

INSTALLATION INSTRUCTIONS

Original Issue Date: 6/14

Model: **6-60 kW Generator Sets with RDC2/DC2, VSC, or RDC/DC Controller**

Market: **Residential/Light Commercial**

Subject: **OnCue® Plus Wireless Kits GM62465-KP3-QS and GM81385-KP3-QS**

Introduction

The OnCue® Plus Wireless Kit allows wireless connection of residential/light commercial generator sets to the owner's wireless router for Internet access. Use this kit to connect the generator set to the Internet for the Kohler® OnCue® Plus Generator Management System.

The kit uses a wireless access point (AP) to connect the generator set to the Internet without running a cable from the owner's router to the generator set. The wireless AP is installed inside the generator enclosure and powered by the generator's engine starting battery. These instructions explain installation and setup of the wireless AP.

The VHB tape provided with the kit allows installation of the kit components without drilling additional holes or using special tools. The ambient temperature must be warmer than 0°C (32°F) at the time of installation. Once installed, the tape is rated for -35 to 110°C (-31 to 230°F).

See Figure 1 to identify the correct OnCue Plus wireless kit for your generator model. See Figure 2 for the wireless access point (tape not shown).

Special Equipment

The following items are required for installation and setup.

- Wireless router for Internet connection, customer-provided
- The customer's wireless network security properties and password are required. Step 11 of these instructions explains how to obtain this information.
- Laptop computer (for initial setup only)
- Network cable for temporary connection of laptop PC to the kit (for initial setup only)

Generator Model	Wireless Kit Number
14/20RES	GM62465-KP3-QS
6VSG	GM81385-KP3-QS
14/20RESA	
38/48/60RCL	

Figure 1 Kits and Models

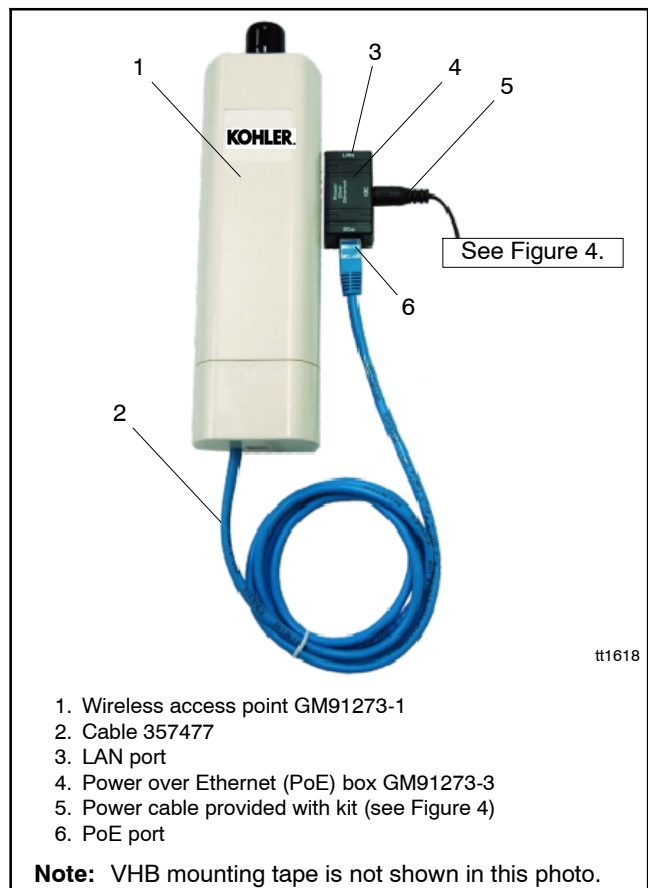
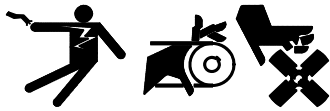


Figure 2 GM91273 Wireless Access Point Assembly

Safety Precautions

Observe the following safety precautions while performing this procedure.

WARNING



Accidental starting. Can cause severe injury or death.

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a 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, uses, and can radiate radio frequency energy and, if not installed and used in accordance with these 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 identified by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To avoid the possibility of exceeding radio frequency exposure limits, you shall keep a distance of at least 100 cm (39.4 in.) between you and the antenna of the installed equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operating frequency bands are country-dependent and are firmware-programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Installation Procedure

The wireless access point hardware must be installed inside the generator set enclosure. See Figure 5, Figure 6, or Figure 7 for the recommended location on your generator set model.

The ambient temperature must be warmer than 0°C (32°F) at the time of installation. Once installed, the VHB mounting tape is rated for -35 to 110°C (-31 to 230°F).

1. Disable the generator set to prevent accidental starting.

- 1.1 Press the OFF button on the generator set controller.
- 1.2 Disconnect the utility power to the generator set.
- 1.3 Disconnect the generator set engine starting battery(ies), negative (-) lead first.

2. Remove enclosure doors and/or panels as necessary to access the air intake area or the engine compartment (RCL models).

3. Install the wireless access point and Power over Ethernet (PoE) box.

- 3.1 See Figure 5, Figure 6, or Figure 7 for the recommended mounting locations on your

generator set model. Make sure the surfaces where the PoE box and access point will be mounted are clean and dry.

- 3.2 Cut one piece of VHB tape approximately 1 inch long. Use the tape to attach the Power over Ethernet (PoE) box GM91273-3 inside the enclosure as shown for your model in Figure 5, Figure 6, or Figure 7.
- 3.3 Cut two or three pieces of the VHB tape GM91273-5 (provided in the kit) approximately 2.5 inches long. Use the VHB tape to attach wireless access point GM91273-1 to the inside of the enclosure as shown for your model in Figure 5, Figure 6, or Figure 7.
- 3.4 Connect cable 357477 to the port on the bottom of the wireless access point. Connect the other end of the cable to the PoE port on the PoE box. See Figure 2.
- 3.5 Connect the power cable to the DC port on the PoE box. See Figure 2.
- 3.6 Connect the ring terminals on the power cable to the generator set battery terminals. Follow the polarity in Figure 3. See Figure 4 for an illustration of the power cable.

Cable	Battery Terminal
Black	Positive (+)
Black and White	Negative (-)

Figure 3 Power Cable Battery Connections

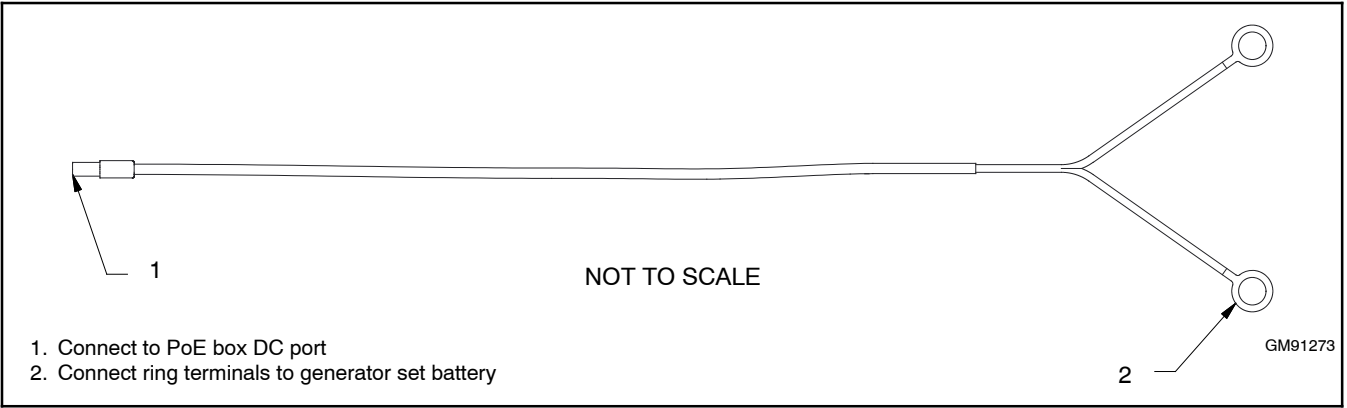


Figure 4 Power Cord

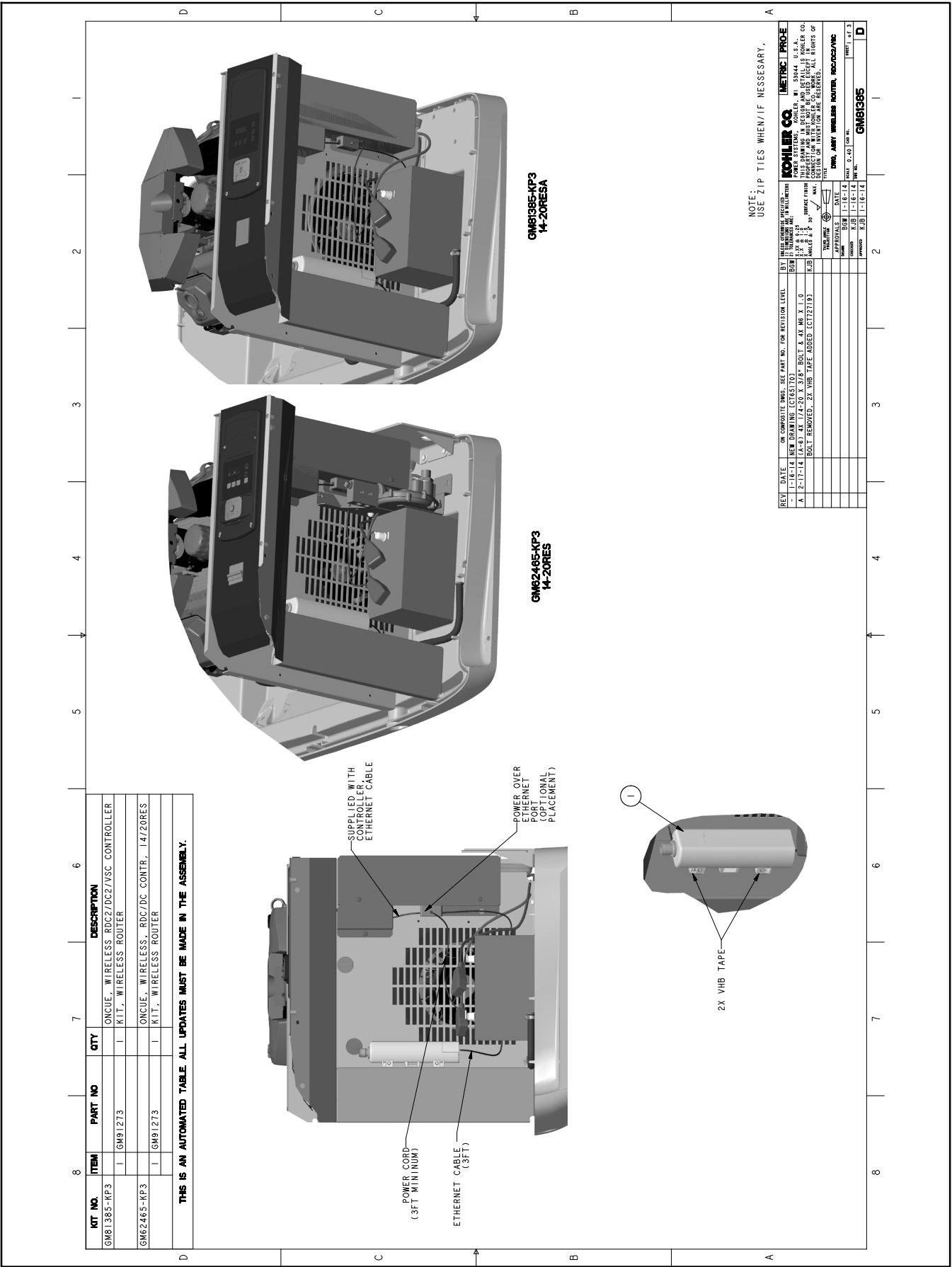


Figure 5 Wireless AP Assembly Drawing GM81385, Sheet 1 of 3

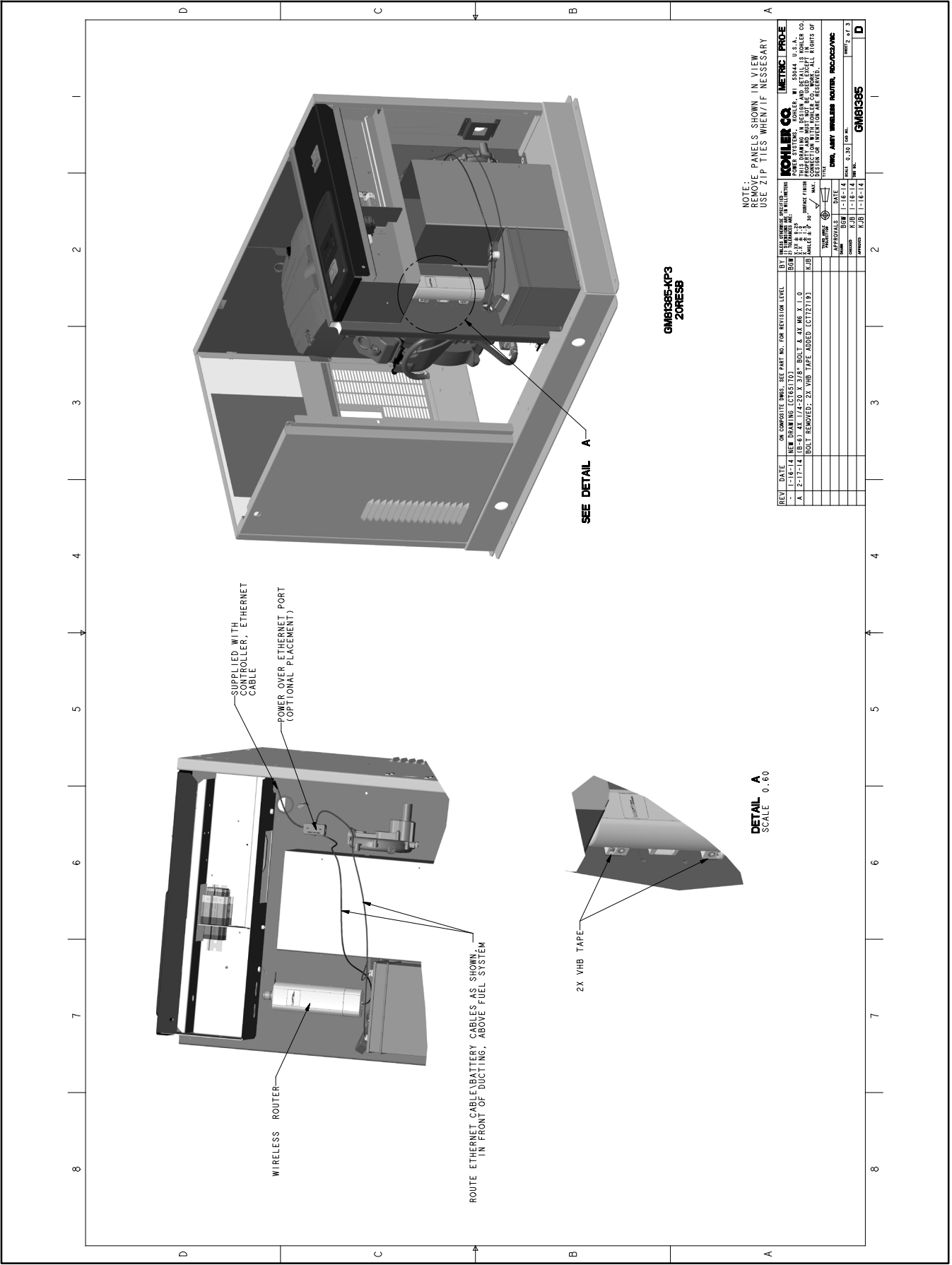


Figure 6 Wireless AP Assembly Drawing GM81385, Sheet 2 of 3

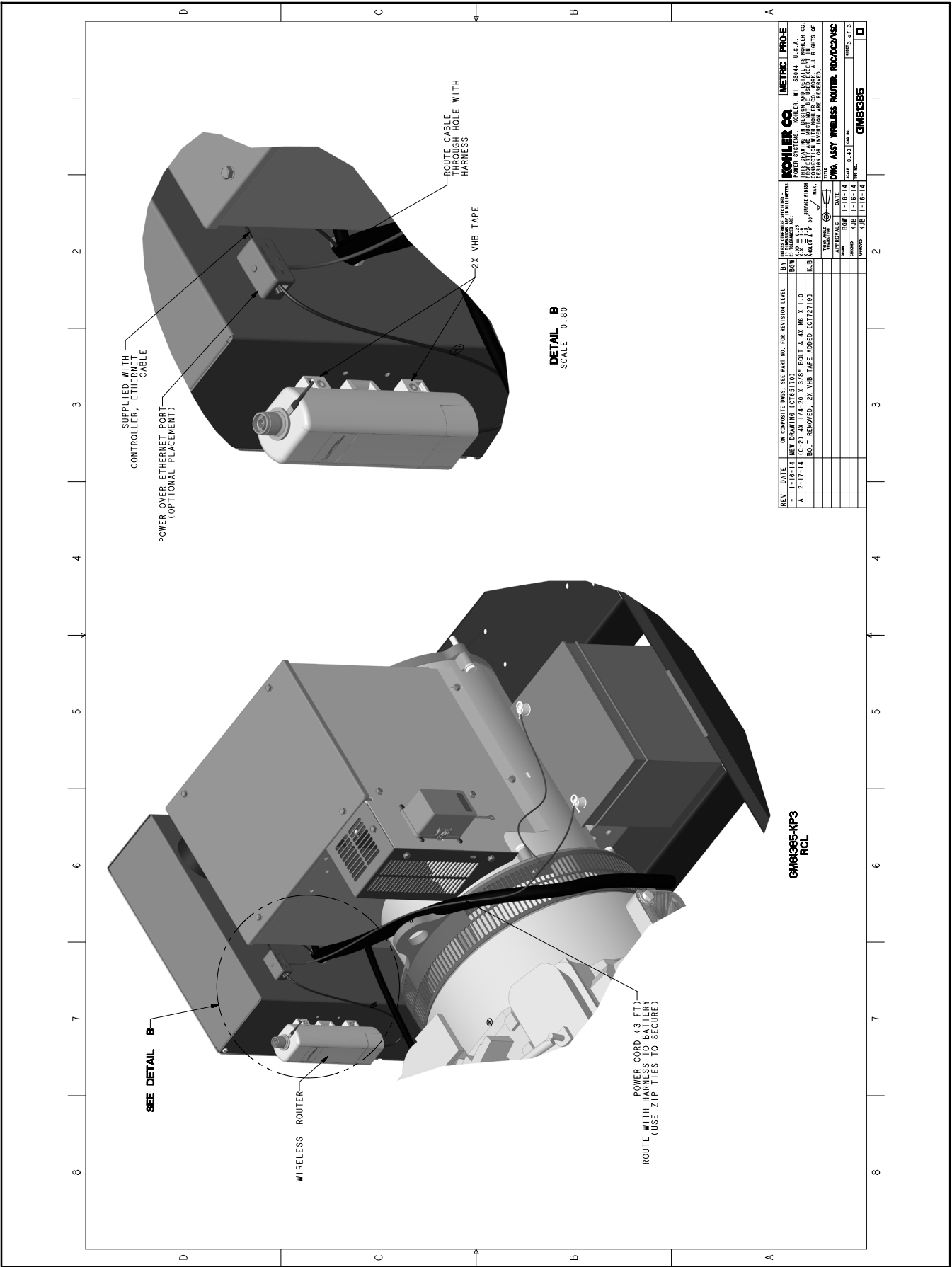


Figure 7 Wireless AP Assembly Drawing GM81385, Sheet 3 of 3

Setup Procedure

A laptop computer with access to the Internet is required to set up the wireless access point. Once setup is complete, the computer is no longer needed.

Note: The screen shots shown in this document were created using Windows® 7. Screens and instructions may vary for different computer operating systems.

4. Connect the wireless access point to the computer.

- 4.1 Check that the power and network cables are connected to the wireless access point and PoE box as described in step 3.
- 4.2 Use a customer-provided network cable to attach a laptop computer to the LAN port on on the PoE Box. See Figure 2.

5. Change the IP address of your Windows® PC to connect to the device.

Note: For Mac® computers, go to step 6.

- 5.1 Click on the the Windows start menu icon in the lower left corner of your screen. See Figure 8.
- 5.2 Type “network connections” into the *Search programs and files* box.
- 5.3 Press Enter or click on View network connections.
- 5.4 Click on Local Area Connection.

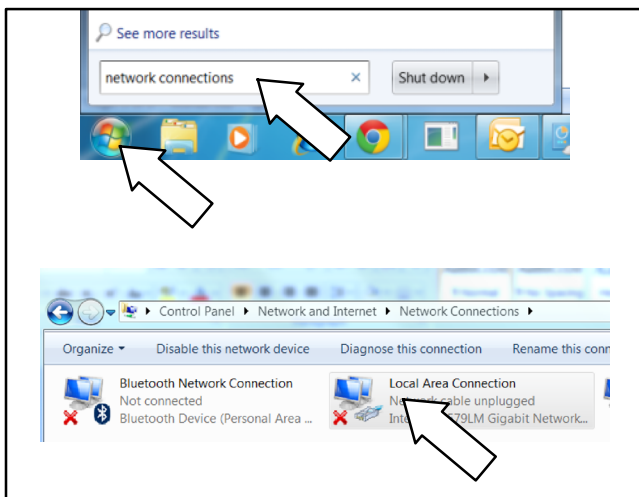


Figure 8 Selecting the Local Area Network Connection

- 5.5 Select Internet Protocol Version 4. See Figure 9.

- 5.6 Click Properties.

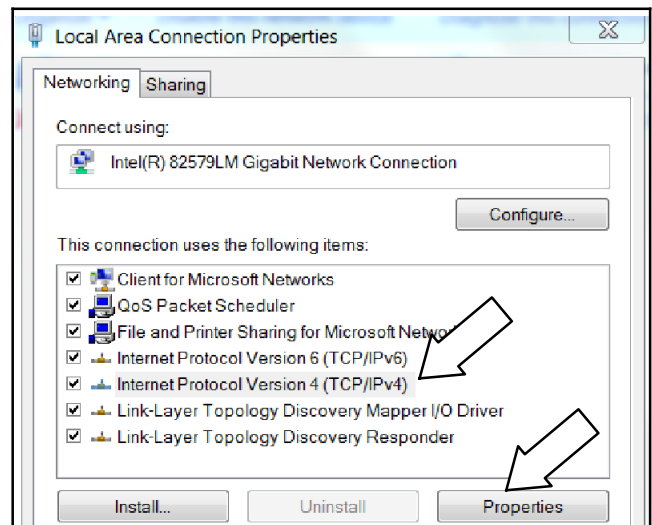


Figure 9 Selecting Internet Protocol Version 4

- 5.7 Click on Use the following IP address. See Figure 10.
- 5.8 Change the IP address to 192.168.1.5 and Subnet mask to 255.255.255.0.
- 5.9 Click OK.
- 5.10 Go to step 7.

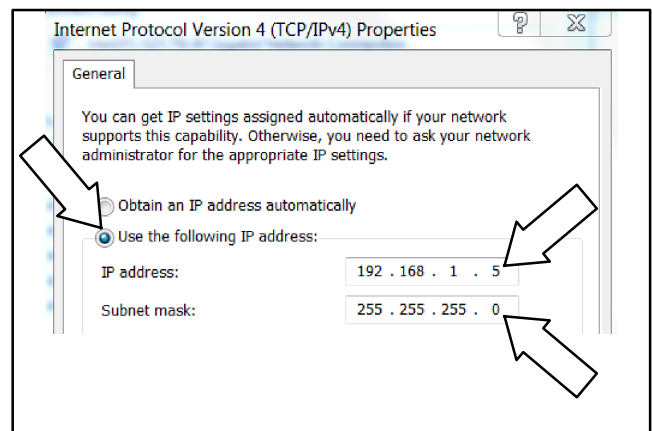


Figure 10 Entering the IP Address and Subnet Mask

6. Change the IP address of your Mac® computer to connect to the device.

- 6.1 Click the Apple® icon.
- 6.2 Click System Preferences.
- 6.3 Click the Network icon.
- 6.4 Click the Ethernet connected icon.
- 6.5 Change Configure IPv4 to Manually.
- 6.6 Enter the IP Address 192.168.1.5.
- 6.7 Change the Subnet Mask to 255.255.255.0.
- 6.8 Enter Router address 192.168.0.1.
- 6.9 Click Apply.
- 6.10 Proceed to step 7.

7. Enter the gateway to the wireless access point.

- 7.1 Open your Internet browser (Internet Explorer® or other browser).
- 7.2 Type 192.168.1.222 in the address bar. See Figure 11.
- 7.3 Press Enter. The window shown in Figure 12 opens.

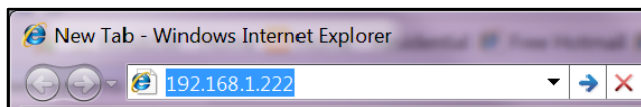


Figure 11 Enter Gateway Address in Internet Explorer

8. Sign into the wireless access point.

- 8.1 Enter "admin" for Name.
- 8.2 Enter "password" for Password.
- 8.3 Press Login.

A login form with two input fields. The first field is labeled "Name" and contains the text "admin". The second field is labeled "Password" and contains the text "password". Below the fields are two buttons: "Login" and "Reset".

Figure 12 Signing in to the Access Point

9. Configure the wireless access point.

- 9.1 Click the System tab. See Figure 13.
- 9.2 Under Basic Settings: change Network Mode to Bridge.
- 9.3 Click the Apply button to save the settings.

Note: If you do not click Apply, the settings will not be saved.

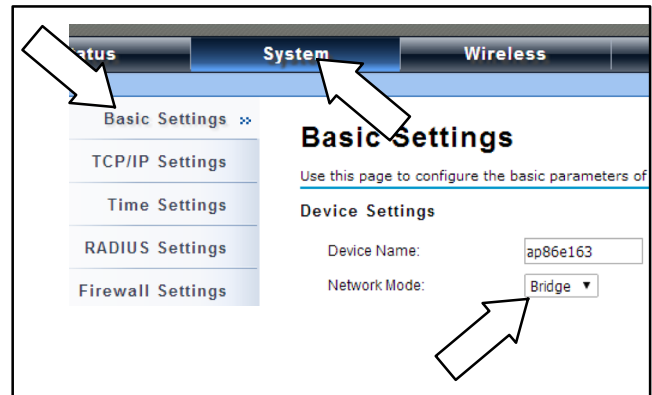


Figure 13 System Basic Settings

- 9.4 Click Wireless tab. See Figure 14.
- 9.5 Under Basic Settings change:
 - 9.5.1 Wireless Mode to Wireless Client.
 - 9.5.2 802.11 Mode to 802.11B/G/N.
 - 9.5.3 Channel Mode to 20 MHz.

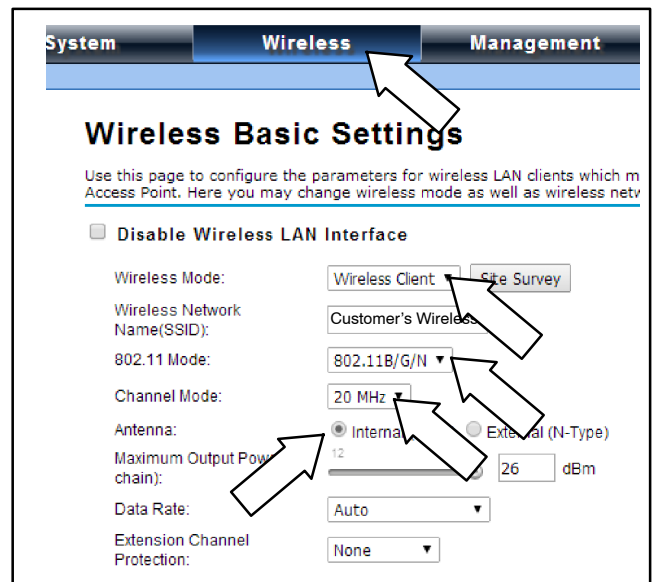


Figure 14 Wireless Basic Settings

9.6 Choose the type of antenna.

Note: If you are using an external antenna, make sure that you connect the external antenna to the radio *before* you enable it.

9.6.1 If you are not adding an external antenna, choose Internal antenna.

9.6.2 If you are adding an external antenna, choose External antenna and change Antenna Gain to 8 dB.

9.7 Click the Apply button to save the settings.

9.8 Click Site Survey. See Figure 15.

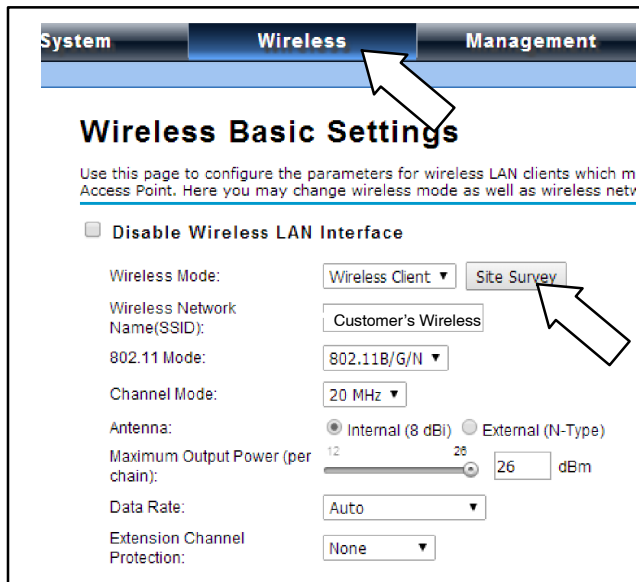


Figure 15 Select Site Survey

10. Select the customer's wireless network.

10.1 Under Site Survey, select the customer's wireless network name (shown as Customer Wireless in this document). See Figure 16.

10.2 Click the Apply button to save the settings.

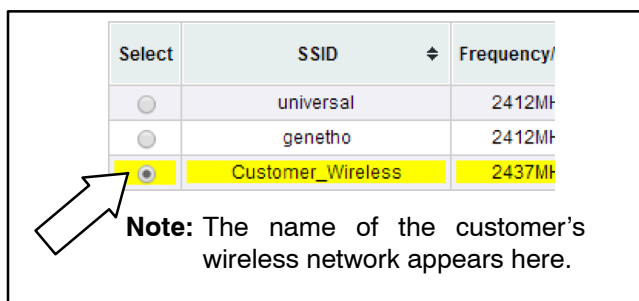


Figure 16 Select the Customer's Wireless Network

11. Connect to the customer's wireless network.

11.1 Click on the network icon in the lower right corner of the screen. See Figure 17.

11.2 Click on the customer's wireless network (shown here as Customer_Wireless).

11.3 Click Connect.

11.4 Type in Security Key/Password when prompted.

Note: If the network is not password protected, proceed to step 13, Enter Wireless Profile Settings.

If the password is not known, use a computer that is connected to the customer's wireless network to check the security settings. (The computer must be connected wirelessly.) Follow the instructions in step 12.

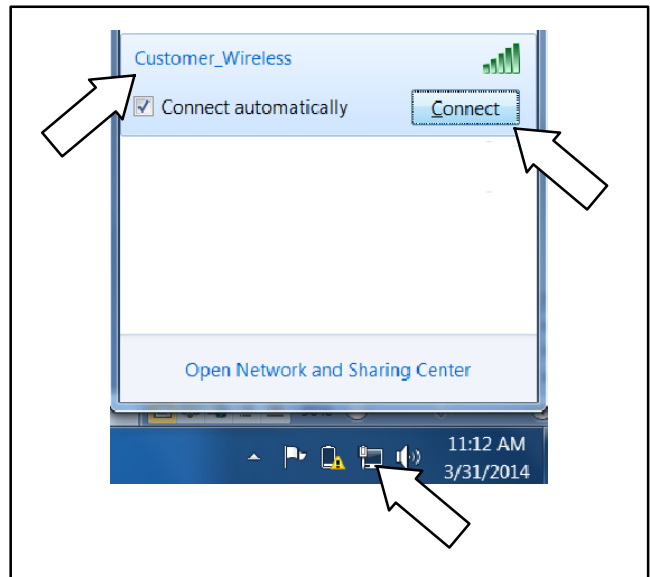


Figure 17 Connect to Customer's Wireless Network

12. Obtain wireless security settings (if necessary).

- 12.1 Click on the Wireless icon in the lower right corner of screen. See Figure 18.
- 12.2 Right click on customer's wireless network name (shown here as Customer_Wireless).
- 12.3 Click on Properties.

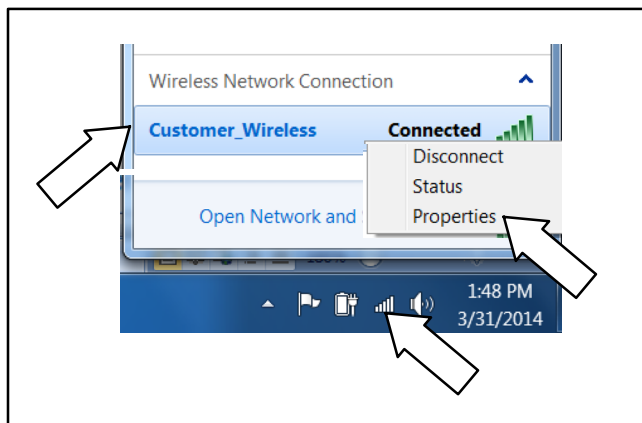


Figure 18 Obtain Wireless Security Settings

- 12.4 Click on Show characters to see the required security settings for the wireless access point. See Figure 19.

Note: PSK=Personal

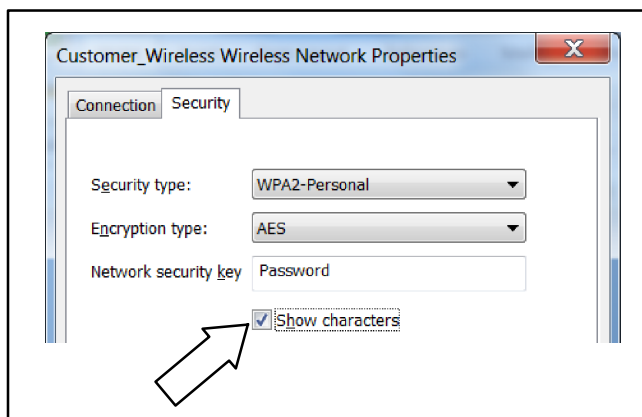


Figure 19 Security Settings

13. Enter the wireless profile settings.

- 13.1 Click on the Wireless tab.
- 13.2 Under Profile Settings: Wireless Network Name should be the customer's wireless.
- 13.3 Fill in Security Settings from step 12:
 - 13.3.1 Network Authentication.
 - 13.3.2 Data Encryption.
 - 13.3.3 WPA passphrase.
- 13.4 Click the Apply button to save the settings.

Note: PSK=Personal

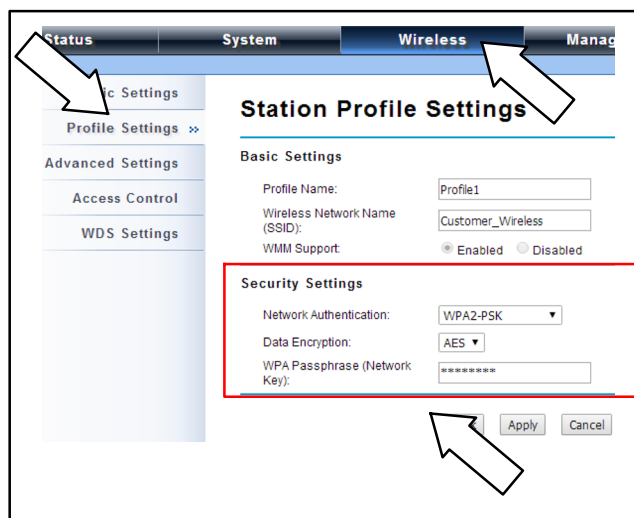


Figure 20 Enter the Security Settings

14. Test the connection (Windows® PC).

for Mac computer, go to step 15.

14.1 Click on the Windows Start icon in the lower left corner of the screen. See Figure 21.

14.2 Type “network connections” in the *Search programs and files* window.

14.3 Press Enter or click on View network connections.

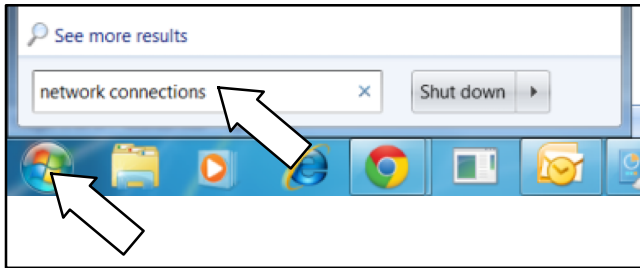


Figure 21 Search for Network Connections

14.4 Click on the Local Area Connection. See Figure 22.

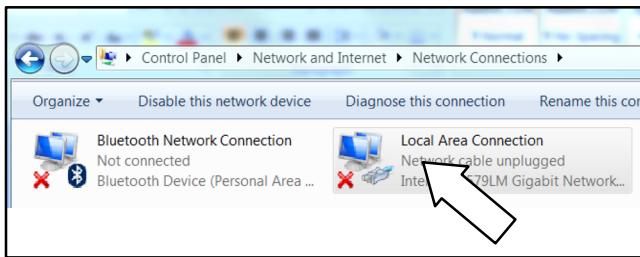


Figure 22 Select Local Area Connection

14.5 Select Internet Protocol Version 4. See Figure 23.

14.6 Click on Properties.

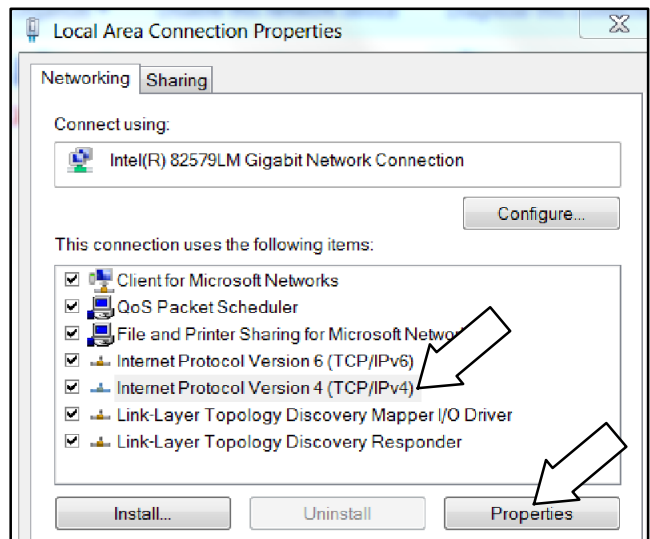


Figure 23 Select Internet Protocol Version 4

14.7 Select Obtain an IP address automatically. See Figure 24.

14.8 Click OK.

14.9 Go to step 16.

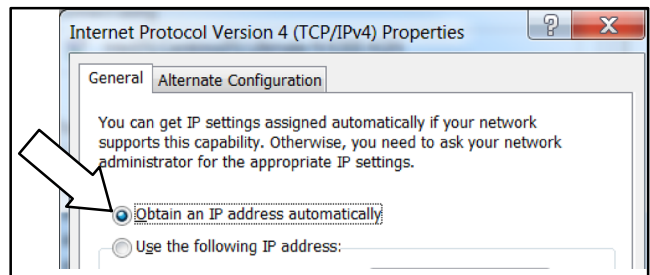




Figure 24 Obtain an IP Address Automatically

15. Test the connection (Mac® computer).

- 15.1 Click on the Apple® icon.
- 15.2 Click on System Preferences.
- 15.3 Click on the Network icon.
- 15.4 Click on the Ethernet connected icon. Verify that Ethernet is in the connected state, indicated by a green dot.
- 15.5 Change Configure IPv4 to Using DHCP.
- 15.6 Click Apply.
- 15.7 Proceed to step 16.

16. Disconnect from wireless.

- 16.1 Click on wireless symbol.
- 16.2 Click on the customer's wireless.
- 16.3 Click Disconnect. The wireless symbol should change from  to  and you should be able to get onto the Internet. Go to KOHLERPower.com or another known website to verify the Internet connection.
- 16.4 Disconnect the laptop from the wireless access point.

17. Connect the LAN port on the PoE box to the generator set's network cable.

A network cable is provided on the generator set and factory-connected to the generator controller. See Figure 5, Figure 6, or Figure 7 for the PoE box and network cable locations on the generator. See Figure 2 for the location of the LAN port on the PoE box.

18. Return the generator set to service.

- 18.1 Reconnect the generator set engine starting battery, negative (-) lead last.
- 18.2 Replace the air intake panel on the enclosure (if removed).
- 18.3 Reconnect utility power to the generator set.
- 18.4 Set the time, date, and exercise on the controller. See the generator set Operation Manual for instructions, if necessary.
- 18.5 Press AUTO on the generator set controller.

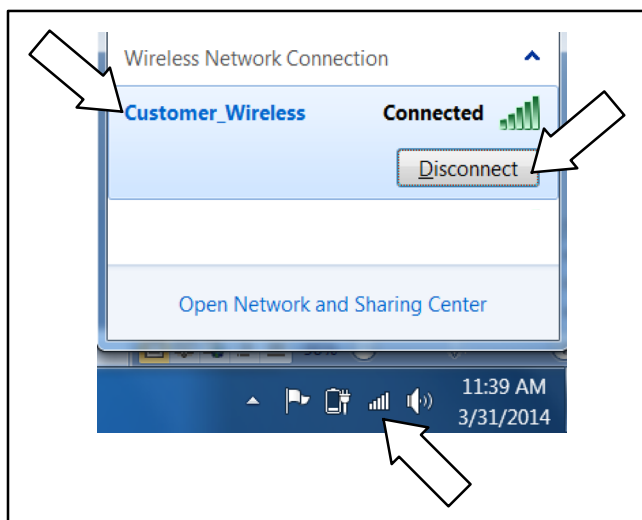


Figure 25 Disconnect from Wireless

Troubleshooting

If the device loses connection to your router and does not reconnect on its own, disconnect and reconnect the power cable at the DC port on the PoE box. See Figure 26. Allow up to five minutes for the generator to reconnect to OnCue.

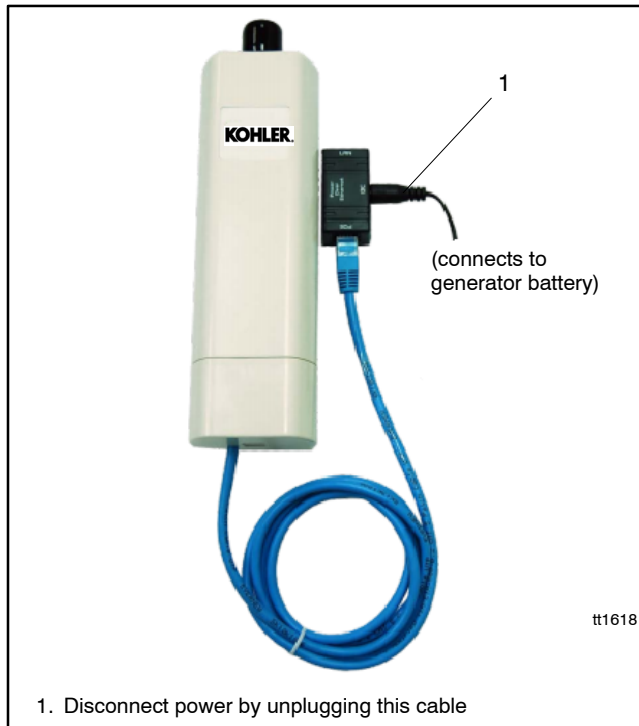


Figure 26 Disconnect and Reconnect Power to the PoE Box

If the generator reconnects to OnCue after disconnecting and reconnecting power, setting the Watchdog feature may prevent similar problems in the future. Follow the instructions in this section to set the Watchdog feature for the wireless access point.

This procedure requires the default gateway IP address for the customer's router. Example: 192.168.1.1 is a very common default gateway used by router manufacturers. To find the default gateway IP address:

- Check for a label on the router or consult the router manufacturer's instruction manual or website.
- Alternatively, use a computer connected to the customer's wireless network to find the default gateway IP address. The procedure varies for different operating systems; search the Internet for "finding default gateway IP address via a personal computer" to find instructions.

Ping Interval and Failure Count

The OnCue Plus server is set to notify a customer if a device has lost connection for 1 hour or more. The ping interval multiplied by the failure count determines the time before the wireless access point resets. Setting the ping interval and the failure count to reboot combination to be less than 1 hour is recommended. For example, set the ping interval to 300 seconds (5 minutes) and the failure count to 9 for reset time of 45 minutes (5 minutes x 9 intervals). The wireless device would reset after a period of 45 minutes has elapsed with no response from the router.

19. Setting the Watchdog

- 19.1 Follow steps 4 through 8 to connect a laptop computer to the wireless access point.
- 19.2 Click on the Tools tab. See Figure 27.
- 19.3 Click on Ping Watchdog.
- 19.4 Select Enable Ping Watchdog.
- 19.5 Type the Default Gateway IP address into the IP Address to Ping.

Note: The customer's IP Address may be different than the address shown.

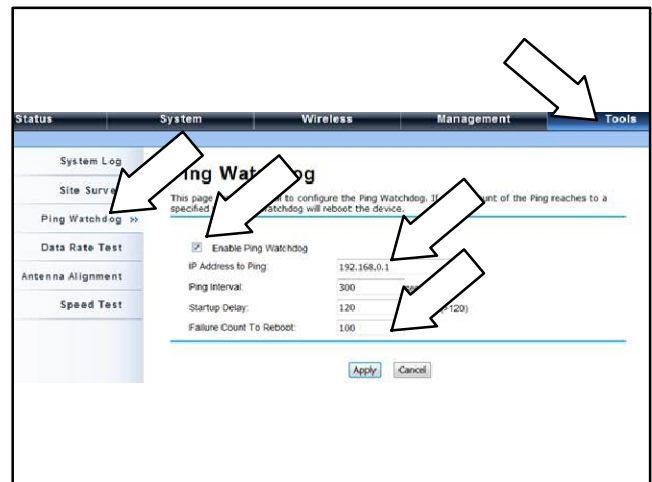


Figure 27 Ping Watchdog

20. To confirm proper operation of the Watchdog feature, follow the steps below.

Note: These are temporary settings for this test only. Do not leave this device with these test settings.

- 20.1 Set the ping interval to 60 seconds.
- 20.2 Set the failure count to reboot to 1.
- 20.3 Click Apply.
- 20.4 After approximately 1 minute, confirm that the power indicator on the side of the access point stays green and the signal indicator is on and solid. This confirms that the ping to the router was successful.

If the power indicator blinks amber after approximately 1 minute, this indicates the device did not see a response from the router and the watchdog reset the controller. Confirm the default gateway IP address is correct. If so, confirm that the configuration settings from step 9 are correct.

21. After confirming that the device is not resetting, change the Watchdog settings as described below:

- 21.1 Set the Ping Interval to 300 seconds.
- 21.2 Set the Failure Count to Reboot to 9.
- 21.3 Click Apply.
- 21.4 Follow steps 16 through 18 to disconnect the laptop and return the system to service.

Device Reset Button

Note: Do not press the reset button on the wireless access point.

Pressing the reset button will change the IP address of the access point to 192.168.1.1 and may result in a loss of Internet access.

The reset button is recessed and difficult to press accidentally. If the reset button was pressed, follow these instructions to reset the IP address to 192.168.1.222.

22. Procedure to change the IP address, if necessary.

- 22.1 Follow steps 4 through 8 to connect a laptop computer to the wireless access point. Use the IP address 192.168.1.1.
- 22.2 Click on System. See Figure 28.
- 22.3 Click on TCP/IP Settings.
- 22.4 Select Use Fixed IP Address.
- 22.5 Change the IP address to 192.168.1.222.
- 22.6 Click on Apply.
- 22.7 Follow steps 16 through 18 to disconnect the laptop and return the system to service.

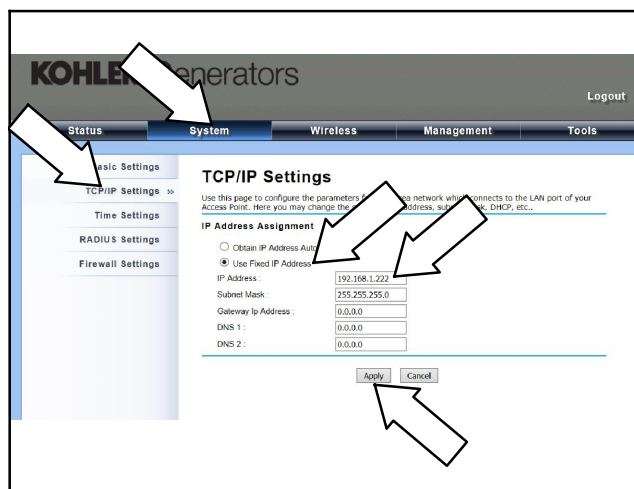


Figure 28 Changing the IP Address

Additional Information

LED	Operation
Power	Green On = System On Green Off = System Off Amber Blinking = WLAN Activity
LAN	Off = No Ethernet On = Connection Established Blinking = Sending, Receiving
WLAN (AP Mode)	Off = WLAN Disabled On = WLAN Enabled Blinking = WLAN Activity
WLAN (Client Mode)	Off = WLAN Disabled Green Blinking = Good Connection Yellow blinking = Acceptable Quality Red Blinking = Poor Connection

Internal Antenna Electrical Specifications	
Antenna shape	Patch array
RF frequency band	2.4 - 2.5 GHz
Power handling	2W
Impedance	50 Ohms
VSWR	Less than 2.0
Polarization	Linear (vertical)
Antenna Gain	Peak gain 2.45 GHz 8.45 dBi
Vertical HPBW	113°
Horizontal HPBW	39°

Parts Lists

OnCue Wireless, RDC/DC Controllers

Kit: GM62465-KP3-QS		
Qty.	Description	Part Number
1	OnCue Plus Welcome Letter	G18-246
1	OnCue App Quick Start Guide	G18-247
1	S/S WiFi Kit for RDC2, Res/Coml	G6-137
1	Screw, Plastic Tapping, 6-19 x 0.375	GM23307
1	PCB Assy, Ethernet Option	GM60385-1
1	Header, PCB Pin	GM60410
1	Kit, Wireless Access Point	GM91273
1	Cable, 3 ft. RJ-45	357477
1	Access Point, Wireless	GM91273-1
1	Port, Power over Ethernet	GM91273-3
1	Tape, VHB 3/4", 10in Long	GM91273-5
1	O/M OnCue Plus Res/Coml	TP-6928
1	TT OnCue Ethernet Board 14/20RES/L	TT-1566
1	Install Guide WiFi Kit Res/Coml	TT-1618

OnCue Wireless, RDC2/DC2/VSG

Kit: GM81385-KP3-QS		
Qty.	Description	Part Number
1	OnCue Plus Welcome Letter	G18-246
1	OnCue App Quick Start Guide	G18-247
1	S/S WiFi Kit for RDC2, Res/Coml	G6-137
1	Decal, OnCue Activation Code	GM81386
1	Cable, 3 ft. RJ-45	357477
1	Kit, Wireless Access Point	GM91273
1	Access Point, Wireless	GM91273-1
1	Port, Power over Ethernet	GM91273-3
1	Tape, VHB 3/4", 10in Long	GM91273-5
1	O/M OnCue Plus Res/Coml	TP-6928
1	Install Guide WiFi Kit Res/Coml	TT-1618

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator set distributor for availability.

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