

1 Pre-Installation Checks

Do the following before beginning the installation:

1. Verify that you have received the proper equipment. Check the packing slip against the materials you ordered and verify that the material is appropriate for the project. Check to ensure that the voltages of the controller(s) transformers match the available power. Report any discrepancies or visible damage at once.
2. Review electrical prints and other relevant project documentation.
3. Ensure that you have a digital multi-meter.

2 Mounting the Controller

Consider the following when selecting a site for the ILC Apprentice II.

2.1 Location – Typically, the ILC Apprentice II controller is mounted near the lighting panel containing the circuits to be controlled by the lighting relays. The enclosure is manufactured with pre-drilled mounting holes located near the four corners of the rear wall of the enclosure. Secure the enclosure to the mounting surface with hardware appropriate for the application.

2.2 Environmental Considerations – The ILC Apprentice II is designed to operate in temperatures between 0 and 50 degrees C (32°-112°F) and 10%-90% humidity non-condensing.

2.3 Distance From Control Devices Switches, pilots and other control devices can be located up to 1500 feet from the ILC Apprentice II controller using 18 gauge wire.

3 Wiring the Controller

Do the following to wire the controller. Remove fish paper barriers prior to wiring and replace when complete. Do NOT apply power to any circuits until instructed to do so. Document all terminations.

3.1 Wire the Control Transformer

Run a dedicated 120 or 277 VAC circuit, including grounding conductor, and terminate it to the primaries of the ILC Apprentice II processor transformer. Cap the unused lead. (See Figure 1.)

3.2 Connect Line and Load – Connect line and load wires of the line voltage circuits to the Lighting Relays. (See Figure 1.)

2.3.3 Wire Switch Inputs - Wire the Class 2 Switch Circuits. (See Figure 1.) **NOTE:** Keep all Class 2 wiring separated from the high voltage wiring as shown in Figure 1.

1. Run the required wiring between the controller and the field-installed switches. Consult project documentation to determine the type and quantity of required switch circuits. Check each switch run to ensure that there are no shorts between conductors or to ground. Also verify that there are no opens.
2. Make the connections at the switch end.
3. Make the connections to the controller switch input terminals.

2.3.4 Data Line Connections for Expansion Panels or LightSync Devices - See the Apprentice II User Guide for details.

This guide will provide a quick overview of installation and wiring the ILC Apprentice II controller. For more information and programming information, see the ILC Apprentice II Quick Reference or User Guide CD supplied with this controller. You may also visit www.ilc-usa.com to download the User Guide, or call ILC for more information or a printed User Guide.

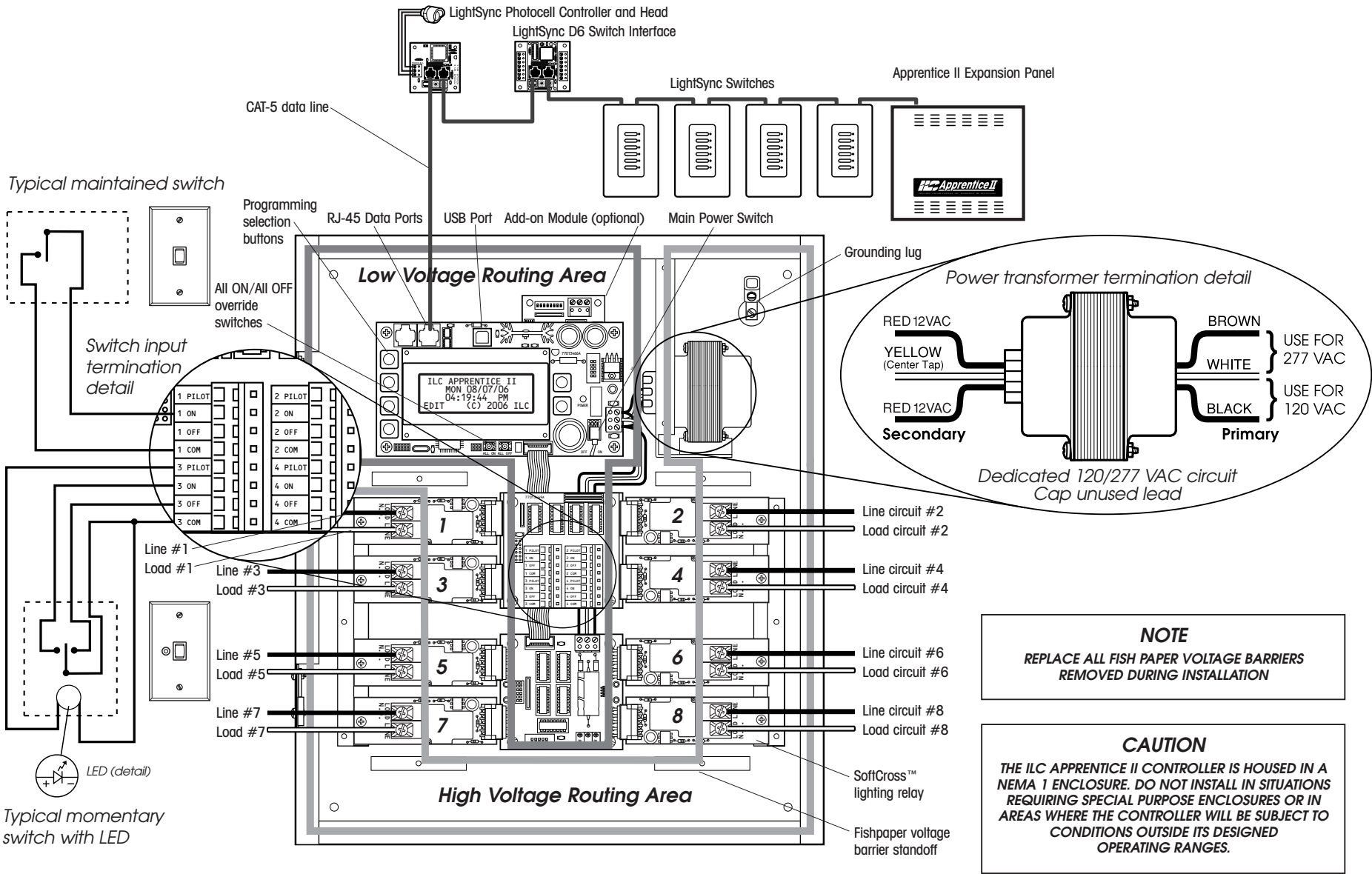


Figure 1 – ILC Apprentice II 08 Installation Detail

4 Pre-Power Checks

Complete the following checks BEFORE applying power to the ILC Apprentice II controller.

4.1 Check Controller Power Input

1. Verify that the controller power switch is OFF.
2. After verifying that the processor transformer source voltage is 120 or 277 VAC (whichever is appropriate), power-up the circuit.
3. Verify correct line voltage on the primary of the transformer.

4.2 Verify Controller's Supply Voltage

Verify that there is 24 VAC on processor transformer secondary and 12 VAC between each leg and the center tap. (See Figure 1.)

4.3 Double-Check Connections

1. Verify integrity of I/O connections.
2. Verify integrity of all internal and external wire/cabling.

4.4 External Monitoring and Control

If control of the ILC Apprentice II via Apprentice II Pro software and a PC is desired, consult the ILC Apprentice II User Guide appendix for instructions regarding the USB port.

5 Power-Up and Check Out

Complete the following procedures to power-up and checkout the ILC Apprentice II controller.

5.1 Power-Up the Controller

1. Turn the power switch located on the CPU board ON. (See Figure 1.)
2. Verify that the controller keypad screen displays the default time and date.
3. Verify that both power lights on each I/O board are lit. (See Figure 1.)

5.2 Verify the Lighting Relays

Switch all relays ON and OFF, pushing the All ON/All OFF override switches located on the CPU board. (See Figure 1.) Verify that the relay status LED goes ON and OFF and that the relay itself changes state. Verify that the relay controls the proper circuit.

5.3 Perform Initial Programming Procedures

(See enclosed ILC Apprentice II Quick Reference Guide or ILC Apprentice II User Guide Section 3.)

1. Clear memory.
2. Set the correct date and time on the controller.
3. Program the switch inputs and timers.

5.4 Verify the Switching Function

1. Operate each switch.
2. Verify that each switch controls the correct lighting relays in the manner you have programmed.

5.5 Verify the Timer Functions

Using Demo Clock x10 feature (see enclosed ILC Apprentice II Quick Reference Guide or ILC Apprentice II User Guide Section 3),

1. Verify that the relays respond as programmed.
2. Reset the controller clock to the correct date and time.

5.6 LightSync™ Switches

See the Apprentice II User Guide for installation and troubleshooting.

6 Troubleshooting

In the event of trouble, use the following procedures to identify the problem.

6.1 Controller Will Not Power-Up

1. Verify that there is 120/277 VAC on the primary and 24 VAC on the secondary of the control transformer.
2. Verify that the power LED on the CPU board is lit.

3. If there is proper primary and secondary voltage on the transformer but the power LED is not lit and the keypad screen doesn't come up, consult the factory.

6.2 Lighting Relay(s) Will Not Function

1. Verify that there is 24 VDC to the terminal block on the output board.
2. Make sure that lighting control wiring is landed properly on the relay output of the I/O board(s). (Blue is common, red is ON, black is OFF, orange is status.) (See Figure 1.)
3. Override the affected relay ON/OFF through the keypad. (See Apprentice II User Guide.)
4. If the relay doesn't respond, consult the factory.

6.3 Switch Input Will Not Function

1. Check your programming.
2. Verify proper connections at field and controller end.
3. Verify that there is only one maintained switch connected per input.
4. Unhook field connections from affected input. Connect test switch of same type as field switch.
5. Work the test switch.

6. Verify that the CPU is seeing the switch input by viewing the current switch status. This can be done with the keypad by going to the Switch Status screen and scrolling to the individual input or scanning all of the inputs to verify that a switch closure is being seen by the controller (See ILC Apprentice II User Guide). Also the output board(s) can be tested through the keypad. Relays can be forced individually or all swept ON or OFF using the keypad (See ILC Apprentice II User Guide Section 3-3).
8. If the switch input or affected relay doesn't respond (or no response is viewed through the keypad), consult the factory.

6.4 Timers Will Not Function Properly

1. Check your programming.
2. Verify the affected output integrity by mapping a switch input to the output and triggering it with a test switch. If the relay doesn't react, consult the factory.

6.5 Entire Input or Output Board(s) Will Not Function

1. Check to ensure that the data and power cables linking the I/O boards are connected properly and are free of opens and shorts.
2. Verify that the CPU sees the expansion I/O boards using the keypad. This can be done by going to the Relay Status screen and scrolling through the outputs to see if the CPU sees all of the outputs (See Section 3-3).
3. If the Input or Output board is not recognized by the CPU, consult the factory.

Typical ILC Apprentice II installation controlling outdoor, indoor and HID lighting

