Rhein Tech Laboratories, Inc.
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
http://www.rheintech.com

Client: Alarm.com
Model: ADC-200N-EVD
Standards: FCC 15.249/IC RSS-210
ID's: YL6-143200N25V4/9111A-143200N25V4
Report #: 2013120DXX

Appendix M: Manual

Please refer to the following pages.

Building 36 Ethernet Gateway
INSTALLATION GUIDE

Regulatory

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules and Industry Canada license-exempt standards. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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

Required Items for Installations

1) Building36 gateway (with power supply and Ethernet cable)
2) Standard home router with active Ethernet connection
3) Z-Wave peripherals to be installed

Account Creation and System Setup

1) Create a new account on the Building36 Dealer Website (or swap the module into an existing customer account). Add the appropriate emPower services (Lights, Thermostats, and/or Locks) on the service plan page.
2) Connect the Building 36 gateway to the home router using the Ethernet cable.
3) Power the gateway using the included power supply.

Installation Overview

1) Connect your Building36 system to the Internet
Connect the Broadband-enabled Building36 gateway to the Internet using a standard Ethernet (RJ-45) cable. The cable should be connected at one end to the local Internet access point (network router), and at the other end to the Ethernet dongle located at the back of theBuilding36 gateway.

2) Power on the System
Plug in the gateway's AC power transformer to a non-switched electrical outlet. The system will complete its initial setup process within a few minutes, allowing it to start reporting activity and receiving commands via the Building36 website.

3) Add Devices
Add all Z-Wave compatible devices to the gateway. To ad devices, refer to the "Adding Z-Wave Devices" section.

4) Log into Your Account
You now can access your Building36 system's interactive features by going to http://building36.com/login.aspx and entering your customer account login information.

Troubleshooting : Communication Startup

As soon as the gateway is connected to the Internet and powered on, the communication modules begins to go through a series of four sequential stages in order to establish communication with Building36. This entire automatic setup process should take no more than a few minutes.

In some cases (typically due to certain settings on the customer's network router), the Module may not be able to complete this automatic communication setup process but instead will suspend in one of the 4 initial stages (Stages 1-4), or enter an "exception" stage (Stage 6).

If your system does not automatically establish communication with Building 36 within 5 minutes of being connected to the Internet and powered on, check the green light visible on the back of the gateway and refer to the *Troubleshooting: LEDs* section of this document. If the green LED is not solid, continue with the following:

1. Physical Broadband Connection
Check to make sure that the Ethernet cable is properly connected on one end to the network router or modem, and on the other end to the Module's Ethernet Dongle located at the back of the gateway. Make sure the modem or router is plugged in and powered up. Finally, verify that the Ethernet cable is a normal (patch) cable and not a crossover cable.

2. MAC Filtering
You may have MAC Filtering enabled on your router. If so, you will need to log into your network router's administrative page and add the Building36 Module's MAC address to your router's list of allowed MAC addresses.

You can find out the Module's MAC address by connecting your module on another network, then entering the broadband module's IP address from a computer that is connected to the same router as your Building36 system.

3. DCHP Servers
Make sure that your router's DHCP server setting is ON.

4. Power Cycle
Unplug the power cable from the Building 36 gateway and plug it back in. Wait until the gateway has reinitialized.

5. Check
If the Module is still unable to connect successfully, check to make sure your Internet connection is functioning properly by trying to connect to the Internet from a computer that is connected to the same router or modem.

If you are unable to connect to the Internet, please consult your Internet Service Provider for help resolving this issue.

If you can connect to the internet using a computer as above, but the module cannot establish a connection to the internet please reset your router and cable modem. Also ensure that the gateway is plugged into AC power and that there are no special firewall settings or other network management services running on the router. This doesn't include any firewalls running on any PC's attached to the router.

Troubleshooting : LED's
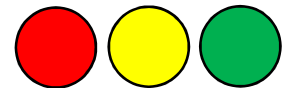
Bootup - All LEDs solid until serial line is quiet

Green LED (WAN/Power)
● Off - No power to the device
● Slow Pulse - Power to device, but no Ethernet connection
● Flashing - Power to device, Ethernet connection, but no cloud connection
● Solid - Power to device, Ethernet connection, and active cloud connection
Yellow LED (Inclusion)
● Off - Idle
● Blinking - Controller in inclusion mode
● Flashing Simultaneously with Red LED - The Z-Wave network is busy communicating
● Solid - Node added successfully, stay solid for 2 minutes, then Off
Red LED (Remove)
● Off - Idle
● Blinking - Controller in exclusion mode
● Flashing Simultaneously with Yellow LED - The Z-Wave network is busy communicating
● Solid - Node removed successfully, stay solid for 2 minutes, then Off

Replicate Mode
● Blinking - Blink both red and yellow LEDs during replicate mode

● Flashing Simultaneously with Yellow LED - The Z-Wave network is busy communicating
● Solid - Replicate completed successfully, both red and yellow LEDs stay solid for 2
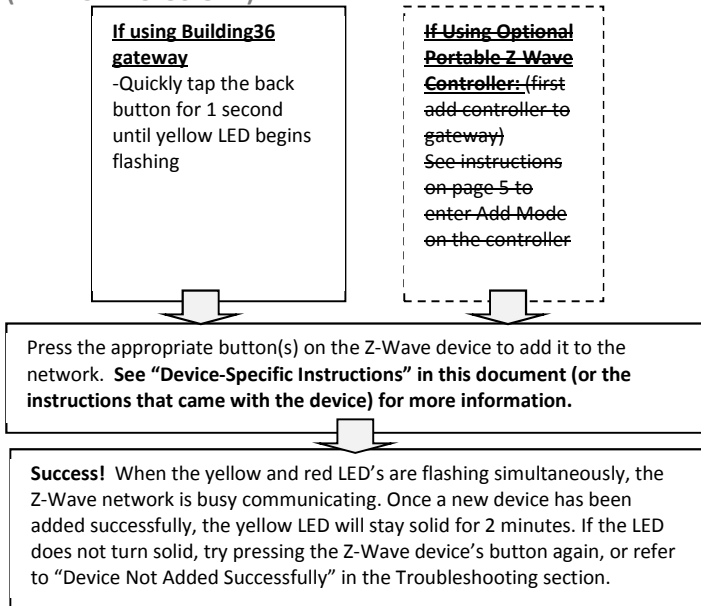minutes, then Off

Adding Z-Wave Devices

** Make sure the Building 36 gateway is connected to AC power when enrolling Z-Wave devices.
**When adding devices, first add the devices closest to the Building36 system, and then move outwards.
**Devices must be within 6 ft of the Building36 module when adding it to the network. Install each of the Z-Wave peripherals in their desired locations, following the manufacturer's instructions. Then follow the instructions below to add ("include") each device into the Building36 module's network. If a device will not be within 6ft of the Building36 module in its permanent installation location, include it in the network *before* installation or use a controller (controllers not available for locks, see below).
**Run a Rediscovery from the Dealer Site and verify that all added devices are responding to commands.

Adding a Z-Wave device to the Building36 Module's network ("DEVICE INCLUSION")

If using Building36 gateway -Quickly tap the back button for 1 second until yellow LED begins flashing	~~**If Using Optional Portable Z-Wave Controller:** (first add controller to gateway) See instructions on page 5 to enter Add Mode on the controller~~

Press the appropriate button(s) on the Z-Wave device to add it to the network. **See "Device-Specific Instructions" in this document (or the instructions that came with the device) for more information.**

Success! When the yellow and red LED's are flashing simultaneously, the Z-Wave network is busy communicating. Once a new device has been added successfully, the yellow LED will stay solid for 2 minutes. If the LED does not turn solid, try pressing the Z-Wave device's button again, or refer to "Device Not Added Successfully" in the Troubleshooting section.

Checking the Device List with Building36

Once you've added the devices, the customer website will automatically update the Devices list (under the Devices tab) within about 2 minutes of the last device being added. You can also view the devices through the Building36 Dealer Website by selecting the customer, clicking on the "Equipment" link in the left-hand navigation, and then "emPower Devices" in the top navigation.

Testing Device Communication with Building36.com

Once the Z-Wave devices have been installed in their permanent locations and are displayed in the device list on Building36.com, we recommend naming the devices on the customer site and sending a remote command to each device (e.g., turn on light; adjust target temp at thermostat) in order to verify that it is successfully communicating with the Building36 module.

Deleting a Z-Wave Device ("Device Exclusion")

You can delete a device from its current network whether it's in the Building36 module's network or another network. On a your Building36 gateway, follow the instructions for Adding a Z-Wave evice, except press and hold the back button for 3 seconds. The yellow and red LEDs will flicker, and the red LED will start blinking steadily. Once in Delete mode, follow the manufacturer's instructions for deleting the device. If a device is no longer functioning, you can also delete it through the emPower Devices page on the Building36 Dealer Website. Send a remote command to the device and wait a few minutes for the command to register as failed.

Device-Specific Instructions

Lights & Appliances

Evolve Plug-in Lamp & Appliance or Dimmer Module
1) Plug in the device.
2) Enter Add mode on the gateway.
3) To add the device, **double click** the button in the middle of the light or appliance module. (Check instructions for the module if not evolve).(If the yellow LED does not go solid confirming successful enrollment of the device, try pressing the button on the device again.)

   Tips/Troubleshooting:
   - Lamp modules cannot be used with Compact Fluorescent Bulbs(CFBs). Use appliance modules instead.
   -Make sure lamp to be controlled is plugged into the Z-Wave side of the module (indicated by the Z-Wave logo).
   -We recommend using a non-switched outlet for the module. If using an outlet controlled by a switch, make sure the outlet is switched "On" before sending light commands.
   -Keep lamps switched "On" to allow control through the Z-Wave module, Alarm.com website and mobile applications.
   -Control dimming of lamp modules by pressing and holding button on the module, or through the Building36 website.

Evolve Wall Mount Switch or Dimmer
1) Follow the provided directions to install the device and ensure that it functions properly with manual on/off control.
2) Enter Add Mode on the gateway
3) To add the device, **double click** the "evolve" side of the light switch. (Check instructions for the module if not evolve) ().(If the yellow LED does not go solid confirming successful enrollment of the device, try turning the device on and off again.)

   Tips/Troubleshooting:
   -Dimmer switches and On/Off switches cannot be interchanged. Use the appropriate type of switch.
   -If it is not practical to move the gateway 3-6 ft to the device, consider investing in a controller for installations.

Evolve Wall Mount Outlet
1) Plug in the device.Follow the provided directions to install the device and ensure that it functions properly with manual control.
2) Enter Add Mode on the gateway.
3) To add the device, **double click** the button in the middle of outlet. (Check instructions for the module if not evolve).(If the yellow LED does not go solid confirming successful enrollment of the device, try pressing the button on the device again.)

   Tips/Troubleshooting:
   -If it is not practical to move the gateway 3-6 ft to the device, consider investing in a controller for installations.
   -We recommend using a non-switched outlet for the Z-Wave outlet. If using switch outlet, make sure the outlet is switched "On" before sending commands.
   -Only the lower outlet is controlled by Z-Wave. Ensure you're plugging devices into the lower outlet while testing if the outlet works for Z-Wave control. The opposite is true if the device is installed upside

down.

Locks

IMPORTANT NOTE: If the gateway cannot be taken to within 6 feet of the lock installation location or vice versa, add the lock to the system **before you install the lock on the door**. (You will need to connect the battery pack to the keypad before attempting to perform these steps.)

NOTE: Locks cannot be enrolled using a portable controller. Locks must be enrolled directly through the gateway.

Tips:

-Before removing old locks or beginning installation, check the layout of door to make sure the new lock will not conflict with existing hardware.

-Contact a locksmith if you experience difficulties removing old hardware or installing the new lock.

-Send user codes to the lock (via the customer website) *before* leaving the property. Building36 does NOT recommend programming codes locally via the lock keypad—all codes should be programmed through the Building36 web interface.

Kwikset Deadbolt

1) Follow the instructions included with the lock to put the lock together but do not install it on the door yet
2) With the lock within 6 ft of the gateway, enter the gateway into Add Mode.
3) To trigger the lock to add it, press button "B" (shown below).
   Important: Do not touch the lock or the gateway for one full minute. Failure to do so will result in lock malfunctions.
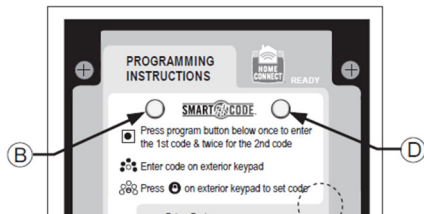
4) Move the lock to its final location (with repeaters included along the way if lock is not within direct range of the gateway). Send commands to the lock and ensure it is successfully learned into the network and then finish installing the lock on the door.
5) Login online to the customer account at www.Building36.com to select which user codes are allowed to use this lock. To do this, go to the "Locks" tab. On the User Codes table, you will see a column labeled "Lock Access." Check the box of the lock you want to allow each user code to access.

Thermostats

Tips:

-The new thermostat should be placed in the same location as the original thermostat unless an HVAC professional approves a new location.

-Learn the thermostat into your emPower network while it is powered using the power-source (AC-power vs. battery-power) it will use during regular use after the installation.

- The Trane Thermostat requires a 24 VAC common wire to power the thermostat and we strongly recommend AC power for the GE Basic thermostat with battery power backup. Before beginning installation, verify the HVAC system has a common wire or contact a qualified HVAC technician. If the gateway cannot be taken to within 6 feet of the thermostat installation location and you do not have a portable controller, power the thermostat temporarily using a 24 volt transformer and add the thermostat to the system **before** installing the thermostat.

CT-30 and CT-100 Z-Wave thermostats

1) Follow the manufacturer's instructions to install the thermostat.
2) Enter Add Mode on your gateway.

3) Enter the Menu Screen by hitting MENU. Touch the Mate/Link button (looks like a tower) on the left side of the screen.

Troubleshooting

The device will not learn into the system

If there is an error, or the two minute time limit expires when adding a device, try the following troubleshooting steps:

a. Make sure the gateway is connected to AC power while you're adding, deleting, or operating Z-Wave devices.

b. The device may already be part of a Z-Wave network (even if it is a brand new device). Try deleting ("excluding") it from its network and then try adding it again. You should always be able to either add or delete the device from the network. If you receive a Timeout/Error message when trying to delete the device, it's likely the issue is range-related (see d and e below).

c. You may need to move the device closer to the gateway(or vice versa) while adding it, or use a portable controller to add it. We recommend that devices are within 6 feet of the gateway or controller, but the closer the better.

d. Check to see if there are other 900 MHz wireless devices that could be interfering with the Z-Wave messages. Try moving or replacing any 900 MHz headsets, cordless phones, baby monitors, wireless speaker extenders, IR remote control extenders, or similar devices. Or, try changing the channel used by these devices.

e. Try moving the position of the gateway relative to the device and/or changing the orientation of the device. Some Z-wave devices have directional Z-wave signals. (e.g. Some devices the Z-wave signal may be stronger to the front compared to behind the device).

The device works close to the gateway, but does not work in its final location

In this case, you likely have a range issue. Try adding repeaters to expand and strengthen your Z-Wave network. Here are some tips to help your network:

a. Expand your network using repeaters in pairs. If a device has been added successfully but does not appear to be communicating reliably with the system, it may be necessary to place another Z-Wave device (that's already on the network) between thegateway and the problem device, to serve as a repeater that can relay messages between the two. Expanding in pairs allows for multiple Z-Wave communication paths, preventing any one device from becoming a "bottleneck" in the network.

b. Expand Your Network Using "Beaming" Devices. Locks and battery-powered thermostats enter sleep mode to conserve battery-life, and therefore can only communicate directly with the gateway or with "beaming" devices that can send wake-up messages. In general, devices powered off of batteries do NOT beam, and most (but NOT all) AC-powered devices beam.

   Note: Newer GE/Jasco light/appliance modules support beaming, but some earlier versions did not. To find out if a given GE module is beaming-compatible, check the label. The GE light/appliance plug-in module supports beaming if the date code starts with 11 OR the version includes the letter a or the letter b.

c. Check to see if there are other 900 MHz wireless devices that could be interfering with the Z-Wave messages. Try moving or replacing any 900 MHz headsets, cordless phones, baby monitors, wireless speaker extenders, IR remote control extenders, or similar devices. Or, try changing the channel used by these devices.

d. Try moving the position of the gateway relative to the device and/or changing the orientation of the device. Some Z-wave devices have directional Z-wave signals. (e.g. Some devices the Z-wave signal may be

stronger to the front compared to behind the device).

I don't want the thermostat to be solely battery powered, but a "C" wire does not exist from the HVAC unit.

It is possible to link a transformer to the thermostat as a substitute "C-wire", however every thermostat is different. Please make sure to check the thermostat manual for the correct terminals to attach the transformer wires. Please also check thermostats for power requirements (some thermostats are more sensitive than others to input current).

The lock is not securely enrolled

Lock devices must complete a "secure enrollment" process during addition, which can take up to a minute to complete while the lock is within 6 feet from the gateway. If this process is interrupted before completing, the lock will not function properly. A warning message will display on the Building36 customer site and on the Dealer Site that secure enrollment is not complete. The lock should be deleted from the network and re-added, then do not touch the gateway or the lock for one full minute.

The lock is not reporting back the correct status

There are a few reasons this could be happening. Try the following troubleshooting steps:

   a.   First, check to make sure you're using high quality, name brand batteries, such as Energizer or Duracell. Generic batteries often do not read back the proper status because they use up all of their power locking/unlocking the lock.

   b.   If the lock is a deadbolt, check to make sure that there is enough room in the wall for the bolt to fully extend. Depending on the lock, you might be able to change the settings for how far the bolt extends. Check your lock's installation guide to see if this setting is available.

   c.   If neither of the steps above help, then you likely have a range issue. Consider adding more devices to act as repeaters and/or look at the rediscovery option available for your gateway below.

Devices are malfunctioning, but range is not the issue

   a.   For networks with more than one device, send a rediscover network command. After all devices are learned in, have power, and are in their final locations, try sending a Rediscover Network command from the Dealer Website. This will update the routing table for each device, making it so that the devices communicate in an efficient path. Newer firmware versions support this command and have it available under the emPower Devices section of the Equipment page. If you do not have a Rediscover Network button available on the emPower Devices page, we may be able to upgrade your firmware remotely so that it becomes available for your module.

   b.   Try rotating the orange antenna on the module. Moving the orange antenna so that it points down could help if it is experiencing interference in its current position.

Device Already in Network

The device being added is already part of a Z-Wave network (whether the existing network or an old network) and cannot be added again. Clear the device by deleting ("excluding") it from its network. You should always be able to either delete or add a device to a network. Note: The Building36 module can be used to delete devices in any network. The device will clear itself and be able to be added to another network. The device's old network will still list that device as part of its network (but the device will not be able to be controlled by that network) until the device is remove from its old network.