

Electrical Connections

24VAC THERMOSTAT CONNECTIONS	
R / H	24VAC
W / ↓	Call for Heat
C / N	24VAC common
DRY CONTACTS (RATED 120VAC, MAX.2A)	
AUX	Auxiliary
XX	Active Pump(s)
Zone1 E/S	Local Priority
MASTER/SLAVE COMMUNICATION LINES (5V)	
C1	Master Priority
C2	Slave Active
GND	Communication Ground 120VAC Connections
120VAC CONNECTIONS	
L	AC Line In (max. 20A) Zone Pump Line Out (max. 1/6 HP)
N	AC Neutral
ZC	Zone control/Priority Input(120VAC)
⊥	Earth Ground

Fuse: 5A slow blow, 5x15mm (2AG)

FCC/IC STATEMENTS AND NOTICES

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for 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 the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

FCC AND INDUSTRY CANADA

RF Radiation Exposure statement: This equipment complies with FCC and Industry Canada RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the antenna and all persons.

Cet appareil est conforme aux limites d'exposition au rayonnement FR du FCC et d'Industrie Canada pour un environnement non contrôlé. Cet appareil devrait être installé et devrait fonctionner de sorte qu'il se trouve à une distance d'au moins 20 cm entre l'antenne et toute personne.

INDUSTRY CANADA

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including 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.

Warning

- This product must be installed by qualified personnel and the installation must comply with the codes and regulations applicable to the municipality where this product is installed. Failure to do so could lead to injury, death, or prosecution.
- Always disconnect the AC power before installing or working on AC power components.

1 Remove the plastic cover by unscrewing the 4 screws at the corners.

2 Attach the back of the device to the wall at a suitable location using the included hardware.

3 Disconnect the AC power to the AC wiring for the device.

4 Wire the device to the AC power supply and zone pumps using wiring appropriate for 120VAC. Connect other terminals as appropriate to other devices using proper wiring. Be sure to thread wiring through the knock outs and use cable clamps to fasten the wiring to the device.

5 Make sure the fuses are each of 5 Amp, slow blow and in the correct position.

6 If you know you will need an external antenna, please follow the instructions to the right for **External Antenna Installation**.

7 Use the table below to configure the switches on the device. For descriptions of the functions, see the *Operational Summary* to the right. **These switches are only read at power up.** If you are using a wired thermostat, need Priority Zone functionality and/or have a Primary pump or external antenna, set the switches appropriately now. Any changes will require AC power to be removed from the device, then restored.

DIP SWITCH	DEFINITION		
MASTER/SLAVE	Master ON	Slave OFF	Slave
	Zone1 is Priority Zone	Zone1 is Pump Zone	IGNORED: Zone1 is Pump Zone
PRIORITY	Exercise ON for all pumps	Exercise OFF for all pumps	Same as Master
EXERCISE	Primary Pump ON during Priority	Primary Pump OFF during Priority	IGNORED: Primary Pump always OFF
PRIMARY STATUS DURING PRIORITY	Zone1 OFF 2 min after end of Priority	Zone1 OFF at the end of Priority	IGNORED: No Priority
PURGE	Wired thermostat for Zone1	Wireless thermostat for Zone1	Same as Master
WIRED/WIRELESS			

8 Re-attach the plastic cover, securing it with the 4 screws and switch on the AC power to the unit. The Power LED will come on and the Network Status LED will flash red.

9 The device is now ready to connect to the network. Follow the steps for the selected type of network to add the device to the network.

LOCAL ONLY NETWORK USING ZIGBEE COORDINATOR

- Plug the Coordinator into a centrally located outlet in the home if you have not already done so.
- Press and hold the button on the Coordinator until the button flashes red (about five seconds).
 - The Coordinator is now ready to pair and is looking for devices.
 - The Network Status LED on each zone controller will go steady red when connected to the Coordinator. One Coordinator can support up to nine zone controllers.
- Determine the network ID number for a zone controller by pressing the Pair button briefly and adding the numbers associated with the lit Zone LEDs (see Version / ID# chart under LED Indicators).
- Pair and setup the MrPEX® thermostats according to the thermostat manual, using the zone controller ID number determined in the previous step.
- When all thermostats are setup, press and hold the button on the Coordinator until the button is steady red (about five seconds).

INTERNET CONNECTED NETWORK USING BASIC GATEWAY

- Setup the Basic Gateway as instructed and associate the gateway with the MrPEX® service account.
- Go to the Add New Equipment page on the MrPEX® App and press "Scan for equipment".
 - The gateway ring will flash red indicating that it is looking for devices.
- Use the MrPEX® app to add the zone controllers to your MrPEX® network.
 - The Network Status LED on each zone controller will go steady red when connected to the Basic Gateway.
- Use the MrPEX® app to add the MrPEX® thermostats to your network and associate them with the desired zone controller and zone.
- When all devices are setup, exit the Add New Equipment function on the MrPEX® App.
 - The gateway ring will turn steady blue to indicate normal operating mode.

CHECKING SYSTEM CONFIGURATION AND COMMUNICATION Coordinator to Zone controllers
Press and hold the coordinator button for one second.
All devices connected to the coordinator will flash. To stop checking, press and hold the coordinator button again for one second.

CHECKING SYSTEM CONFIGURATION AND COMMUNICATION Gateway to Zone controllers
Go to the MrPEX® App and press the Identify button for the desired zone controller. The desired zone controller will start flashing the G1 and G2 LEDs. To stop the identify process, press the Identify button on the App again.

Operational Summary

Following is a brief summary of the functions available in the 5310104 zone controller to simply and safely connect thermostats and corresponding pumps.

GROUP FUNCTION (AVAILABLE ONLY IN LOCAL ONLY NETWORK)

- The zone controller can have four different configurations:
- One standalone thermostat for each zone (4 thermostats in total)
 - Two groups: Group 1 (G1), zones 1-2, with a master thermostat and optional slave thermostat, and Group 2 (G2), zones 3-4, with a master thermostat and one slave thermostat
 - Group 1 with master/slave thermostats and the other zones (3-4) with standalone thermostats
 - Zones 1 and 2 with standalone thermostats and Group 2 with master/slave thermostats

For wireless thermostats, groups are set on the thermostat during the pairing process. When "GR" flashes on the thermostat display, press UP/DOWN arrows to select the group number. Group "--" is standalone operation.

ZONE PUMPS

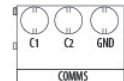
The Zone Pumps are activated when the associated thermostats call for heat, except when a Priority Zone call is Active, in which case the pumps are turned off.

EXERCISE FUNCTION

When turned on, the Exercise function will turn ON a pump for 30 seconds after 72 hours of no activity on that pump.

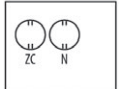
MASTER/SLAVE CONNECTIONS

The three terminals (C1, C2, and GND) can be used to connect up to 4 other zone controllers (5 total). They are wired in parallel (C1 to C1 to C1, C2 to C2 to C2, etc.) with up to 100 meters from end to end. Only one zone controller can be the Master, the other zone controllers must be Slaves, as determined by the position of the MASTER / SLAVE DIP switch.



ZC/N CONNECTOR (MASTER ZONE CONTROLLER ONLY)

A Master zone controller without Priority uses the ZC/N terminals to enable or disable the zone controller, typically from the boiler ZR/ZC 120 VAC contacts. When 120 VAC is applied across the ZC/N terminals, the zone controller is enabled. When 120 VAC is not applied, the zone controller is disabled and all pumps are switched OFF.



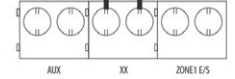
DRY CONTACTS (MASTER ZONE CONTROLLER ONLY)

There are three sets of dry contacts in the zone controller.

AUX: Contact closure when any pump is ON and Priority Zone is not active.

XX: Contact closure when any pump is ON, including an active Priority Zone.

Zone1 E/S: Contact closure when Priority Zone is active. Can be used for self regulated pumps or other controls.



PRIORITY ZONE FUNCTION (MASTER ZONE CONTROLLER ONLY)

The Priority Zone function is usually used to give domestic hot water (DHW) priority for the boiler output. Activating this function will change the behavior of Zone 1 on the MASTER zone controller. When Priority is ON and the Zone 1 thermostat calls for heat, the following occurs as part of an active Priority Zone:

- Zone 1 pump is turned ON and all other pumps, including those on SLAVE zone controllers, are turned OFF.
- The Zone 1 pump runs for 1 hour, after which all zones resume their normal operation.
- The Priority Zone function can be canceled early by having the Zone 1 thermostat end the call for heat.
- Another Priority Zone call after the 1 hour period cannot be initiated until the Zone 1 thermostat ends the initial call for heat.

PURGE FUNCTION (MASTER ZONE CONTROLLER ONLY)

When turned on, the Purge function will keep the Zone 1 pump ON for 2 minutes following the end of a Priority Zone call. All other zones will remain off during the purge.

PRIMARY PUMP FUNCTION (MASTER ZONE CONTROLLER ONLY)

The Primary Pump controls the heating system and it switches ON when any zone is ON, including zones on SLAVE zone controllers, **except:**

WHEN: PRIORITY switch is ON, PRIMARY STATUS DURING PRIORITY switch is OFF, and Priority Zone is Active

THEN: Primary Pump is OFF

LED Indicators

LABEL	COLOR	INDICATION	IDENTIFY INDICATORS
Power	●	120 VAC power ON	
G1	●	Group 1 pumps active	☀
G2	●	Group 2 pumps active	☀
Network Status	☀	Searching for a network	
	●	Paired to a network	
Priority	☀	Priority Condition active	
Zone #	●	Zone# pump active	

VERSION/ WCID	VALUE = SUM OF ZONE NUMBERS			
	ZONE 1	ZONE 2	ZONE 3	ZONE 4
1	●			
2		●		
3			●	
4				●
5	●			●
6		●		●
7			●	●
8	●		●	●
9		●	●	●
0	●	●	●	●

EXTERNAL ANTENNA INSTALLATION

If you need to install an external antenna, perform the following:

- Disconnect power
- Remove the protective cover from the External Antenna connector on the top edge of the board.
- Pass the antenna cable through the antenna knock out (and cable clamp) on the top of the housing and screw the cable onto the connector.
- Secure the cable using a cable clamp.
- Change the Antenna Selection switch from INT to EXT.
- Reconnect power



The device will now use the external antenna for wireless communication.
Note: For regulatory compliance, only the MrPEX® 5310002 antenna (sold separately) can be used with this device.

FACTORY DEFAULT RESET

To restore the device to Factory Default settings, press and hold the Pair button until both G1 and G2 LEDs go off after becoming steady red.

Note: Restoring to Factory Default will remove the zone controller from the network and delete all associated devices.