

## **DMQC & DMC SERIES PTAC SUPPLEMENTAL INSTALLATION INSTRUCTIONS**

### **REMOTE THERMOSTAT OPTION - COOLING WITH OR WITHOUT ELECTRIC HEAT**

#### **GENERAL**

This supplement contains information specific to remote thermostat DMQC and DMC PTAC models that have no "OFF" position marked on the unit dial plate. Please also refer to the general Installation Operation and Maintenance Manual included with the unit.

#### **THERMOSTAT SELECTION:**

Except for fan speed selection, the unit is completely controlled by a wall thermostat mounted at a remote distance from the unit. Any standard single-stage 24 volt heat/cool thermostat intended to control a gas heating unit with cooling can be made to work with the unit; this includes automatic changeover and electronic thermostats. The thermostat will automatically maintain the temperature in the room, based on the setting pre-set by the user.

A simple room thermostat is a switch that directs 24 volt power from its "R" terminal to its W, Y, and G terminals, according to the function being demanded by the user. Since it is just a switch, it does not consume power, and thus requires only 4 wires for control. However, electronic thermostats need to be powered - some use batteries or other methods and hence need no more than 4 wires. However, thermostats that need to be powered with the 24 volt source will need an additional connection to be made to the thermostat "C" or "Common" terminal, especially if its display is backlit. If this is the case, please order the additional Black lead that will insert into the unit's low voltage connector, Part No. 18BK23Y-024. This will allow a 5-wire thermostat connection.

#### **THERMOSTAT LOCATION:**

Proper functioning of the thermostat depends on accurate room temperature sensing. Be conscious of locating the thermostat where temperatures near the thermostat are not representative of room temperature. For example, do not install the thermostat where it is subjected to direct sunlight, other sources of heat, or cold drafts, including air discharged from a supply air register. A common error is not sealing the hole in the wall where the thermostat cable passes through directly behind the thermostat body. Air from behind the wall can

drastically affect the temperature sensed by the thermostat.

#### **CHASSIS INSTALLATION**

Follow the first four steps of "Chassis Installation" outlined in the standard unit Installation Instructions, and then proceed as follows:

#### **DO NOT PLUG IN THE POWER CORD YET.**

A six-position connector has been provided with 24" leads to make the low voltage wiring connections, and to provide a quick disconnecting means when removing the chassis from the sleeve for servicing. Make the low voltage wiring connections to the remote thermostat according to the specific wiring diagram affixed to the heating/cooling chassis.

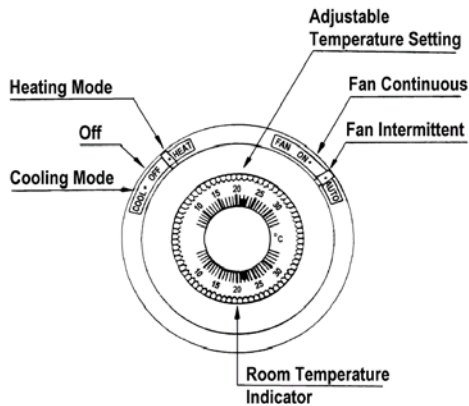
**IMPORTANT:** 208-230 volt units are factory-wired to the 240 volt tap on the primary side of the 24 volt transformer for 230 volt operation. For 208 volt installations the designated wire must be moved from the 240 volt to the 208 volt tap on the transformer (see unit wiring diagram).

Install the front panel by engaging the hooks into the slots in the side flanges of the sleeve. Install the filter per the standard unit instruction manual and then plug in the unit.

#### **OPERATING INSTRUCTIONS**

##### **THERMOSTAT OPERATION**

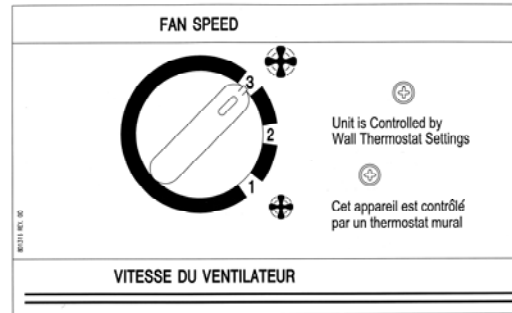
In addition to controlling room temperature, the room thermostat is also used to select whether the unit is to be in heating or cooling mode, whether the system is to be ON or OFF, and to set whether the fan is to run continuously, or to cycle with heating or cooling demand.



Activating the “SYSTEM OFF” switch should be done with care because there will be no heating or cooling operation even though there may be a demand - a room could potentially go into a freezing condition. Once a comfortable temperature setting is established, no other adjustments are necessary, except for fan speed, which is adjusted using the fan speed control knob at the unit.

WALL THERMOSTAT OPERATION	
<b>Heat</b>	Sets the unit into heating mode. Initiates heating when room temperature falls below set point.
<b>Off</b>	Disables heating and cooling modes, but allows control of fan.
<b>Cool</b>	Sets the unit into cooling mode. Initiates cooling when room temperature rises above set point.
<b>Auto</b> (not shown)	Found on automatic changeover thermostats only. Allows the thermostat to decide whether it should be in the heating or cooling mode. Usually a 4 F° differential or “deadband” will exist between heating and cooling set points to prevent rapid switching between modes.
<b>Adjustable Temperature Setting</b>	Establishes the “set point”, or desired room temperature.
<b>Fan On</b>	Synonymous with “Fan Continuous”. Fan will continue to run after the heating and cooling function has cycled off. Fan will continue to run even when mode switch is in Off position.
<b>Fan Auto</b>	Synonymous with “Fan Intermittent”. Fan will cycle on and off with the heating cycle or cooling cycle, and will not operate between cycles.

## UNIT MOUNTED CONTROLS



### Dial Plate and Rotary Switch

#### ROTARY SWITCH

The rotary switch and dial plate are found under the control door, which is located at the top right corner of the unit. The knob can be rotated to the left or to the right of the “Off” position. Heating output is not affected by fan speed. The settings are addressed in the following table:

ROTARY SWITCH OPERATION	
<b>Fan ‘3’</b>	High Speed. Selects highest fan speed for maximum cooling capacity, maximum airflow, maximum air throw, hence maximum air circulation.
<b>Fan ‘2’</b>	Medium Speed. Selects medium fan speed for a slightly reduced cooling capacity, at midrange airflow, and operation at a reduced sound level.
<b>Fan ‘1’</b>	Low Speed. Selects lowest fan speed for maximum air dehumidification and operation at the lowest sound level.

**IMPORTANT:** If the compressor is running in cooling mode, and then the unit is switched off, wait at least three minutes before switching the unit back on. This prevents cycling the compressor overload switch unnecessarily. Similarly, if the power has been interrupted, it is recommended that the unit be switched off and not switched on again until power has been restored for at least 3 minutes.

**NOTE:** The unit uses time delay relays to respond to commands from the wall thermostat. Therefore, there will be delayed responses when switching from one function to another – please be patient.

#### FRESH AIR CONTROL

Refer to the standard unit Installation Instructions for operation and location of fresh air door control lever.

**TROUBLESHOOTING GUIDE – REMOTE THERMOSTAT UNITS\***

<b>SYMPTOM</b>	<b>CAUSE</b>	<b>CHECK / CORRECTION</b>
<b>Thermostat does not Properly Control Room Temperature, Causes Unit to Run Continuously, or Causes Abnormal Cycle Times in Heating or Cooling Mode</b>	Unwanted source of heating or cooling is near the wall thermostat causing the thermostat to sense a temperature other than room temperature.	Eliminate the unwanted heating or cooling source or move the wall thermostat. See if thermostat is too close to a supply air register. Seal the hole in the wall where the thermostat cable passes into the thermostat.
	Wall thermostat body may be heating up due to impingement of direct sunlight, at a certain time of day.	Relocate thermostat, provide shade for the thermostat, or just live with the problem if it occurs for only a short time during the day.
	Defective thermostat.	Test and replace if necessary.
<b>Compressor Short Cycles</b>	Low voltage.	Check voltage with unit running and ensure it is within nameplate limits.
	Restricted condenser air.	Check for dirt or other condenser coil restriction. Clean as necessary.
	Recycling of condenser air.	Check for inadequate discharge air installation clearances. Coil not sealed against grille. Unit may not be completely pushed into sleeve
	Condenser fan motor operating intermittently, rotating slowly, or not at all.	Check to see if fan or shaft is rubbing or experiencing external friction. Check free rotation of the motor shaft. Check voltage to the motor. Check motor capacitor. Check for miswiring. Motor may be seized internally. Motor may have open windings, or defective internal overload – if so, replace motor.
	Defective thermostat.	Test and replace if necessary.
	Faulty or incorrect compressor overload.	Check for correct overload model number and replace if incorrect. Otherwise, if running amps seem normal, replace overload.
	Indoor coil freezing.	See "Indoor Coil Frosts"
	Compressor running too slow and drawing high amps.	Compressor may be miswired. Check capacitor. Compressor may be seizing – if so, replace compressor.
	Indoor room temperature too cold.	Compressor will cycle on and off by command of the indoor coil freeze protection device.
	Outdoor temperature too cold.	Compressor is not intended to operate at cold outdoor temperatures. Compressor will cycle on and off by command of the indoor coil freeze protection device.
<b>Compressor Will Not Run</b>	System switch set OFF on wall thermostat	Switch to COOLING
	Fuse or circuit breaker tripped.	Replace or reset as necessary.
	Defective cooling relay.	Test and replace if necessary.
	Defective switch.	Test and replace if necessary.
	Defective thermostat.	Test and replace if necessary.
	Indoor room temperature below thermostat set point.	Lower thermostat setting if comfort not yet achieved.
	Indoor room temperature too cold.	Compressor will cycle on and off by command of the indoor coil freeze protection device.
	Outdoor temperature too cold.	Compressor is not intended to operate at cold outdoor temperatures. Compressor will cycle and then lock out by command of the indoor coil freeze protection device, until the outdoor temperature warms up.
	Broken, shorted, loose, or miswired wiring.	Inspect and correct.
	Defective compressor capacitor.	Test and replace if necessary.
	Defective compressor overload.	Test and replace if necessary.
	Low voltage or no voltage to compressor.	Check voltage and ensure it is within nameplate limits.
	Compressor windings open.	Disconnect overload from compressor terminals. Check for winding resistance across all winding pairs C-S, C-R, S-R and check each terminal to the compressor shell for ground faults. Replace compressor if any windings are open-circuited or short circuited to the shell.
	Seized compressor.	If all of the above check out OK and if pressures are equalized, and compressor draws high amps and will not start, compressor is seized and needs to be replaced.

\*This troubleshooting guide is intended for use by qualified service personnel.

Continued

SYMPTOM	CAUSE	CHECK / CORRECTION
<b>Unit Trips Fuse / Circuit Breaker</b>	Shorted or incorrect wiring.	Check all connections. Also check for shorts within devices such as motors, switches, heater etc..
	Shorted capacitor.	Test and replace if necessary.
	Compressor short cycling.	See "Compressor Short Cycles"
	Power was interrupted to the unit.	Wait 3 minutes before restarting.
	Fuse or breaker setting too low.	Check nameplate fuse size.
	Broken, shorted, loose, or miswired wiring.	Inspect and correct.
	Low voltage or no voltage.	Check voltage with unit running and ensure it is within nameplate limits.
<b>Evaporator Coil Frosts</b>	Seized or slow running compressor.	See above.
	Dirty air filter.	Clean or replace.
	Dirty evaporator coil.	Clean as necessary.
	Blower motor operating intermittently, rotating slowly, or not at all.	Check to see if blower wheel or shaft is being rubbed or experiencing external friction. Check free rotation of the motor shaft. Check voltage to the motor. Check motor capacitor. Check for miswiring. Motor may be seizing. Motor may have open windings, or internal overload is defective – if so, replace motor.
	Recycling of indoor air.	Ensure that curtains or other obstructions are not short circuiting air between outlet grille and return air intake.
	Low refrigerant charge.	Look for telltale signs of low charge. For example, check frosting pattern starting from defrosted condition. If the whole evaporator face frosts uniformly at the same time, it indicates that the unit has insufficient indoor airflow. If frost works its way up the face of the evaporator during operation over time, it indicates low charge. Low running amps, low or no subcooling, and excessive superheat are other signs of undercharge. Find and fix the leak and recharge R22 to nameplate.
<b>Unit Rattles or is Noisy</b>	Defective fan relay.	Test and replace if necessary.
	Faulty thermostat.	Test and replace if necessary.
	Defective compressor.	Check and replace if necessary.
	Refrigerant line hitting surroundings.	Bend tube slightly to obtain clearance.
	Loose fan, blower, or motor mounts.	Check and tighten if necessary.
<b>No Heating</b>	Rubbing of fan or blower on housing.	Ascertain cause and correct. Check during operation.
	System switch set OFF on wall thermostat	Switch to HEATING
	Faulty thermostat.	Test and replace if necessary.
	Fuse or circuit breaker tripped.	Replace or reset as necessary.
	Cord not plugged in.	Plug in.
	Defective switch.	Test and replace if necessary.
	Defective heater.	Inspect and replace if necessary
	One-time thermal fuse is blown.	Check thermal fuse for open circuit and replace if necessary. Do not bypass.
	Automatic reset high limit control will not reset.	Check high limit for open circuit and replace if necessary. Do not bypass.
	Broken, shorted, loose, or miswired wiring.	Inspect and correct.
<b>Heater Output Intermittent or Insufficient</b>	Indoor room temperature above thermostat set point.	Raise thermostat setting if comfort not yet achieved.
	Faulty thermostat.	Test and replace if necessary.
	Automatic reset high limit control defective.	Replace high limit.
	Dirty air filter.	Clean or replace
	Dirty evaporator coil.	Clean as necessary.
	Defective heating relay.	Test and replace if necessary.
<b>Water Drips from Unit</b>	Blower motor operating intermittently, rotating slowly, or not at all.	Check to see if blower wheel or shaft is being rubbed or experiencing external friction. Check free rotation of the motor shaft. Check voltage to the motor. Check motor capacitor. Check for miswiring. Motor may be seizing internally or internal overload is defective – if so, replace motor.
	Sleeve not properly mounted.	Check sleeve for the required 3/8" pitch down from indoor to outdoor side and level side-to-side. Readjust as required.
	Condensate drain plugged.	Clean condensate drain spout passing through the dividing wall.
	Evaporator drain pan cracked or improperly mounted.	Inspect, realign or replace plastic drain pan as required.
	Unusually high moisture content in the indoor and/or outdoor air.	Under certain ambient conditions excessive condensate is generated, beyond the capacity for the unit to reject it via evaporation to the outdoor air stream. If objectionable or frequent, connect to an internal drain system with available optional drain kit.
Drain holes plugged in bottom edge of sleeve on outdoor side.	Inspect and clear blockage.	