

CCU2 Chiller Controller

SUPERSEDES: New

EFFECTIVE: August 21, 2012

Plant ID: 001-4115

PURPOSE: This guide is a consolidation of important CCU2 information that can be used when installing, commissioning and setting up the controller. It is not meant to replace any other CCU2 documents or drawings.

APPLICATION: The application is for controlling one air cooled or water cooled chiller.

IMPORTANT FACTS

- Any unused temperature inputs should either be shorted or have a 10K ohm resistor placed across them.
- Demands are generated to the controller by either associating other controllers or connecting a demand input.
- If not using lead/lag pumping configuration, the pump outputs must be connected to the same pump.
- If not using a flow sensor or current switch to prove the flow of the pump, a jumper must be placed across the pump flow input.

INSTALLER/ELECTRICIAN CHECKLIST

Task	Verified Yes/No
Ensure that the 24VAC power source is properly connected to terminals 38 & 39 and that the polarity is correct.	
Ensure that terminal 40 GND is connected to a known good earth ground.	
Ensure that the 3 sets of DIP switches are properly set in accordance with the drawing below, installation or application documents. The DIP switches can be accessed by removing the controllers cover. Note the black square for each position indicates the direction the switch needs to be placed.	
Ensure that the 4 sets of jumpers are properly set in accordance with the drawing and your application. The jumpers can be accessed by removing the controllers cover.	
Ensure that the proper wire is used for inputs and the communication trunk. Analog input wiring must be 18 AWG TSP (can also use multi-conductor). Taco part # Wir-018 (1 Pair + shield). Communication wiring must be Echelon approved cable 22 AWG TP. Taco part # WIR-022.	
Ensure that the shielded input wiring is properly grounded. Remember the shield must only be connected at the controller end, at the sensor end it should be cut even with the wire jacket and taped.	
Ensure that the sensors required for this application are properly installed and wired to the controller. Refer to sensor and controller installation sheets for reference.	
If the LCI is connected and powered up, press the service pin button on the CCU2 so that the controller is recognized and added to the LCI's database. This can be verified by logging into the LCI. The controller appears as Unitx_CCU2, where x is the order in which all controllers' service pin buttons have been pressed.	

COMMISSIONING THE CONTROLLER

After the CCU2 has had all inputs and outputs properly wired, a point-to-point check should be performed to ensure all terminations have been properly made. Use this checklist to verify all inputs are working correctly and reading properly in the LCI; if a point is not used, simply indicate “not used.”

Steps required for verifying inputs on the CCU2

To verify the inputs and outputs, login to the LCI and perform the following steps:

1. Press **Controllers** button from the Home screen.
2. Select the CCU2 from the list of controllers.
3. Press **Inputs** and verify that there are realistic temperature readings. It is recommended that the temperature sensors be warmed up or cooled down so a response is seen. To verify digital inputs, change the state of the sensor to see a response.
4. To verify the outputs, press **All Settings**.
5. From the list of settings, press **Chiller Enable** and set the value to “On.”
6. Verify the outputs are sequencing on, according to the application and temperatures. The outputs can be viewed in the Outputs screen.
7. Verify the physical equipment has turned on.
8. After verification, set Chiller Enable to “Off.”

Inputs	Verified/initials	Outputs	Verified/initials
Chiller Flow		Cooling Tower Valve	
Condenser Flow		Cooling Tower Fan	
Chiller General Alarm		Chiller Pump 1	
Cooling Water Dmd		Chiller Pump 2	
Chiller Supply Temp		Condenser Pump 1	
Chiller Return Temp		Condenser Pump 2	
Condenser SWT		Chiller Low Limit	
Condenser RWT			

CONFIGURING THE CCU2 SETTINGS

A description of CCU2 settings can be found in the Application Guide on page 20-23. If a copy of the Application Guide is needed, it can be found at www.taco-hvac.com. Once in the web site, select the *Products* tab, and from the drop down list select *iWorx® by Taco Electronic Solutions*. A complete list of links to all documentation is shown on the left side of the web page.

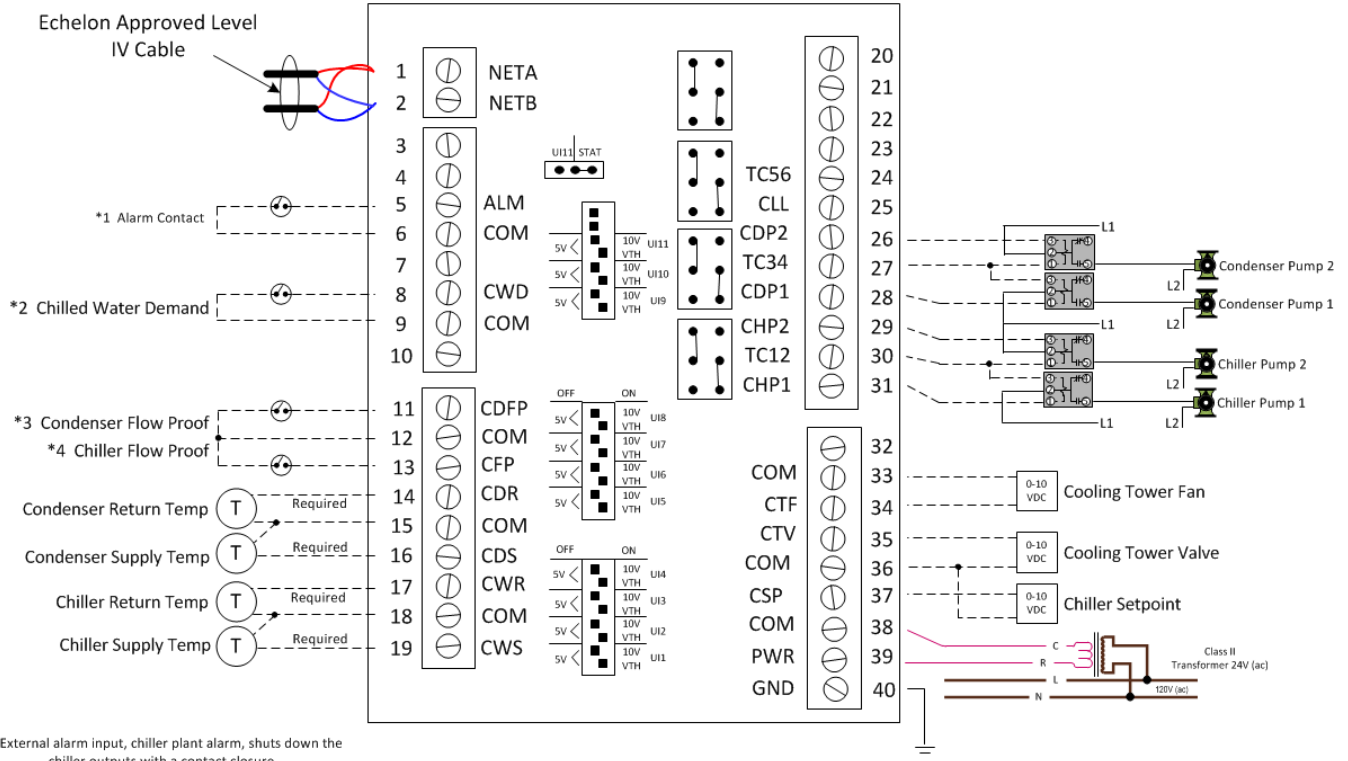
TROUBLESHOOTING & TECHNICAL TIPS

Problem	Solution
Controller is not running and Status LED is not illuminated.	No power to controller. Verify the voltage on the controller's power connector (24 VAC).
How do I reset the controller?	The controller can be reset by the LCI, or you can cycle power to the controller. Refer to the LCI documentation for more information on resetting the controller using the LCI.
Can my iWorx® system contain multiple CCU2 controllers?	No, the system can only recognize one.
Thermistor readings fluctuate rapidly, sometimes by several degrees.	The controller may not be properly grounded. The controller's ground (GND) pin (T40) must be connected to earth ground. Also ensure that the controller's digital inputs are dry contacts and that no voltage is being applied or switched to the inputs.
How do I associate my other controllers with the CCU2?	Use the CCU2's grouping mechanism, specifically <i>HVAC Setup --> Members</i> on the CCU2 screen of the LCI.
What iWorx® controllers can be part of a CCU2's group?	Only FCU series, DXU series and HPU series controllers can be part of the CCU2's group and demand cooling from it.
Several controllers are requesting cooling, but the chiller and pumps have not been enabled.	<p>The <i>Zone Limit</i> setting may be set higher than the number of zones that are currently requesting cooling. The chiller and pumps will not be enabled until the number of zones requesting cooling is greater than the <i>Zone Limit</i> setting.</p> <p>If the number of controllers requesting cooling exceeds the <i>Zone Limit</i> setting, but the chiller is still not enabled, the outside air temperature may be less than the <i>Outdoor Air Temp. Lockout</i> setting.</p>
I only have one chiller pump; how can I disable lead/lag operation?	The lead/lag function is built into the controller and cannot be disabled. However, you can wire both chiller pump outputs in parallel from the controller to the existing pump and the system will operate normally. The same can be done for the condenser pump outputs if you have only one condenser pump.
The LCI is reporting a dual pump failure. How do I know which pumps have failed?	Check the pump alarms that precede the dual pump failure alarm. These two alarms will indicate which two pumps have failed, the chiller pumps or the condenser pumps.

TYPICAL CCU2 WIRING

CCU2 Power Sourced Water Cooled Unit

'Chiller Control Unit'



*1-External alarm input, chiller plant alarm, shuts down the chiller outputs with a contact closure

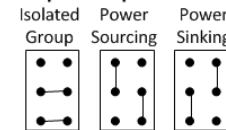
*2-External chilled water demand

*3,4-Flow proving switches, must be jumped out if not used

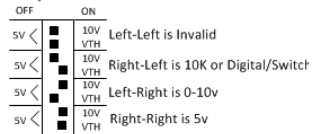
Symbols

- 10 K ohm Precon Type III thermistor
- 24VAC pilot relay or contactor coil
- 0-10 VDC signal

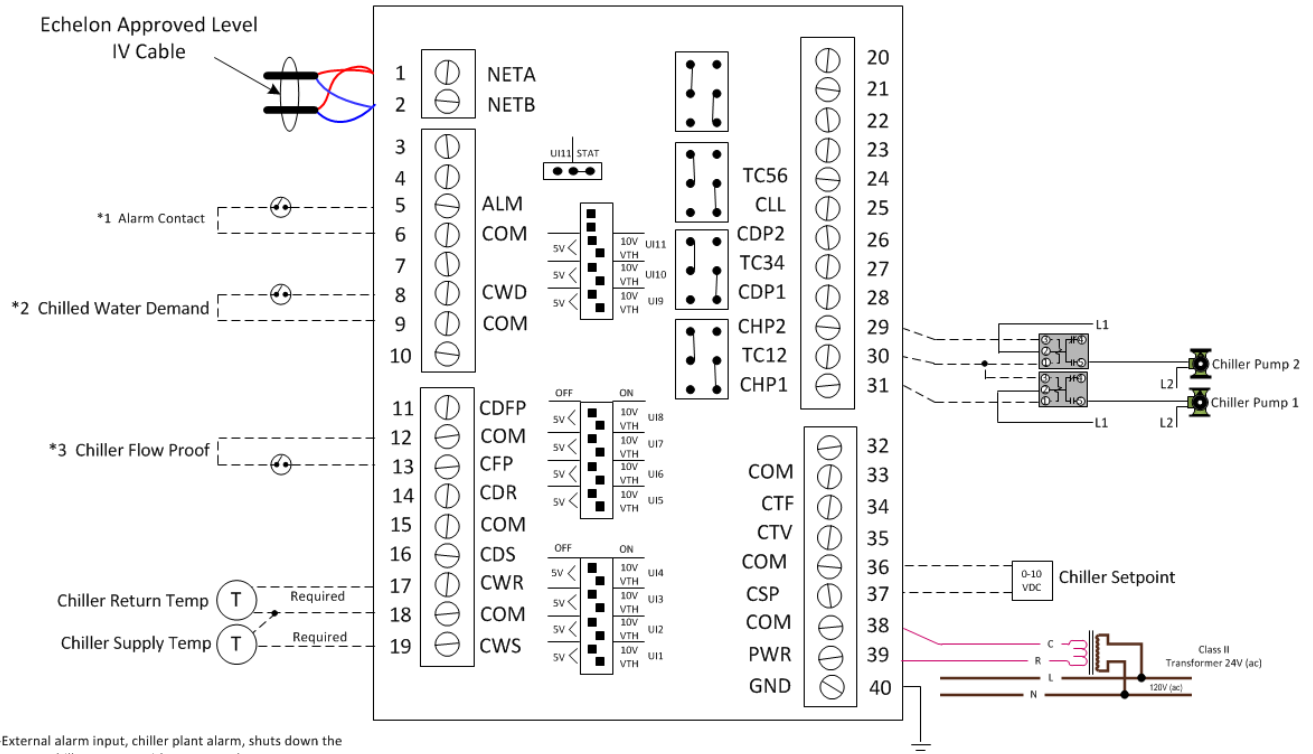
Output Jumper Positions



Dip Switch Positions



CCU2 Power Sourced Air Cooled Unit 'Chiller Control Unit'

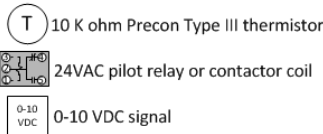


*1-External alarm input, chiller plant alarm, shuts down the chiller outputs with a contact closure

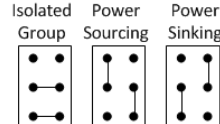
*2-External chilled water demand

*3-Flow proving switches, must be jumped out if not used

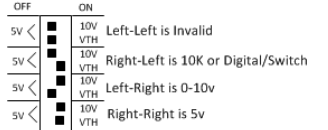
Symbols



Output Jumper Positions



Dip Switch Positions



CONTROLS MADE EASY®

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