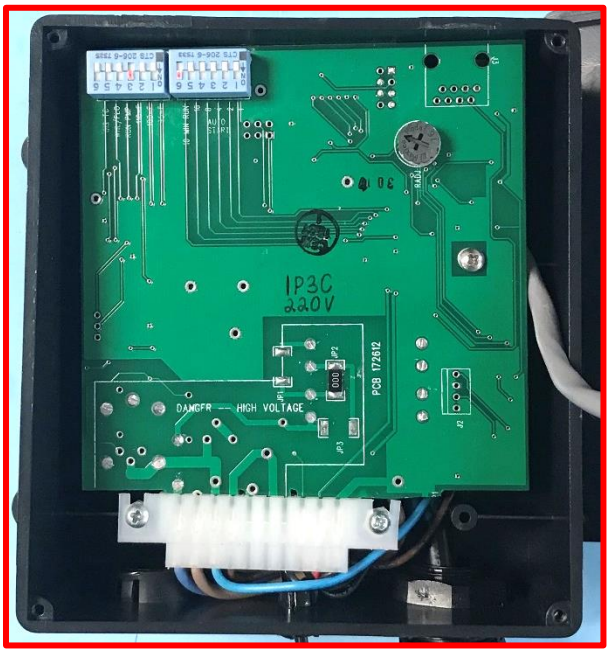
ACT, Inc. Commercial Controller

D'MAND CIRC®

DCKB-220

For Technical Training ONLY

Figure 1



Electronics Make the Difference®

Your ACT Inc. D'MAND CIRC® is programmable for your commercial plumbing application. The ACT Inc. D'MAND CIRC® System is commonly installed on return lines and can be adjusted to adapt to many applications on the line which services hot water supply lines from 1- 3" in diameter.

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First we need to familiarize ourselves with the controls on the circuit board.

LED Displays:

Green LED: Pump Running
Blue LED: Water Hot
Red LED: Power On
Yellow LED: Flow/Sensor

Figure 2

LED Indicators:

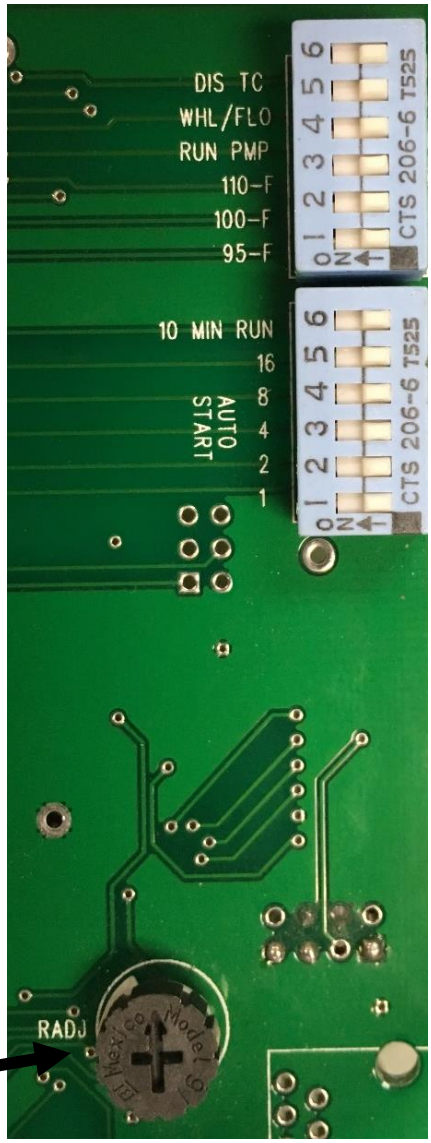
Green LED: **Pump running**, this allows you to monitor the pump in loud environments.

Blue LED: **Water Hot**, Water is above the maximum setting on switches 4-6. (Above 95-110°F)

Red LED: **Power on**, power to control box.

Yellow LED: **SW**, Indicates sensor error. If sensor is not connected, or sensor cannot pick up water temperature then the yellow light will blink indicating the System is in a default mode on time intervals only.

Figure 3



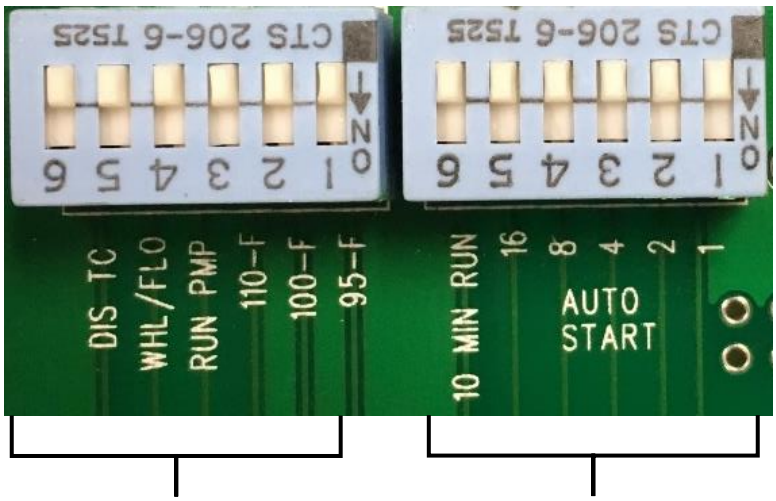
6. Disable Thermistor
5. Type of Flow Sensor
4. Pump Override
3. 110° F Max Shut Down Temperature
2. 100° F Max Shut Down Temperature
1. 95° F Max Shut Down Temperature

6. 10 Min. Run
5. No Delta T (ΔT) Function
4. 90% Function
3. None
2. None
1. None

Dial Adjustment:

Turning the dial clockwise will make the System more sensitive to hot water temperature increases and cause the System to shutdown quicker. Conversely, moving the dial counter-clockwise will remove some sensitivity from the System and allow the System to run longer.

Figure 4



Upper Switch Terminal Block (Group 1)

6. The **Disable Thermistor** setting allows the user to run the pump to the designated time out without the pump's thermistor turning it off.
5. The **Type of Flow Sensor** is used for an optional flow sensor type of activation.
4. The **Pump Run** allows the installer to turn the unit on despite conditions.
3. The **110°F Shut Down Temperature** switch allows for a turn off of 110° F and will not allow the pump to run past this setting.
2. The **100°F Shut Down Temperature** switch allows for a turn off of 100° F and will not allow the pump to run past this setting.
1. The **95°F Shut Down Temperature** switch allows for a turn off of 95° F and will not allow the pump to run past this setting.

Lower Switch Terminal Block (Group 2)

6. The **10 minute run after start from 4 minutes** will allow the unit to run a maximum of 10 minutes instead of the standard lock out of 4 minutes.
5. The **16** switch allows the unit to turn off at set degree, disabling the Delta T (ΔT) setting.
4. The **8** switch will allow the unit to run for 90% of its max time.
3. Function is not available yet.
2. Function is not available yet.
1. Function is not available yet.

Dial Adjustment:

- Dial rotates ¼ turn clockwise or counter-clockwise. This adjustment is used to adjust the pump's sensitivity or Delta T (ΔT) setting.
- Turning the dial clockwise will make the System more sensitive to hot water temperature increases, and cause the System to shutdown quicker.
- Conversely, moving the dial counter-clockwise will remove some sensitivity from the System and allow the System to run longer.
  *(****Note**: Typically this is used to overcome "hot spots" in the plumbing line, or long runs of uninsulated piping which may cool down prematurely.)*

Below *(Figure 5),* would be the recommended settings for initial set up.

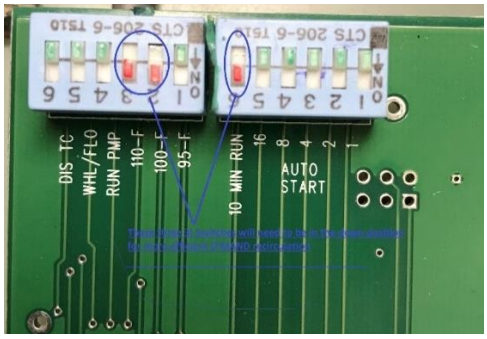


Figure 5

For more savings and a more "aggressive" setting we can move the "100-F" switch to the up/off position for shorter pump run times *(See Figure 6).*

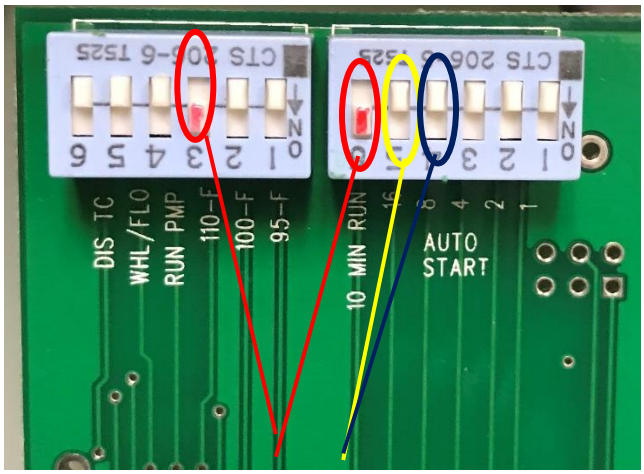


Figure 6

Only the 110-F and 10 MIN RUN in the "ON" position.
No DeltaT (ΔT) switch
90% Run time switch

Note: ***Once wired, all power will need to be shut down and reinitialized to reset the values on the controller.***

******This also applies to changes made on the controller/switches (i.e. for indicator LEDs to show proper readings).

Physical Installation:

The ACT Inc. D'MAND CIRC® System is installed by placing the controller with the LED light facing outward, using the eyelets to affix to a flat surface. This must be in a room/enclosure that will NOT allow moisture on the controller or the electrical connections. The controller must be installed within 6' of an electrical outlet for power, and within the pump's cord length to plug in to the receptacle. If an ACT Inc. D'MAND CIRC® pump is NOT used, then a plug adapter or a new power cord may be required to install the System.

A pump with a standard 110V electrical connector can be attached to the DCKB controller using the pigtail adapter.

In step 1 you will connect the C14 connector in to the top of the DCKB controller. The 110V three (3) prong plug will also connect in to the pigtail. *(See Figure 7 & 8)*

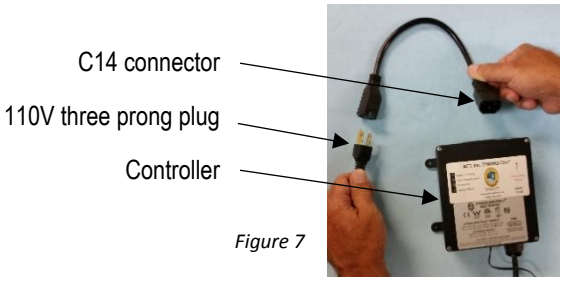


Figure 7

Step 2 shows the system connected correctly.

Figure 8

The controller must also be close enough to the return line piping to allow the temperature sensor to be affixed to the outside of the return line. The sensor must be installed so as the copper tip is firmly against a portion of smooth, clean piping.

(**Note:** Cannot be installed on fittings as it will not accurately read temperature.)

Adjustments/Troubleshooting

Figure 9

Problem	Remedy
System shutting down pump too soon.	**Action:** To increase the temperature shut off value turn on the "100-F" switch, (pull down if installed vertically) in addition to the "110-F" switch, as shown on *Figure).*
System needs to shut off at a specific temperature *Figure 6.*	**Action:** Pull down Switch: (Figure 4:Group 2; Switch 5) to the ON position. This will disable the DeltaT (ΔT) function and allow the System to ONLY shut off at a fixed temperature. The temperature can be adjusted by turning the round black potentiometer counter-clockwise for hotter temperatures, and clockwise for lower temperature shut off.
System shutting off with spikes in hot water, a fixed run time is desired regardless of water temperature. *Figure 6.*	**Action:** Pull down Switch: (Figure 4:Group 2; Switch 4) for 90% run activation. This switch disables ALL other functions and allows the controller to run for 15 min continuously and off or 1:30 min (times are approximate and may vary). This adjustment will give the System a fixed 10% reduced run time. This adjustment should only be used in extreme environments.

Note: Power MUST BE CYCLED to the DCKB controller for changes to the take effect. If power is not cycled the adjustments will not change the controller.

This can be achieved by a switch, a breaker to the electrical circuit the controller is connected to, or by disconnecting the wiring on the incoming power.

Please refer to our website at www.gothotwater.com for warranty and indemnification information.

For any ACT, Inc. D'MAND CIRC® questions please call us at (800) 200-1956, or (714) 668-1200, or email us at: info@GotHotWater.com

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