

LCU2 Logic Controller

SUPERSEDES: New

EFFECTIVE: August 21, 2012

Plant ID: 001-4121

PURPOSE: This guide is a consolidation of important LCU2 information that can be used when installing, commissioning and setting up the controller. It is not meant to replace any other LCU2 documents or drawings.

APPLICATION: The application is for controlling lighting or miscellaneous outputs such as building exhaust fans and toilet exhaust fans.

IMPORTANT FACTS

- Switch inputs and outputs can be part of several logic zones.
- The schedule programmed for a logic zone is used when the logic zone is configured for photosensor; if the logic zone is not configured as photosensor, then the schedule is used as a backup schedule.
- There can only be 8 LCU2s per LCI.
- There are only 8 Logic Zones per LCU2.

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 LCU2 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_LCU2, where x is the order in which all controllers' service pin buttons have been pressed.	

COMMISSIONING THE CONTROLLER

After the LCU2 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 LCU2

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 LCU2 from the list of controllers.
3. Press **Inputs** and verify that the configured inputs appear. It is recommended that the input switch be toggled so a response is seen.
4. To verify the outputs a logic zone must be created; see application manual page 17.
5. After the logic zone has been configured, switch the associated input and then verify the associated output has turned on. If no association has been used, make sure the zone is configured as “Scheduled” and is part of a group in the LCI with an active schedule.
6. Verify the output displays as “On” in the Outputs screen.
7. Verify the physical output has turned on.
8. After verification, switch the input switch to the opposite position or make the group unoccupied.

Inputs	Verified/initials	Outputs	Verified/initials
Switch Input 1		Logic Output 1	
Switch Input 2		Logic Output 2	
Switch Input 3		Logic Output 3	
Switch Input 4		Logic Output 4	
Switch Input 5		Logic Output 5	
Switch Input 6		Logic Output 6	
Switch Input 7		Logic Output 7	
Switch Input 8		Logic Output 8	
Photosensor input			

CONFIGURING THE LCU2 SETTINGS

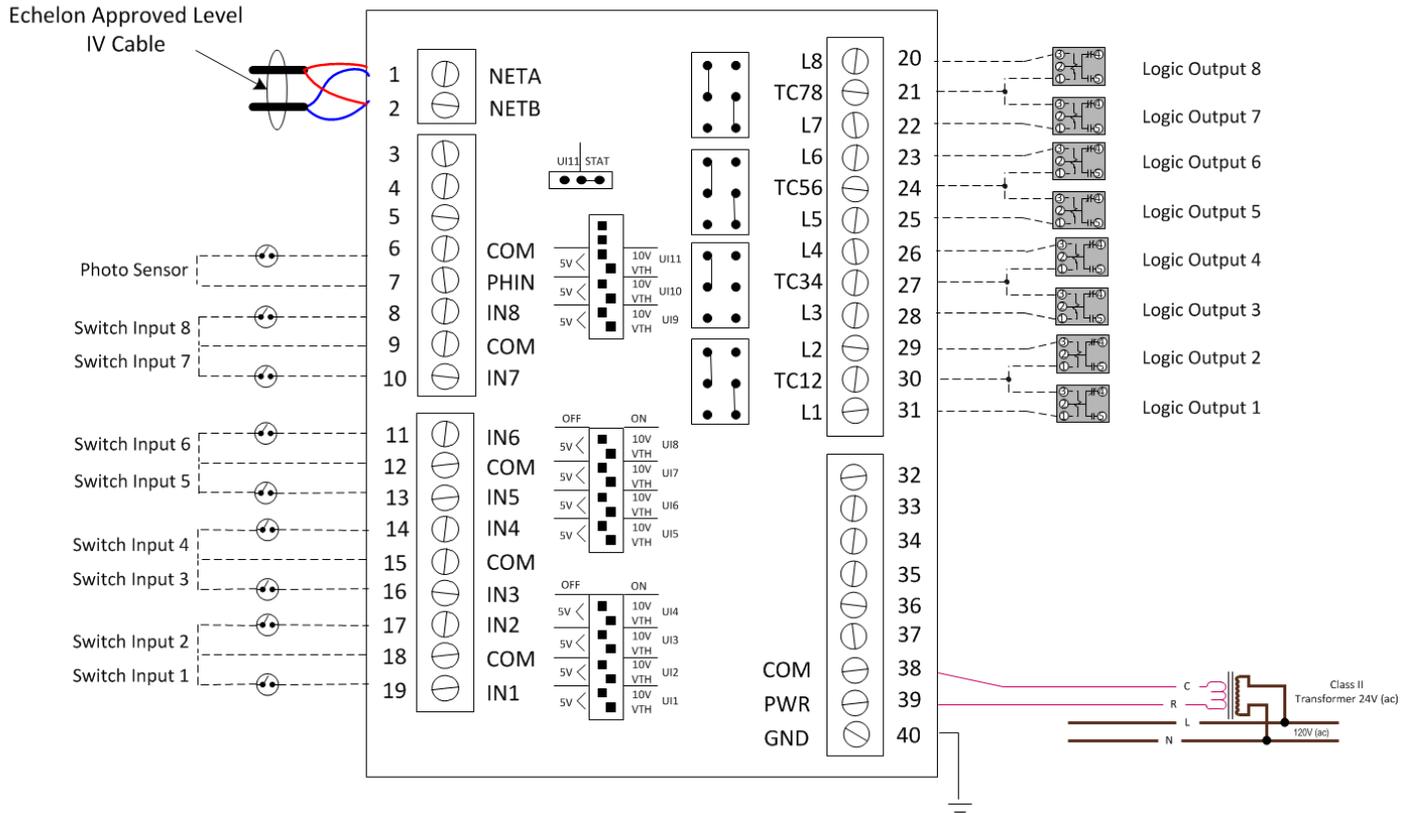
A description of LCU2 settings can be found in the Application Guide on page 18-20. If a copy of the Application Guide is needed, it can be found at www.taco-hvac.com. Once in the web site, select the *Products* tab, and from the drop down list select *iWorx® by Taco Electronic Solutions*. A complete 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.
Status LED flashing even after the LCU2 is recognized by the LCI.	Even after the LCU2's service pin has been pressed and the signal has been received by the LCI, the Status LED of the LCU2 will continue to flash green until at least one logic zone has been configured through the LCI, and the LCU2 has been added to a logic zone. Once the configuration is saved in the LCI and the LCI sends zone information to the LCU2, the LED will display normal status.
The logic zones do not turn on, though the LCI indicates they are on.	Ensure that the controller has been powered with 24 VAC and the logic outputs have been correctly wired to the coils of the logic contactors. Also ensure that the contactors have 24 VAC coils.
Logic zones do not come on as scheduled.	<p>There are several reasons the logic may not cycle on and all should be checked.</p> <ul style="list-style-type: none"> – Is the logic zone part of a group, and is the group occupied? – Is a photosensor controlling the logic zone and is it bright outside? – Is a timed photosensor in use? Zones set to use a timed photosensor use the backup schedule that is stored in the LCU2, not the group's schedule.
Logic will not turn off, even using input overrides.	<ul style="list-style-type: none"> – If no backup schedule was set in the LCU2 and communication with the LCI is lost for more than 10 minutes all logic default to ON. Verify communication between the LCI and LCU2, and that the LCU has a backup schedule. – Is the Status LED blinking Green? If so, the LCU has not been configured by the LCI and the default state for the outputs is ON. – Verify that the switches are configured properly and are each part of a logic zone. – If the controller has an improper system time setting, the logic will automatically be turned ON. An improper system time is most often caused by a power outage. The time is usually reset by the LCI, but if the LCU2 cannot communicate with the LCI, it will have the incorrect time. – Is the zone override enabled on the LCI? This network override forces all contactors in the zone to ON, which is useful for testing purposes.
Logic zones are on when they should be off and off when they should be on.	Check the contactor polarity through the device setup page of the LCI. Use that page to change the polarity, if necessary.
I don't understand the difference between the three types of switches.	<ul style="list-style-type: none"> – SPDT Momentary - Uses 2 inputs (switches) to control a logic circuit. Odd input switches turn the zone 'ON' and even input switches turn the zone 'OFF'. – SPST Momentary - Pressing the switch changes the zone's occupancy state. – SPST Continuous - Every change of state toggles the zone to its opposite state, like a 3-way switch.
Photosensor Problems	<p>The photosensor must be a switch-type photosensor similar to "The Watt Stopper" model EM-24A2. If you are experiencing problems with the photosensor input verify the following:</p> <ul style="list-style-type: none"> – Have you installed more than one photosensor? Only 1 photosensor is allowed for the entire system. – Is the photosensor enabled? – Is the polarity inverted on the configuration screen? – Is a zone configured to use the photosensor? – Is a contactor in the photosensor controlled zone and is it configured for photosensor operation?

TYPICAL LCU2 WIRING

Typical LCU2 Power Sourcing

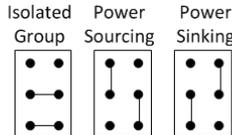


Note: All inputs are universal inputs. In the LCU only, the inputs are also configured in the software. Consult the application guide for proper dip switch configuration and programming set up.

Symbols

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

Output Jumper Positions



Dip Switch Positions



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Taco Electronic Solutions, Inc., 1160 Cranston Street, Cranston, RI 02920
 Telephone: (401) 942-8000 FAX: (401) 942-2360.

Taco (Canada), Ltd., 8450 Lawson Road, Unit #3, Milton, Ontario L9T 0J8.
 Telephone: 905/564-9422. FAX: 905/564-9436.

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