1.0 Overview

Variable Refrigerant Volume (VRV) or Variable Refrigerant Flow (VRF) systems are commonly used for Heating, Ventilation, and Air Conditioning (HVAC). With the implementation of an interface, the HomeWorks QS system can easily integrate with various VRV/VRF brands. This application note details how to interface CoolMasterNet, CooLinkNet, and CoolMaster by CoolAutomation, with a HomeWorks QS system for the control of VRV/VRF HVAC systems and also splits/multi-splits, provided by those manufacturers.

For additional information, including HVAC system compatibility and device settings, please refer to the documentation provided by CoolAutomation, available at www.coolautomation.com

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2.0 CoolAutomation Introduction

Lutron has collaborated with CoolAutomation to offer a series of HVAC interfaces, in the CoolMasterNet, CooLinkNet, and CoolMaster product families, for the control of VRV/VRF systems. These product families include interfaces for the control of a wide variety of VRV/VRF, split, and multi-split equipment from many different manufacturers.

2.1 Features when Integrating CoolAutomation with a HomeWorks QS System

<table>
<thead>
<tr>
<th>CoolMaster Integration</th>
<th>Supported?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Controls and Triggers</strong></td>
<td></td>
</tr>
<tr>
<td>Palladiom Thermostat</td>
<td>Yes</td>
</tr>
<tr>
<td>seeTouch Keypad</td>
<td>Yes</td>
</tr>
<tr>
<td>seeTemp Keypad</td>
<td>Yes</td>
</tr>
<tr>
<td>Dynamic Keypad</td>
<td>Yes</td>
</tr>
<tr>
<td>Occupancy/Vacancy Sensors</td>
<td>Yes</td>
</tr>
<tr>
<td>Timeclock</td>
<td>Yes</td>
</tr>
<tr>
<td>Lutron Connect App</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Operating Mode Control</strong></td>
<td></td>
</tr>
<tr>
<td>Heat</td>
<td>Yes</td>
</tr>
<tr>
<td>Cool</td>
<td>Yes</td>
</tr>
<tr>
<td>Auto</td>
<td>Yes</td>
</tr>
<tr>
<td>Fan</td>
<td>Yes</td>
</tr>
<tr>
<td>Off</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Advanced Programming</strong></td>
<td></td>
</tr>
<tr>
<td>Green Mode</td>
<td>No</td>
</tr>
<tr>
<td>Conditional Logic based on CoolMaster settings</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Coolmaster Specific</strong></td>
<td></td>
</tr>
<tr>
<td>Dry Mode</td>
<td>Yes</td>
</tr>
<tr>
<td>Swing Status</td>
<td>No</td>
</tr>
<tr>
<td>Filter Sign</td>
<td>No</td>
</tr>
<tr>
<td>Malfunction Code</td>
<td>No</td>
</tr>
<tr>
<td>Reset Filter</td>
<td>No</td>
</tr>
<tr>
<td>Swing On/Off</td>
<td>No</td>
</tr>
</tbody>
</table>
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System

The CoolMasterNet allows for the control of VRV/VRF HVAC systems from 3rd party and mobile applications. The CooLinkNet allows for the control of split, and multi-split HVAC systems from 3rd party and mobile applications. Both interfaces connect directly to the local area network (LAN) within the residence allowing for direct integration with the HomeWorks QS system without the need for a protocol converter.

NOTE: Use the latest version of CoolMasterNet/CooLinkNet firmware when integrating with a HomeWorks QS system. For instructions on upgrading firmware, please refer to the CoolAutomation website at www.coolautomation.com

3.1 Connecting CoolMasterNet/CooLinkNet to the HomeWorks QS System

The CoolMasterNet/CooLinkNet interfaces must all be connected to the same LAN that the HomeWorks QS processor(s) reside(s) on.

3.2.1 Adding HVAC Zones to a HomeWorks QS Database

To add a 3rd Party HVAC zone to the database, go to the design tab of the HomeWorks QS software and use the drop-down menu to select loads. Next, find the HVAC Zones tab on the right hand side of the screen.

Click on Add load at the bottom of the screen.

Continued on next page...
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database

3.2.1 Adding HVAC Zones to a HomeWorks QS Database (continued)

For each HVAC zone added, provide a Zone Name, select Operating Modes, and select the Fan Speeds that are applicable to the zone being created. Unchecked modes will be hidden when using the Lutron Connect app and dynamic keypad. It is important to check only the modes that are necessary so the app is simpler for the end user. Choosing a user friendly zone name is important for the same reason.

<table>
<thead>
<tr>
<th>Zone Name</th>
<th>UID</th>
<th>Operating Modes</th>
<th>Fan Speeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBR HVAC</td>
<td></td>
<td>Off, Heat, Cool, Auto, Fan, Dry</td>
<td>Auto, On, Cycle, High, Medium, Low, Top</td>
</tr>
</tbody>
</table>

UID reflects the indoor unit address. All indoor units have to be given addresses (depending on specific HVAC system type, this can be done automatically by system, or has to be done manually by integrator). Addresses should be set by an HVAC contractor and the integrator should acquire the addresses from the contractor. The UID must be 3 digits long, no letters, spaces, or punctuation characters, and follow a specific numbering series.

Unit Address to UID Number Mapping

<table>
<thead>
<tr>
<th>Unit Address</th>
<th>UID Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 16</td>
<td>100 to 115</td>
</tr>
<tr>
<td>17 to 32</td>
<td>200 to 215</td>
</tr>
<tr>
<td>33 to 48</td>
<td>300 to 315</td>
</tr>
<tr>
<td>49 to 64</td>
<td>400 to 415</td>
</tr>
<tr>
<td>65 to 80</td>
<td>500 to 515</td>
</tr>
<tr>
<td>81 to 96</td>
<td>600 to 615</td>
</tr>
<tr>
<td>97 to 112</td>
<td>700 to 715</td>
</tr>
<tr>
<td>113 to 128</td>
<td>800 to 815</td>
</tr>
<tr>
<td>129 to 144</td>
<td>900 to 915</td>
</tr>
</tbody>
</table>

3.2.2 Adding a CoolMasterNet/CooLinkNet to a HomeWorks QS Database

To add CoolAutomation equipment to the database, go to the design tab of the software and use the drop-down menu to select equipment. Next, find the 3rd Party HVAC device in the toolbox and click on the plus sign to add the device.

NOTE: the default toolbox does not contain this device by default, so it is necessary to edit or create a toolbox to include the 3rd Party HVAC device.

Continued on next page...
3.2.2 Adding a CoolMasterNet / CooLinkNet to a HomeWorks QS Database (continued)

Once the 3rd Party HVAC control has been added to the Equipment Locations area, provide a name for the HVAC control and select CoolAutomation as the Manufacturer.

Once the manufacturer selection is made, choose the appropriate Model for the CoolAutomation equipment:
- CoolMasterNET (0.5 °C/1 °F Precision)
- CoolMasterNET (1 °C/1 °F Precision)

NOTE: For CoolPlug interface, refer to Section 4.0.0 and for CoolMaster interface, refer to Section 5.0.0

Next, Assign HVAC zones using the Output tab. One CoolMasterNet can control multiple zones (maximum quantity depends on the manufacturer of the HVAC system). Up to 64 HVAC zones can be assigned to a single Ethernet link. Each CooLinkNet can only control a single zone – do not assign multiple zones to the 3rd Party HVAC interface if using the CooLinkNet.

NOTE: When adding the 3rd Party HVAC interface, a zone is automatically added by default. All zones should be created as seen in the previous section, so this auto-created zone can be deleted.
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database (continued)

3.2.2 Adding a CoolMasterNet/CooLinkNet to a HomeWorks QS Database (continued)

The final step is to assign any remote Lutron temperature controls that will be used to also control the setpoints and modes. There are two options for remote temperature controls:

- **Palladiom Thermostat**
  - The Palladiom thermostat is a QS wired link device which can act as a remote thermostat control for CoolAutomation. It takes one address of the 99 available on a QS link and there can be up to 32 Palladiom thermostats per QS link maximum. When using a Palladiom thermostat with CoolAutomation equipment, the sensor within the Palladiom thermostat is not used by the system. The Palladiom thermostat can be activated in 11.5 or newer versions of the software.

- **seeTemp Keypad**
  - Lutron seeTemp keypads are not available in every country. A seeTemp keypad requires a 24 V~ or 120 V~ input voltage and communicates using the 431–437 MHz band of Clear Connect wireless. To find out if seeTemp keypads are available in a specific country, contact Lutron Customer Assistance at 1.844.LUTRON1.

The Palladiom thermostat and seeTemp keypad can be added to the project by navigating to **Design > Controls** and selecting the desired item from the toolbox. If the items do not show in the default **Temperature** tab, they can be added by clicking **Edit Toolbox**.

Select the correct device location from the area tree, hover over the control, and then click the “+” sign to add the control to the area.

*Continued on next page...*
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database (continued)

3.2.2 Adding a CoolMasterNet/CooLinkNet to a HomeWorks QS Database (continued)

Click on Assign... under the Assigned Devices field.

Then click on Assign on the Palladiom thermostat or seeTemp keypad that will control the zone.

The name of the remote temperature control will now be visible in the Assigned Devices field.

The CoolMasterNet/CooLinkNet has a built-in ethernet port and connects directly to the network without the need for a converter. CoolMasterNet/CooLinkNet is set to DHCP and will automatically receive an IP address once it is connected to a Local Area Network (LAN) with a DHCP server. The IP address will be seen in the lower right corner of the CoolMasterNet screen and in the upper right corner of the CooLinkNet screen. It is recommended to set a Static IP address for the CoolMasterNet/CooLinkNet. Type this IP address into the Controller Settings tab for the CoolMasterNet/CooLinkNet. The port number will be 10102 and no username or password is required.

Below is a depiction of the controller settings when using a CoolMasterNet/CooLinkNet interface.

For more information on the setup of the CoolMasterNet, CooLinkNet, or setting fixed IP addresses on CoolAutomation devices, refer to the Programmer Reference Manuals from CoolAutomation, available on www.coolautomation.com

Continued on next page...
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database (continued)

3.2.3 Link Assigning CoolMasterNet(s)/CooLinkNet(s) to Processor Ethernet Connections

CoolMasterNet/CooLinkNet communicates to the HomeWorks QS processor by sending information via ethernet directly. As a result, the interface must then be assigned to an ethernet connection on one of the 16 processors available.

To assign a CoolMasterNet/CooLinkNet to an ethernet connection, first select **Link Assignment** from the **Design** tab drop down menu. Click on **Ethernet** under the processor where the CoolMasterNet/CooLinkNet interface is to be assigned.

![Ethernet Devices](image)

Select **Ethernet Devices** from the **Show** filter on the **Assignable items** window on the right-hand side of the screen.

![Assignable items](image)

Check the box for the 3rd Party HVAC device that you would like to assign to an ethernet connection and it will appear in the list of assigned ethernet devices on the right-hand side of the screen.

![Assigned Ethernet Devices](image)

Continued on next page...
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database (continued)

3.2.3 Link Assigning CoolMasterNet(s)/CooLinkNet(s) to Processor Ethernet Connections (continued)

Each 3rd party HVAC interface, as well as any other Ethernet device, counts as one outbound connection in the HomeWorks QS system.

<table>
<thead>
<tr>
<th></th>
<th>HomeWorks QS Software Version</th>
<th>Processor 1 Home Control+ Remote Access Enabled</th>
<th>Processor 1 Home Control+ Remote Access Disabled</th>
<th>Processors 2 through 16</th>
<th>Ethernet Device Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.0 and newer</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>Manual, Link Assignment</td>
</tr>
<tr>
<td></td>
<td>Before 7.0</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Automatic, Round-robin</td>
</tr>
</tbody>
</table>

NOTE: As of April 2015, remote access for the Home Control+ App is purchased from within the app and is only available in North America. Lutron Connect offers free remote access globally.

To disable Home Control+ remote access, you'll need to check the box next to Disable Home Control+ Remote Access under Ethernet for the first processor on the Design > Link Assignment screen:

Or under the Home Control+ Remote Access field on the Activate > Processors screen:

3.2.4 Changing Setpoints and Modes from Keypad Buttons, CCIs, Occupancy/Vacancy Sensors, or Timeclock Events

The first step, as with any keypad button or CCIs, is to select the Program Type, Button Type, and LED Logic for the button.

NOTE: CoolMasterNet/CooLinkNet only supports single setpoint changes. Heat and cool setpoints cannot be set at the same time.

Continued on next page...
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database (continued)

3.2.4 Changing Setpoints and Modes from Keypad Buttons, CCIs, Occupancy/Vacancy Sensors, or Timeclock Events (continued)

After the button has been configured, select HVAC Zones from the Assignable Items drop down menu. All HVAC zones will appear in the Assignable Items frame. Find the CoolMasterNet/CooLinkNet zone that you would like to add to the button and hover the cursor over top of the checkbox to the right of the zone name for the dropdown menu to appear. Select the parameters that need to change based on the button press. You can adjust Setpoints, Operating Mode, and Fan Speed from keypad button presses and CCIs.

To program an occupancy or vacancy sensor to control a CoolMasterNet/CooLinkNet zone, first select occupancy from the program tab drop down menu and then select the area that is to be programmed.

Continued on next page...
3.0.0 CoolMasterNet/CooLinkNet Integration with a HomeWorks QS System

(continued)

3.2 Implementing CoolMasterNet/CooLinkNet into a HomeWorks QS Database (continued)

3.2.4 Changing Setpoints and Modes from Keypad Buttons, CCIs, Occupancy/Vacancy Sensors, or Timeclock Events (continued)

You can adjust setpoints, operating modes, and fan speeds from occupancy/vacancy sensors.

To program a timeclock event to control a CoolMasterNet/CooLinkNet, be sure to select *timeclocks* from the *program* tab drop down menu.

Create a new timeclock event by setting the name, days of week, and time of the event. On the right hand side, select the *Program Type*. Select the *HVAC Zones* to be affected by the event. Timeclock events can be used to adjust *Setpoints*, *Operating Mode*, and *Fan Speed*.

Continued on next page...
3.0.0 CoolMasterNet/ CooLinkNet Integration with a HomeWorks QS System (continued)

3.2 Implementing CoolMasterNet/ CooLinkNet into a HomeWorks QS Database (continued)

3.2.5 Programming Seven Day Schedules

The HomeWorks QS programming software can be used to create seven day schedules which allow for automatic control of HVAC set points, up to four times per day, with the aim of maximizing energy efficiency and comfort. Programmed schedules are executed on a zone by zone basis. Copying schedules from one zone to another is allowed to facilitate faster programming.

To program an HVAC schedule to control a CoolMasterNet/ CooLinkNet zone, select thermostat from the program tab drop down menu.

Next, select the HVAC Zone that requires schedule programming.

On the right-hand side of the screen you have the option of clicking on the “+” sign to add a new schedule or click on an existing schedule to edit. Each zone can have 1 schedule per day, for a total of 7 independent schedules per zone. Each schedule can have a maximum of 4 events.

Schedules for each HVAC zone in the system are programmed independently. If two or more zones have the exact same scheduling requirements, copying and pasting of schedules is allowed to increase programming efficiency. To copy a schedule from one zone to another, right click on the name of the HVAC Zone, with the schedule to be copied. Click on Copy Schedules.

Click on the HVAC Zone to be programmed and click Paste Schedules to copy the schedule to the zone.
4.0.0 CoolPlug Integration with a HomeWorks QS System

A HomeWorks QS system can integrate with the CoolPlug interface as of version 12.0 of the programming software. One key difference between CoolPlug integration and integration with the CoolMasterNet/CooLinkNet interfaces is that CoolPlug integration connects to the HomeWorks QS system via the 3-pin terminal block on the back of a Palladiom thermostat.

4.1 Connecting a CoolPlug Interface to the HomeWorks QS System

Unlike a CoolMasterNet or CooLinkNet interface, the CoolPlug interface integrates with the HomeWorks QS system by physically wiring to the back of a Palladiom thermostat. Below is a table detailing the connections between the Palladiom thermostat and CoolPlug interface.

<table>
<thead>
<tr>
<th>Palladiom Thermostat</th>
<th>CoolPlug Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUX (terminal #1)</td>
<td>PBUS 2</td>
</tr>
<tr>
<td>MUX (terminal #2)</td>
<td>PBUS 1</td>
</tr>
<tr>
<td>Ground (terminal #3)</td>
<td>–</td>
</tr>
</tbody>
</table>

4.2 Adding a CoolPlug Interface to a HomeWorks QS Database

To add a CoolPlug interface to the database, go to the design tab of the software and use the drop-down menu to select equipment. Next, find the 3rd Party HVAC device in the toolbox and click on the “+” sign to add the device.

NOTE: The default toolbox does not contain this device by default, so it is necessary to edit or create a toolbox to include the 3rd Party HVAC device.

Continued on next page...
4.0.0 CoolPlug Integration with a HomeWorks QS System (continued)

4.2 Adding a CoolPlug Interface to a HomeWorks QS Database (continued)

Once the 3rd Party HVAC device has been added to the Equipment Locations area, provide a name for the HVAC control and select CoolAutomation from the Manufacturer field.

Once the Manufacturer selection has been made, choose CoolPlug as the model.

For a guide on how to setup HVAC loads and their parameters in the software, refer to Section 3.2.1. For information on assigning a load to an HVAC controller, refer to Section 3.2.2.

Once a load has been assigned, assign the HVAC zone to a Palladiom thermostat. Start by clicking on Assign... under the Assigned Devices field.

Then click on Assign on the Palladiom thermostat that will control the zone.

The name of the remote temperature control will now be visible in the Assigned Devices field.

Continued on next page...
4.0.0 CoolPlug Integration with a HomeWorks QS System (continued)
4.2 Adding a CoolPlug Interface to a HomeWorks QS Database (continued)

This process will assign the Palladiom thermostat to the zone of the CoolPlug interface. To assign the CoolPlug interface to the Palladiom thermostat, go to the design tab of the software and select controls from the drop-down menu.

Go to the area where the Palladiom thermostat is located and click on the HVAC Controller tab for the thermostat.

Click on Assign… and then select the CoolPlug interface that is wired directly to the back of the Palladiom thermostat.

Now that the CoolPlug interface is assigned to the Palladiom thermostat, ensure that the Palladiom thermostat gets link assigned to a QS wired link in the HomeWorks QS system. Refer to Section 3.2.3.

For information on how to program the CoolPlug zones to various triggers in the HomeWorks QS system, refer to Sections 3.2.4 and 3.2.5.
5.0.0 CoolMaster Integration with a HomeWorks QS System

A HomeWorks QS system is also able to integrate with CoolMaster interfaces. The commands used by the CoolMaster to communicate with the HomeWorks QS system are similar to the CoolMasterNet/CooLinkNet. One primary difference between the two CoolAutomation interfaces is that CoolMasterNet and CooLinkNet have a built-in ethernet port for a direct connection into the physical router or switch port in the LAN while the CoolMaster has a serial communication port, RS-232, which must first be converted to ethernet using a 3rd party converter device, prior to the commands getting to the HomeWorks QS system.

5.1 Connecting CoolMaster to the HomeWorks QS System

The CoolMaster interfaces will live on the network using an RS-232 to ethernet converter. The converter is assigned an IP address, port number, and potentially a username and password, if the converter utilizes Telnet for its application layer. For more information about the network settings for converters, as well as supporting documentation of the converter that is being used for the application, refer to the application note HomeWorks QS Integration with Ethernet and RS-232 Devices at www.lutron.com. Settings will vary by converter. Set the IP address of the converter outside of the DHCP range of the router that is connected to it.

Here is an example of a CoolMaster interface controller settings, using an RS-232 to Ethernet converter.

<table>
<thead>
<tr>
<th>Output</th>
<th>Controller Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Port Number</td>
</tr>
<tr>
<td>192.168.1.203</td>
<td>2301</td>
</tr>
</tbody>
</table>

The converter must be link assigned to one of the 5 available ethernet connections on one of the processors in the HomeWorks QS system. For more information on link assignment, refer to Section 3.2.3.

5.2 Adding CoolMaster Interfaces to a HomeWorks QS Database

Adding and setting the parameters for a CoolMaster interface follows the same process as CoolMasterNet/CooLinkNet. Refer to Section 3.2.2 for more information on adding CoolMaster to a HomeWorks QS database and how to define the necessary parameters.

Continued on next page...
5.0.0 CoolMaster Integration with a HomeWorks QS System (continued)

5.2 Adding CoolMaster Interfaces to a HomeWorks QS Database (continued)

5.2.1 HomeWorks QS Software Prior to 9.0

HomeWorks QS software versions prior to 9.0 had options available for selection for the full line of CoolMaster interfaces, including many which are no longer actively available for purchase from CoolAutomation. All devices communicate with the HomeWorks QS system in the same manner. The difference between the interfaces is on the HVAC equipment side. Each interface is intended for control of a specific manufacturer’s VRV/VRF system.

5.2.2 HomeWorks QS Software 9.0 to 10.7

As a result of the discontinuation of sale on most models of the CoolMaster interface, the HomeWorks QS software version 9.0 had a reduced list of model numbers but still supports all CoolMaster interfaces from a command and integration perspective. The only model number listed is for Fujitsu equipment. If utilizing another CoolMaster interface or controlling a different HVAC manufacturer, select the 7000F model number and be sure to make the appropriate bill of materials corrections so that the correct hardware is ordered. From the perspective of the HomeWorks QS system, the interfaces are essentially the same.

5.2.3 HomeWorks QS Software 11.x

In HomeWorks QS software version 11.0, all models of CoolMaster have been removed. Simply choose the option for CoolMaster from the Manufacturer drop-down menu. This will allow integration with every model of CoolMaster interface.
5.0.0 CoolMaster Integration with a HomeWorks QS System *(continued)*

5.2 Adding CoolMaster Interfaces to a HomeWorks QS Database *(continued)*

5.2.4 HomeWorks QS Software 12.0 and Newer

Starting in HomeWorks QS software version 12.0, **CoolMaster** has be added to the **Model** field (when **CoolAutomation** is selected in the **Manufacturer** field).

5.3 Programming for CoolMaster in the HomeWorks QS Software

Programming for control of the CoolMaster HVAC zones is similar to programming for CoolMasterNet/CooLinkNet. Refer to **Sections 3.2.4** and **3.2.5** for more information.
6.0 Frequently Asked Questions

What is Variable Refrigerant Flow (VRF)?
Variable Refrigerant Flow (VRF) uses refrigerant as the cooling and heating medium. It allows for one outdoor condensing unit to be connected to multiple indoor fan-coil units (FCUs), each individually controllable by its user, while controlling the amount of refrigerant delivered to each evaporator. By operating at varying speeds, VRF units work only at the necessary rate to achieve substantial energy savings at partial load conditions. Heat recovery technology allows individual indoor units to heat or cool as required, while the compressor load benefits from the internal heat recovery.

What is Variable Refrigerant Volume (VRV)?
Similar in functionality to VRF systems, Daikin® invented Variable Refrigerant Volume (VRV) technology in 1982. VRV multi-zone systems circulate only the amount of cooling/heating refrigerant volume required at any time. Different zones can simultaneously utilize different climate control settings. VRV offers a versatile and customizable solution for an entire building, minimizing consumption and individual user control.

What is the difference between CoolMasterNet, CooLinkNet, and CoolMaster?
There are a number of differences between all three, but each unit is compatible with a HomeWorks QS system. CoolMaster communicates to control systems, such as a HomeWorks QS system, primarily via RS-232 serial communication, and these interfaces are HVAC manufacturer specific (e.g. there is a model for Mitsubishi® and a different one for Daikin). The way that the HomeWorks QS system communicates to these interfaces does not vary from one HVAC manufacturer to another; however, the interface communication out to the HVAC system will vary. The RS-232 communication requires an RS-232 to ethernet converter in order to communicate with the HomeWorks QS processor.

CoolMasterNet and CooLinkNet have the ability to communicate via RS-232 but also has an ethernet port and can reside on the LAN. No serial to IP converter is required for communication with the HomeWorks QS processor. The CoolMasterNet is also not manufacturer specific and is a drop-in replacement for all models of the CoolMaster RS-232 interface. However, the CooLinkNet is manufacturer-specific, and the correct model must be ordered depending on which HVAC Manufacturer is planned to be controlled from the CooLinkNet. The CoolMasterNet can control multiple zones of HVAC with a single device, whereas the CooLinkNet is a single HVAC zone control device. For a list of HVAC Manufacturers supported and the appropriate CooLinkNet model for your application, please reference CoolAutomation’s website at www.coolautomation.com.

I cannot get my CoolMasterNet/CooLinkNet to communicate with my HomeWorks QS system or even through a terminal application. What could be the issue?
The two keys to establishing communication are: knowing the IP address assigned to the CoolMasterNet or CooLinkNet, and knowing the port number that the CoolMasterNet or CooLinkNet uses to communicate to other devices on the network. The IP address that is assigned to the interface, from the DHCP server, will show in the lower right corner of the CoolMasterNet screen and the upper left corner of the CooLinkNet screen. The IP address of CooLinkNet is shown for a few seconds every one minute. Once you know the IP address, be sure to use port number 10102. Communication to the CoolMasterNet or CooLinkNet can be tested using a terminal program (e.g., PuTTY) using Raw TCP.

How does a CoolPlug interface communicate with a HomeWorks QS system?
The CoolPlug interface communicates with a HomeWorks QS system via the 3-pin terminal block on the back of a Palladiom thermostat.