User codes modified: The User Codes have been modified at the Door Lock

THE BALDWIN, KWIKSET AND YALE DOOR LOCKS SUPPORT THE FOLLOWING ADDITIONAL EVENTS:

Jammed: The motorized deadbolt jammed and could not be extended.

THE g! SYSTEM DOES NOT SUPPORT THE FOLLOWING FEATURES:

User Access Codes: The **g!** System will not require the user to enter an User Access Code to unsecure a Lock from the **g!** System User Interface. User Access Codes are required to be entered at the Lock's keypad when unsecuring a Lock at the keypad.

Programming User Access Codes: The **g!** System will not support programming of User Access Codes. User Access Codes must be programmed at the Lock itself or through other third-party software.

> Any feature not specifically noted as supported should be assumed to be unsupported.

INSTALLATION OVERVIEW

1. Install the Door Locks according to the Installation Manual for that Door Lock.

2. Test the Door Locks using the User Access Codes to verify that the Locks can be secured and unsecured properly.

3. Install a VeraEdge Z-Wave adapter in a location convenient for both a serial run to the **g!** controller and within range of other Z-Wave devices.

4. Run an Cat-5 ethernet cable to the location of the VeraEdge Z-Wave adapter.

5. Using the VeraEdge Web GUI,, create a Z-Wave network and add Door Locks according to standard procedures.

6. Configure **g!** for the Door Locks and confirm communication between the Door Locks and the **g!** system controller.

7. Test the system by securing and unsecuring the Door Locks, confirming that the various components in the system respond as expected.

CONNECTION DIAGRAMS

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Z-Wave Devices

Z-Wave Signals

VeraEdge

Switch

g! Controller

Ethernet

Ethernet
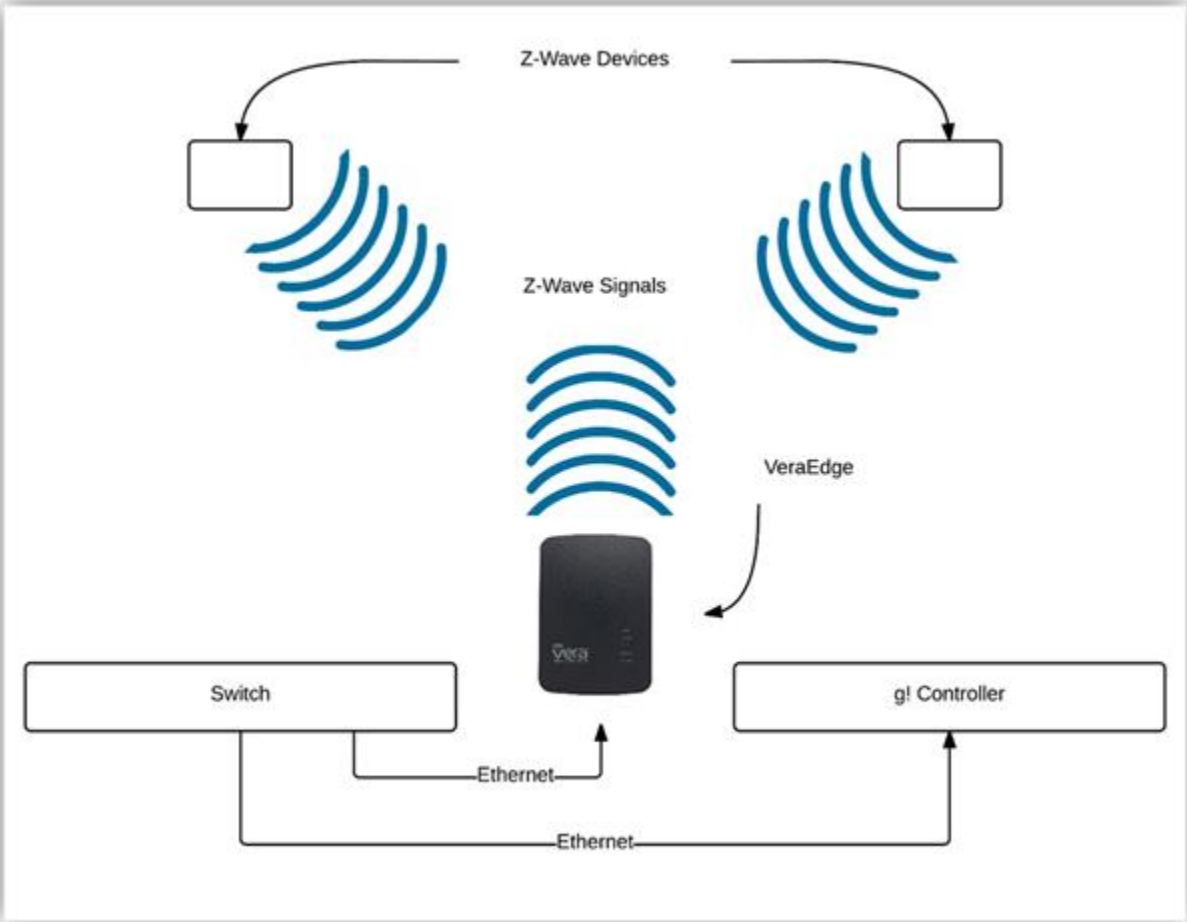
Z-WAVE NETWORK PROGRAMMING

Please refer to the VeraEdge Integration Note for details on setting up the Z-Wave network.

NOTES REGARDING THE TRACKING OF Z-WAVE DEVICES:

In general **g!** will keep track of the states of all of the Z-Wave Network Devices; however there is latency in the reporting back of the devices from the Z-Wave network. The result is that **g!** will update its states as the devices report back. This is evident when watching the viewer interface after a change is made at the device. The viewer controls will update sequentially over a few seconds (or more on larger systems) as the devices report their state.

With no repeaters in the Z-Wave network (or if the Door Locks are close enough to the VeraEdge to be able to communicate to it directly without going through a repeater), it takes about 3 seconds to secure or unsecure a door. From the time a user presses a button on the **g!** System UI till the Door Lock is secured or unsecured is about 3 seconds. It will take another 2 seconds for the lock status to be reported by to the **g!** System. The reason for the delay is inherent in the Z-Wave communication protocol. Because the Lock is battery operated, it is normally in a sleep state and wakes up once a second to see if the controller has any messages / commands for it. Then it goes through some handshaking to establish a secure path (using encrypted data for the transmission). This is what accounts for the apparent slow response time.

To secure or unsecure four locks will take about 30 seconds. To secure or unsecure 18 locks will take about 2 minutes and 35 seconds. In both cases, commands are sent down to the VeraEdge one at a time and before the next one is sent, the **g!** System makes sure all communication between the VeraEdge and the Lock is complete.

If the VeraEdge must go through a repeater to get to the Door Lock, then the above times become longer. This is because each message transmitted by the VeraEdge or the Door Lock has to now be retransmitted by the repeater.

<u>**NOTES REGARDING SIMULTANEOUS OPERATION OF Z-WAVE DEVICES:**</u>

If two Z-Wave devices attempt to transmit messages to the VeraEdge at the same instant, there is about a 10% chance that one of the messages won't make it through. Both Locks will attempt to transmit over RF their message and they may step on each other. There is a retry mechanism built into the Z-Wave protocol, but it is not fool-proof. This means that if two users were at two different Door Locks, and they both locked their lock at the same time, there is a 10% chance that the UI's on the **g!** System would show only one of the locks as secured. However, the odds of two people locking two locks at the same time is extremely small and this should not be a problem.

Another scenario is when one user is using the **g!** System UI to secure Door Lock #1, and the other user is at Door Lock #2 and locks Door Lock #2. Again, there is a 10% chance that not all the messages would be transmitted and received intact. This too could result in the **g!** Sytem's UI not reflecting the correct state of one of the locks. There is also a small chance within that 10% failure rate, that the message that failed to be transmitted and received was the "Secure Door Lock #1" command – meaning Door Lock #1 would not be secured. Again, the odds of two people operating locks at the same time (one from a UI, the other from the lock itself) is extremely small.

Each Door Lock is polled by the **g!** system 60 minutes after the last interaction with the Door Lock. So if the Door Lock Status on the **g!** System UI did get out of sync with the true Door Lock Status, it would be updated to the correct status in 60 minutes.

A third scenario involves two users using the **g!** System UI to control two different Locks at the same time. This is NOT a problem, because the Z-Wave Lock driver will only send one command at a time to the VRC0P and will wait for the Lock to respond before sending another command. No messages are lost in this scenario.

<u>**NOTES REGARDING THE EVENT "LOCK UNSECURED BY THE MASTER CODE":**</u>
Only the Yale Locks allow a Lock to be unsecured by entering the Master Code. Therefore, the event "Lock Unsecured by the master code" will only be generated for the Yale locks. This event will never occur for the Baldwin, Kwikset and Schlage locks.

IMPORTANT NOTES ABOUT THE NON-MOTORIZED SCHLAGE B369 DOOR LOCKS

1. The deadbolt is not motorized, therefore a person must be physically present at the Door Lock to extend / retract the dead bolt. This means the homeowner can NOT send a command from the **g!** System UI to "lock" the door (ie, extend the deadbolt).

2. The "Unsecure Lock" command sent from the **g!** System will "unsecure" the lock by making the deadbolt operable by the exterior knob for a period of 5 seconds only; after that, the deadbolt becomes un-operable again (ie, the lock automatically relocks).

3. The event "Lock unsecured by user X" is not generated by the Schlage Deadbolt Lock; the event "Lock unsecured manually" is generated instead.

IMPORTANT NOTES ABOUT THE SCHLAGE FE599 LEVER DOOR LOCKS

1. When the User Code is entered, the lever will operate the door latch for a period of 5 seconds; after that time, the door automatically "relocks" making the door latch un-operable from the outside.

2. When the key is used to unlock the door, the door is relocked when the key is removed. There are NO events generated when the Door Lock is "secured" or "unsecured" in this manner.

3. When the User Code is entered to open the door, there are NO events generated when the Door Lock is "unsecured" or when it is "secured" after the 5 second interval.

COMMON MISTAKES

1. Placing the Z-Wave RS-232 Adapter out of range of other Z-Wave devices. Z-Wave devices create a wireless, self-healing mesh network, and should be placed where they are in range to communicate with multiple other devices for best results.
2. Improper Z-Wave setup. Ensure to fully program and test your z-wave network for proper operation **prior** to integration with **g!**.
3. Using Z-Wave devices as repeaters that don't support "beaming".