

Quick Start



**Allen-Bradley**

# Logix5000 Control Systems: Connect POINT I/O Modules over an EtherNet/IP Network

Catalog Numbers Logix5000 Controllers, 1734 POINT I/O Modules



Allen-Bradley • Rockwell Software

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**Automation**

# Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGL-1.1](#) available from your local Rockwell Automation® sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence



**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

**IMPORTANT**

Identifies information that is critical for successful application and understanding of the product.

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## About This Publication

This quick start provides examples and procedures for including POINT I/O™ modules in a Logix5000™ control system over an EtherNet/IP network. The programming examples are not complex, and offer easy solutions to verify that devices are functioning and communicating properly.

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**IMPORTANT** This publication describes **example tasks** you complete when using POINT I/O modules on an EtherNet/IP network. The tasks described are **not** the only tasks you can complete with the POINT I/O modules on an EtherNet/IP network.

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## Before Using This Publication

You can only complete the tasks described in this publication after first completing some prerequisite tasks with a Logix5000 controller. For example, before you can add POINT I/O modules to an RSLogix™ 5000 project, as described in [page 21](#), you must first create the project.

[Table 1](#) describes the tasks you must complete before using this publication.

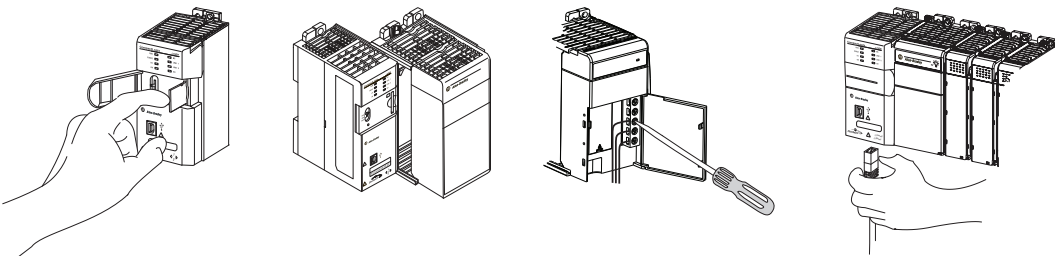
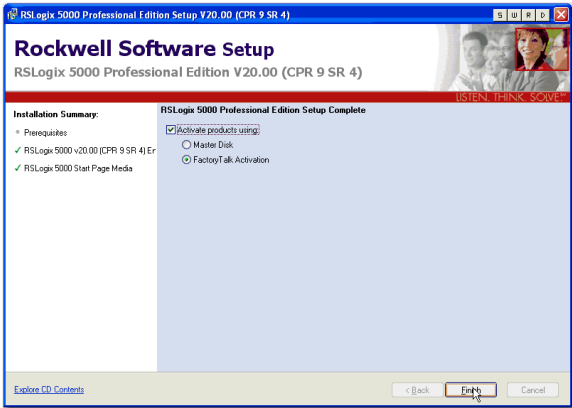
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**IMPORTANT** The example graphics shown in [Table 1 - Required Tasks To Complete Before Using this Quick Start on page 6](#) are for CompactLogix™ 5370 L3 controllers. Depending on the Logix5000 controller you are using, the specific steps to complete the tasks described in the table might vary.

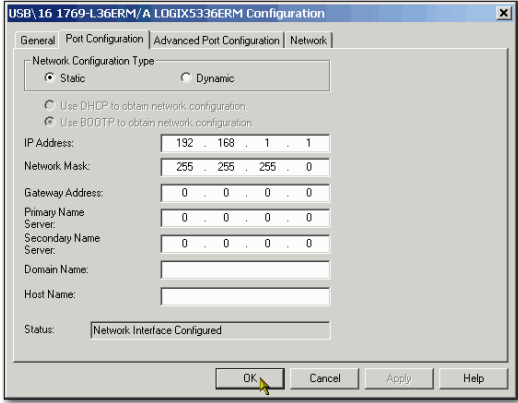
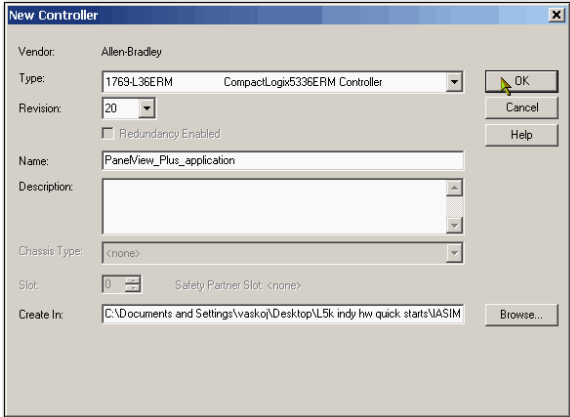
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For more information on how to complete the prerequisite tasks with specific Logix5000 controllers, see the Integrated Architecture™: Logix5000 Control Systems Quick Starts Quick Reference, publication [IASIMP-QR024](#).

**Table 1 - Required Tasks To Complete Before Using this Quick Start**

Task	Description
Prepare the Logix5000 control system hardware	<p>Assembling the control system and connecting to necessary communication networks. Some components, for example, a desired Logix5000 controller, system power supply or switch for applications operating on an EtherNet/IP network, are required. Other components, for example, a network communication module, are optional.</p> <p><b>IMPORTANT:</b> These graphics show the assembly of an example Logix5000 controller.</p>  <p>This task <b>does not</b> include installation of specific hardware components, for example, POINT I/O modules, used over the networks included in your application.</p>
Prepare the computer	<p>Installing necessary software, for example, RSLogix 5000 software, on your computer.</p> 

**Table 1 - Required Tasks To Complete Before Using this Quick Start**

Task	Description
Configure the networks	<p>Complete required tasks associated with the networks used in your application, such as assigning an IP address to the controller or a communication module in your Logix5000 control system.</p> 
Create an RSLogix 5000 project	<p>Project used with your Logix5000 controller that includes all desired control system components and necessary programming, for example, adding ladder logic to test tasks associated with individual system components.</p> 

## Other Logix5000 Control System Quick Starts

This quick start describes how to add one device on one network in a Logix5000 control system. Typically, though, a Logix5000 control system includes more than one device on one network.

For example, if a Logix5000 control system operates on an EtherNet/IP network, in addition to a controller, power supply, and communication modules, the system might use remote I/O modules, drives, or HMI terminals.

Other quick starts describe how to use different devices on different networks in Logix5000 control systems. For more information, see the Integrated Architecture: Logix5000 Control Systems Quick Starts Quick Reference, publication [IASIMP-QR024](#).

## POINT I/O Modules in Device-level Ring or Linear Topology

This publication describes how to use POINT I/O modules in an application using a EtherNet/IP network star topology configuration. It does not describe how to use the I/O modules in a device-level ring (DLR) nor linear topology via a 1734-AENTR adapter module.

For information on how to use POINT I/O modules in a DLR or linear topology, see the EtherNet/IP Embedded Switch Technology Application Guide, publication [ENET-AP005](#).

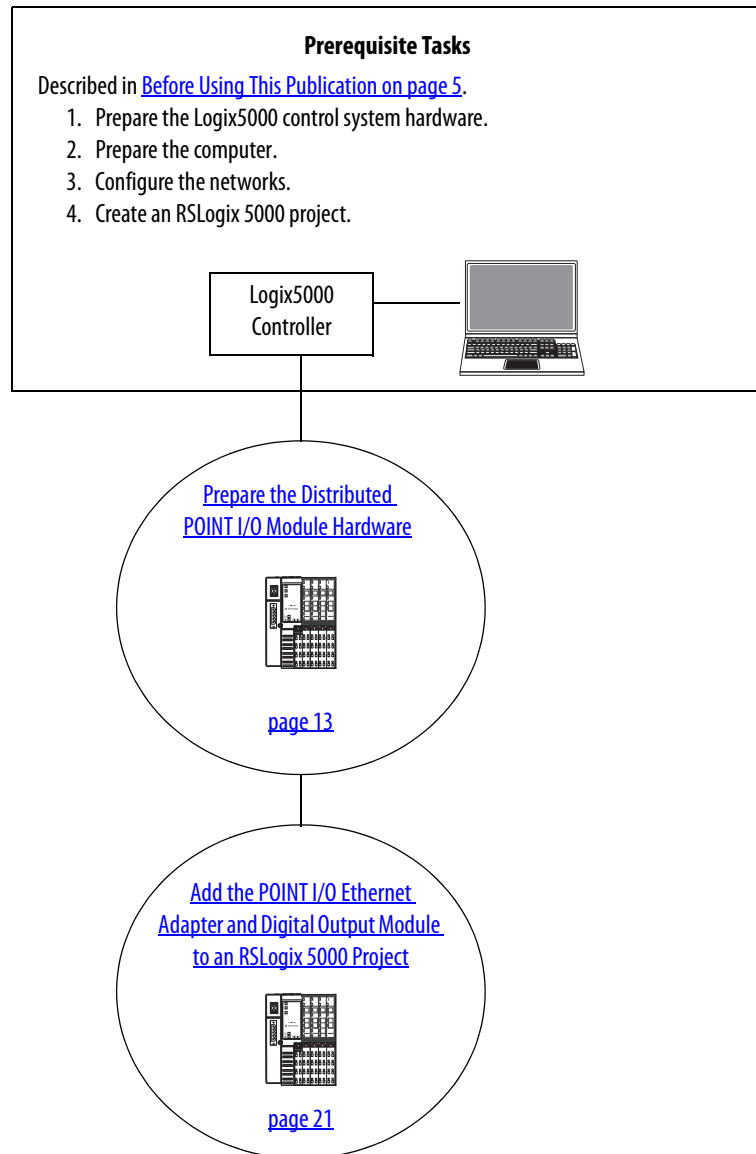
## Before You Begin

The beginning of each chapter contains the following information. You should read these sections before beginning work in each chapter:

- **Before You Begin** - This section lists the tasks you must complete before starting the chapter.
- **What You Need** - This section lists the tools that are required to complete the tasks in the chapter.
- **Follow These Steps** - This section illustrates the steps in the current chapter.

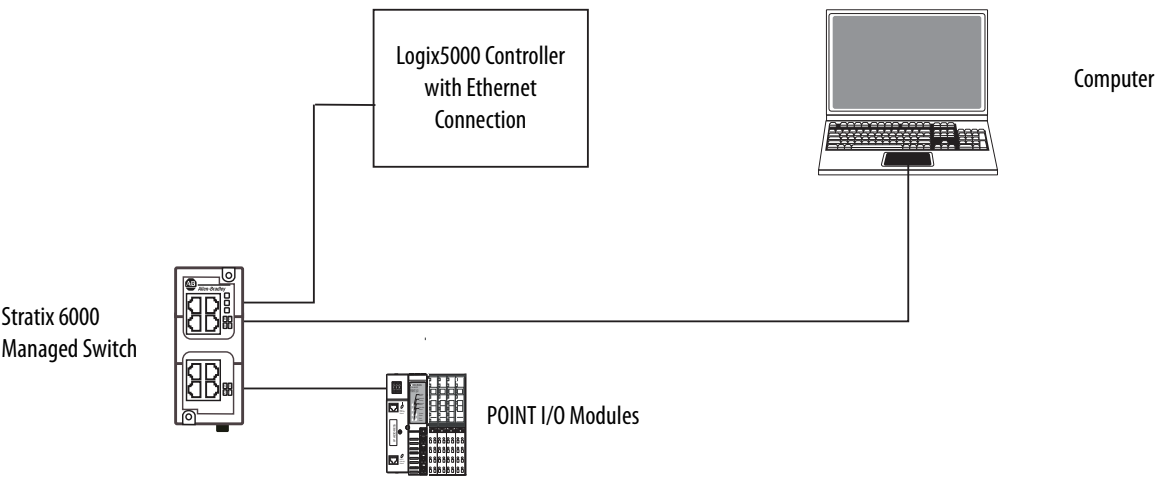


## Where to Start



# How Hardware is Connected

This quick start demonstrates the following possible control system.



# Required Software

To complete examples in this quick start, you need the software described in this table.

Software	Version	Required for This Task
RSLogix 5000	20.00.00 or later <sup>(1)</sup>	Create or change RSLogix 5000 projects to use POINT I/O modules.
BOOTP/DHCP utility	Version automatically installed with RSLogix 5000 software and varies according to that software's version.	Set or change the IP address for 1734-AENT POINT I/O Ethernet adapter.

(1) RSLogix 5000 software, version 20.00.00 or later is required for use of this quick start because the example Logix5000 controller, and associated tasks, described herein are completed in a CompactLogix 5370 L3 control system. CompactLogix 5370 control systems require RSLogix 5000 software, version 20.00.00 or later. If you connect a 1734 POINT I/O module over an EtherNet/IP network in a Logix5000 control system that uses a different controller, the minimum version may differ.

## Parts List

To complete the tasks described in this publication, you need the parts listed in this table.

✓	Quantity	Cat. No.	Description
	1	1734-AENT	POINT I/O Ethernet adapter
	1	1734-OB4E	POINT I/O protected output module
	1	1734-TB or 1734-TBS	Wiring base with removable IEC screw terminals (1734-TB) Wiring base with removable IEC spring terminals (1734-TBS)
	1	1794-PS3	FLEX <sup>™</sup> I/O 85...264V AC to 24V DC 3 A power supply
	1	1585J-M8PBJM-2	RJ45-to-RJ45 patchcord Ethernet cables

For a list of parts required to complete the prerequisite tasks listed in [Table 1 - Required Tasks To Complete Before Using this Quick Start on page 6](#), see the documentation describing those tasks.

## Additional Resources

Use the additional resources listed in this table for more information when using POINT I/O modules over an EtherNet/IP network in a Logix5000 controller project.

**Table 2 - Additional Resources**

Resource	Description
POINT I/O Ethernet Adapter Installation Instructions, publication <a href="#">1734-IN590</a>	Describes how to install the 1734-AENT POINT I/O Ethernet adapter and contains technical specifications.
POINT I/O and ArmorPOINT <sup>®</sup> I/O 2 Port EtherNet/IP Adapters User Manual, publication <a href="#">1734-UM014</a>	Describes how to install, configure, and troubleshoot your 1734-AENT POINT I/O EtherNet/IP adapter.
POINT I/O Protected Output Module, publication <a href="#">1734-IN056</a>	Describes how to install the 1734-OB4E module.
POINT I/O Wiring Base Assembly Installation Instructions, publication <a href="#">1734-IN013</a>	Describes how to install the POINT I/O wiring base.

**Table 2 - Additional Resources**

Resource	Description
FLEX I/O DC Power Supply Installation Instructions, publication <a href="#">1794-IN069</a>	Describes how to install the 1794-PS and 1794-PS13 power supplies.
Logix5000 Controllers Common Procedures Programming Manual, publication <a href="#">1756-PM001</a>	Provides details about adding and configuring modules, establishing communication, and writing ladder logic.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, <a href="http://www.ab.com">http://www.ab.com</a>	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley<sup>®</sup> distributor or Rockwell Automation sales representative.

# Prepare the Distributed POINT I/O Module Hardware

In this chapter, you learn how to complete the following tasks:

- Install the 1734-AENT Ethernet adapter
- Install the 1734-OB4E digital output module
- Install a 1794-PS3 FLEX I/O power supply
- Connect power to the 1734-AENT Ethernet adapter

## Before You Begin

You must complete these tasks before using this chapter:

- The tasks described in [Before Using This Publication on page 5](#), including:
  - [Prepare the Logix5000 control system hardware](#)
  - [Prepare the computer](#)
  - [Configure the networks](#) - The tasks described in this chapter require an EtherNet/IP network.
  - [Create an RSLogix 5000 project](#)

The example RSLogix 5000 project used in this chapter uses a CompactLogix 5370 L3 controller.

## What You Need

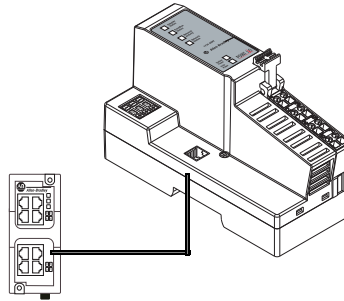
The following table lists the products that you need to complete the tasks described in this chapter.

Quantity	Cat. No.	Description
1	1734-AENT	POINT I/O Ethernet adapter
1	1734-OB4E	POINT I/O protected output module
1	1734-TB or 1734-TBS	Wiring base with removable IEC screw terminals (1734-TB) Wiring base with removable IEC spring terminals (1734-TBS)
1	1794-PS3	FLEX I/O 85...264V AC to 24V DC 3 A power supply

## Follow These Steps

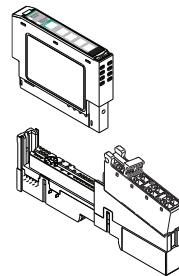
[Mount and Connect the 1734-AENT Ethernet Adapter](#)

[page 16](#)



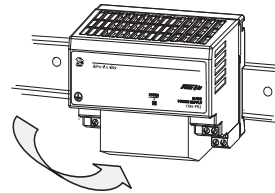
[Mount the 1734-OB4E Digital Output Module](#)

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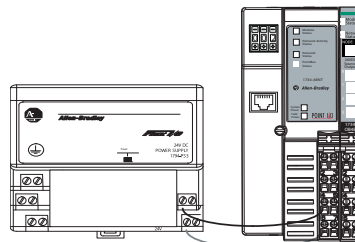
[Mount and Wire the 1794-PS3 Power Supply](#)

[page 18](#)



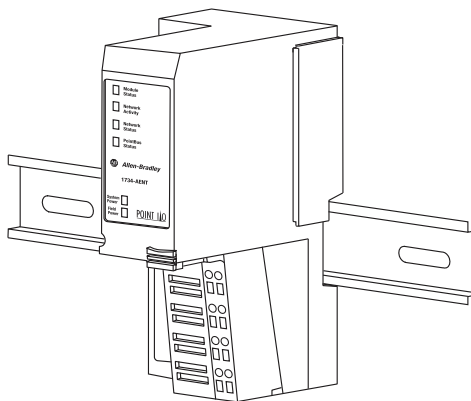
[Wire the 1734-AENT Ethernet Adapter to the Power Supply](#)

[page 19](#)

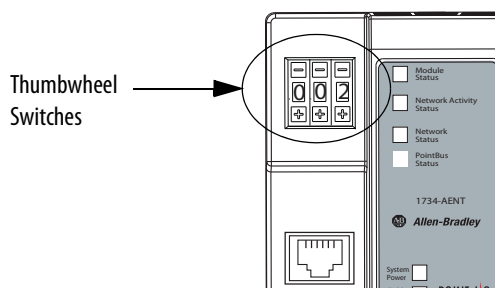


## Mount and Connect the 1734-AENT Ethernet Adapter

1. Position the adapter vertically in front of the DIN rail and press firmly onto the DIN rail until the adapter locks into place.



2. To set the module's IP address to a valid number, set the module's thumbwheel switches to a number between 001 and 254.



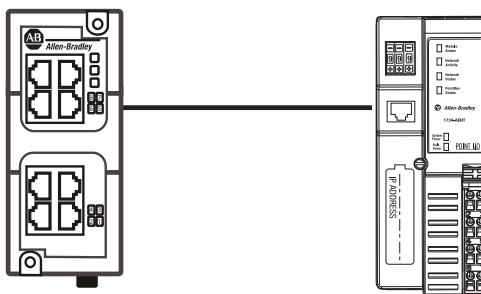
Numbers outside that range are invalid. If the switches are set to a valid number at powerup, the module automatically uses that number for its IP address.

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**IMPORTANT** In addition to the thumbwheel switches, there are other methods to assign an IP address to the POINT I/O adapter, such as using the BOOTP/DHCP utility. For more information on how to set the IP address, see POINT I/O Ethernet Adapter Installation Instructions, publication [1734-IN590](#).

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3. Plug a 1585J-M4TBJM-1, Ethernet cable (straight-through) into a port on the Stratix 6000 switch.
4. Plug the other end of the Ethernet cable into the Ethernet port on the 1734-AENT POINT I/O Ethernet adapter.
5. Remove the safety end cap.





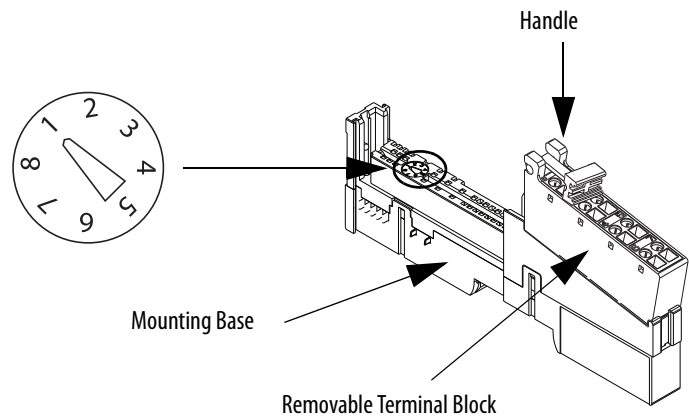
## Mount the 1734-OB4E Digital Output Module

1. Install the removable terminal base (RTB) on the mounting base.

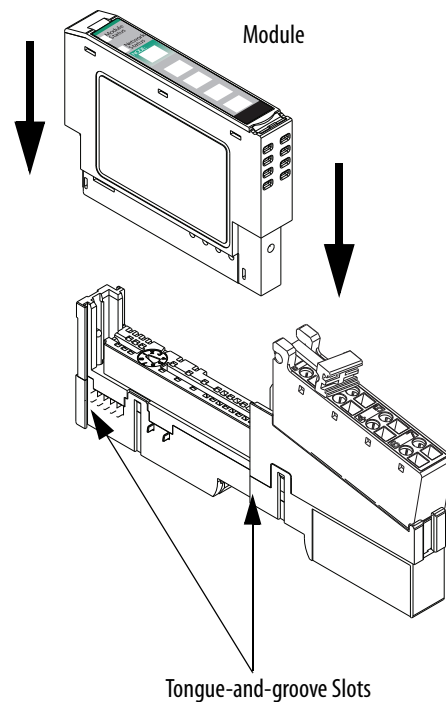
Make sure the handle is in the down position.

2. Using a small screwdriver, rotate the keyswitch on the mounting base to match the position on the keyswitch on the I/O module.

This example shows the keyswitch in position 1.



3. Press the 1734-OB4E module into the wiring base.
4. Snap the handle up to lock the RTB on the module.
5. Connect the wiring base assembly, including mounting base, module, and RTB, to the POINT I/O Ethernet adapter via the slots on the right side of the adapter.
6. Slide the wiring base assembly along the right side of the network adapter and press it onto the DIN rail.



## Mount and Wire the 1794-PS3 Power Supply

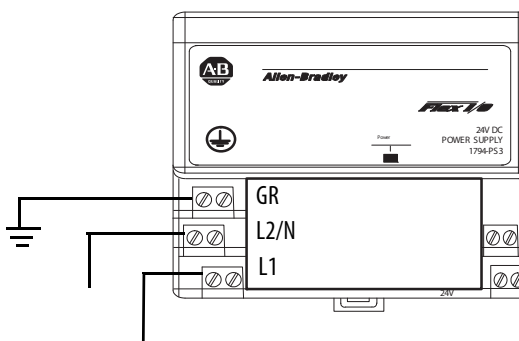
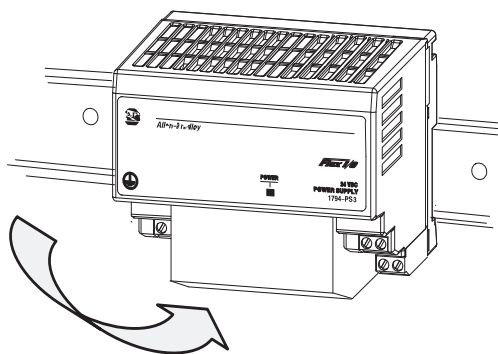
Use a 1794 FLEX I/O power supply to power the distributed POINT I/O modules. This publication uses the 1794-PS3 power supply.

### 1794-PS3 Power Supply



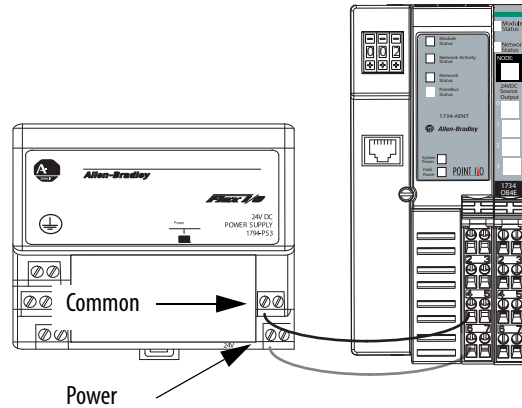
**WARNING:** Verify that all incoming power is turned off before wiring power.

1. Hook the upper-lip of the DIN rail latch onto the DIN rail.
2. Press the module onto the DIN rail next to the POINT I/O Ethernet adapter.
3. Connect the 120/240V AC power L1, L2/N and Ground wires to your AC power source.



## Wire the 1734-AENT Ethernet Adapter to the Power Supply

1. Connect the 12/24V DC common and 12/24V DC power wires from the power supply to the adapter.
2. Turn on incoming power.



## Additional Resources

For a list of additional resources that might assist you when preparing the distributed POINT I/O module hardware, see [page 5](#).

## Notes:

## Add the POINT I/O Ethernet Adapter and Digital Output Module to an RSLogix 5000 Project

In this chapter, you complete the following tasks:

- Add the 1734-AENT Ethernet adapter to the RSLogix 5000 project
- Add the 1734-OB4E digital output module to the RSLogix 5000 project
- Use ladder logic to test the 1734-OB4E digital output module's lights

### Before You Begin

You must complete these tasks before using this chapter:

- The tasks described in [Before Using This Publication on page 5](#), including:
  - [Prepare the Logix5000 control system hardware](#)
  - [Prepare the computer](#)
  - [Configure the networks](#)
  - [Create an RSLogix 5000 project](#)

The example RSLogix 5000 project used in this chapter uses a CompactLogix 5370 L3 controller.

- These tasks described in Chapter 1, [Prepare the Distributed POINT I/O Module Hardware on page 13](#):
  - [Mount and Connect the 1734-AENT Ethernet Adapter](#)
  - [Mount the 1734-OB4E Digital Output Module](#)
  - [Mount and Wire the 1794-PS3 Power Supply](#)
  - [Wire the 1734-AENT Ethernet Adapter to the Power Supply](#)
- Verify that the 1734-AENT POINT I/O Ethernet adapter's thumbwheel switches are set to a valid IP address, as described on [page 16](#).

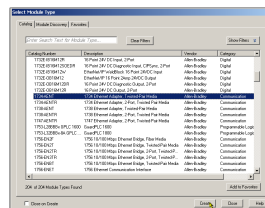
## What You Need

You need RSLogix 5000 software to complete the tasks in this chapter.

## Follow These Steps

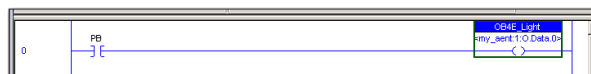
[Configure the POINT I/O Adapter and Output Module](#)

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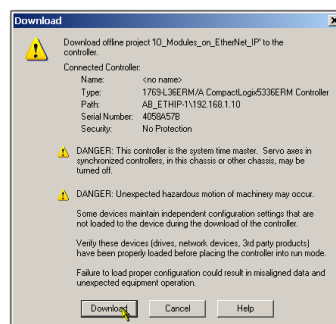
[Add Ladder Logic to Test the 1734-OB4E Module's Lights](#)

[page 26](#)



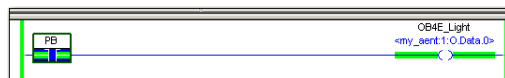
[Download the Project to Your Logix5000 Controller](#)

[page 29](#)



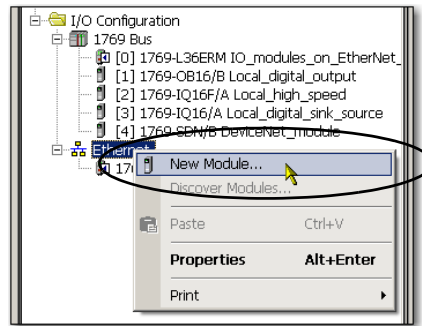
[Test the 1734-OB4E Output Module's Light](#)

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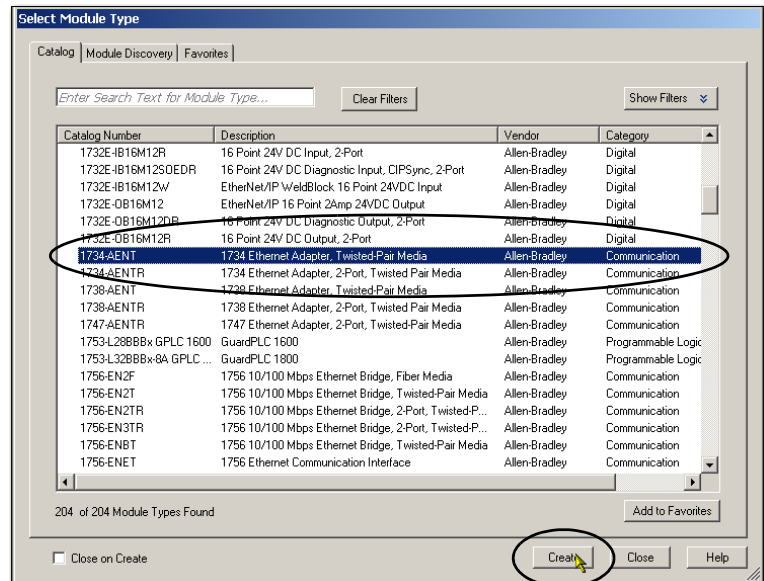


## Configure the POINT I/O Adapter and Output Module

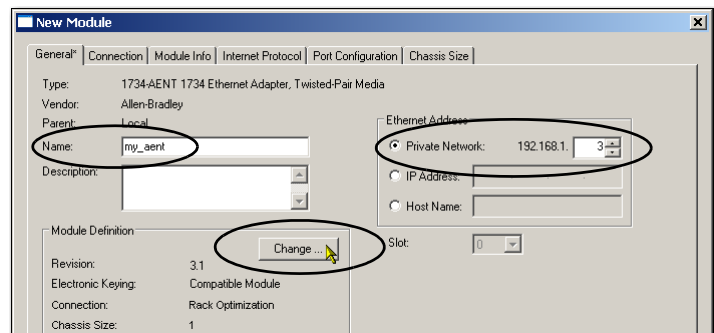
1. Open your RSLogix 5000 project and verify that it is Offline with the controller.
2. Right-click Ethernet in the I/O Configuration folder and choose New Module.



3. Select the 1734-AENT Ethernet adapter and click Create.



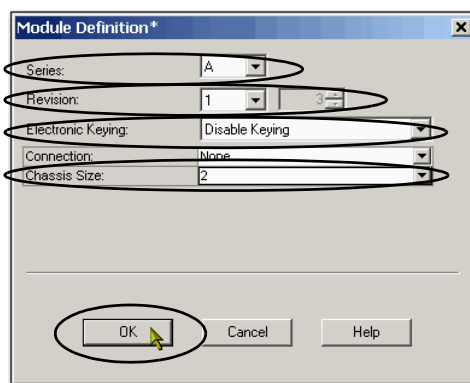
4. Type the name for the adapter.
5. Type the adapter's IP address.
6. Click Change.



7. Make these changes on the Module Definition dialog box.

- Select the Series.
- Select the Revision.
- Select the Chassis Size.

Chassis size equals the number of POINT I/O modules + 1 for the adapter.

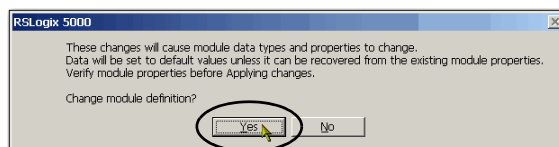


In this example, the Chassis Size is 2 to account for the 1734-AENT Ethernet adapter and the 1734-OB4E digital output module.

- Select Disable Keying.
- Click OK.

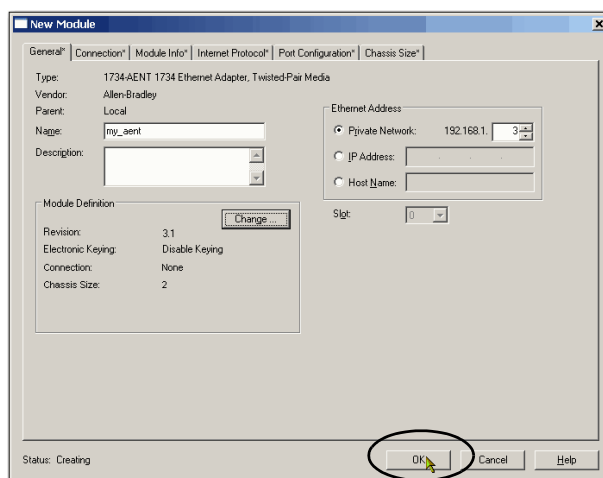
RSLogix 5000 software warns you about the effect of module definition changes.

- Click OK.



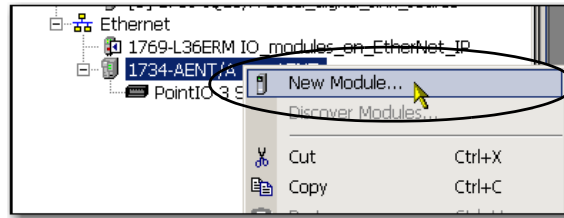
8. When the New Module dialog box reappears, click OK.

The adapter is added to the I/O configuration.

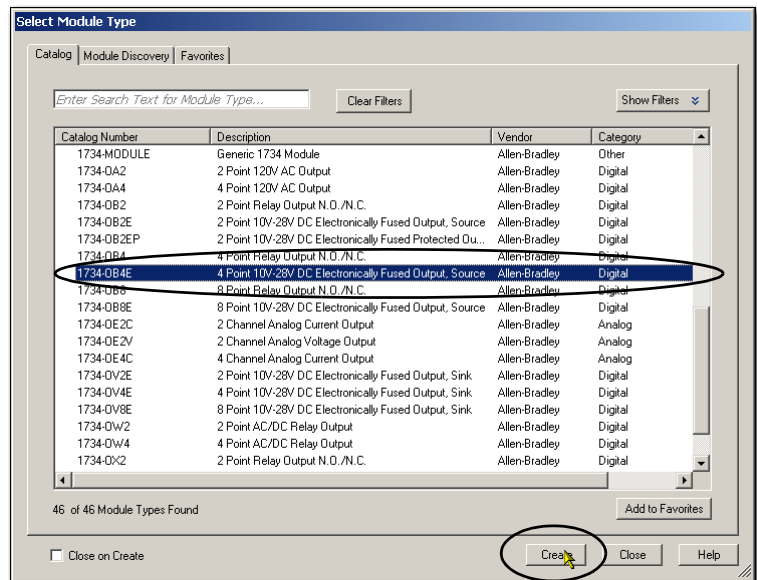




9. Right-click the 1734-AENT Ethernet adapter and choose New Module.



10. Select the 1734-OB4E digital output module and click Create.

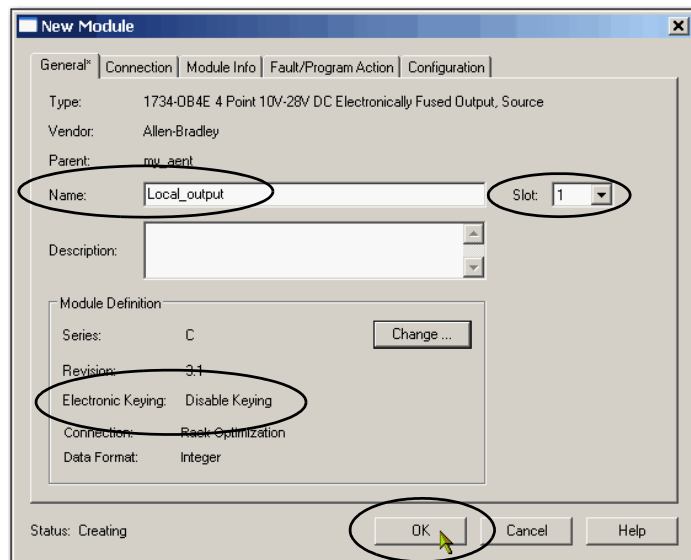


11. Configure the following parameters:

- Name
- Slot (Slot number is the position of the module to the right of the adapter.)
- Electronic Keying

12. Click OK.

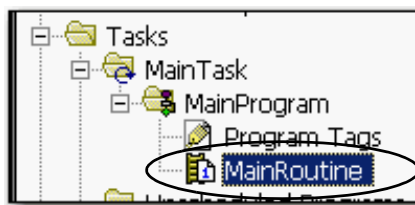
The 1734-OB4E digital output module is added to the I/O configuration.



13. Save the project.

## Add Ladder Logic to Test the 1734-OB4E Module's Lights

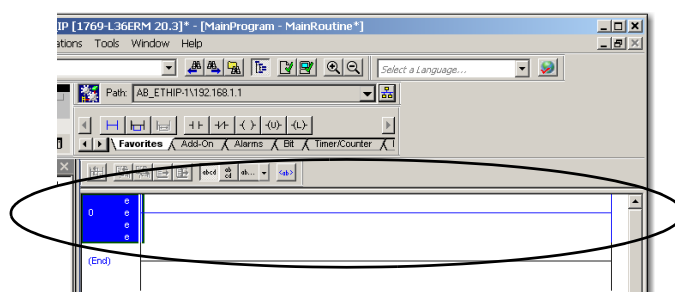
1. In RSLogix 5000 software's controller organizer, expand Tasks > MainTask > MainProgram.



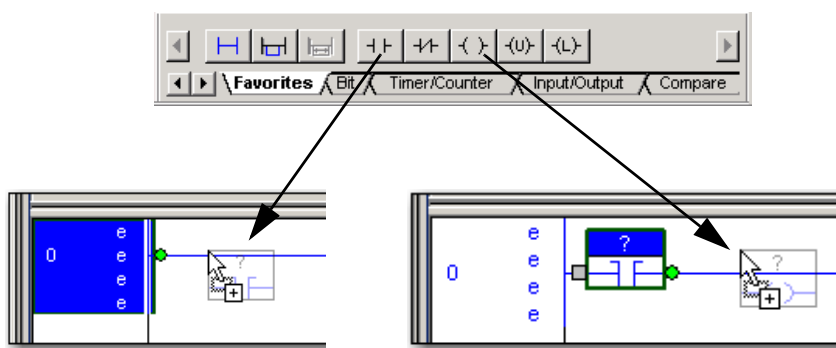
2. Double-click MainRoutine.

A blank routine opens.

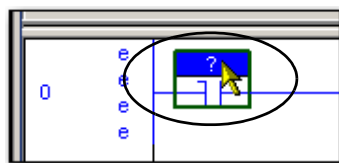
3. Add a new rung to the routine.



4. From the Element Toolbar, drag and drop an Examine On element and an Output Energize element onto the rung.

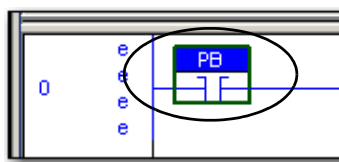


5. Double-click the ? in the Examine On element.

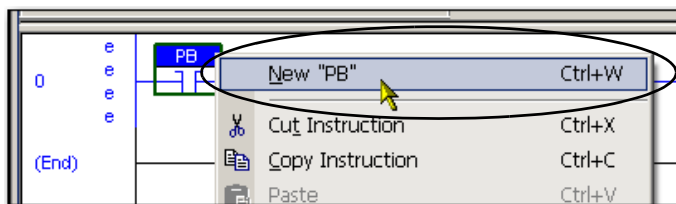


6. Type PB for push button.

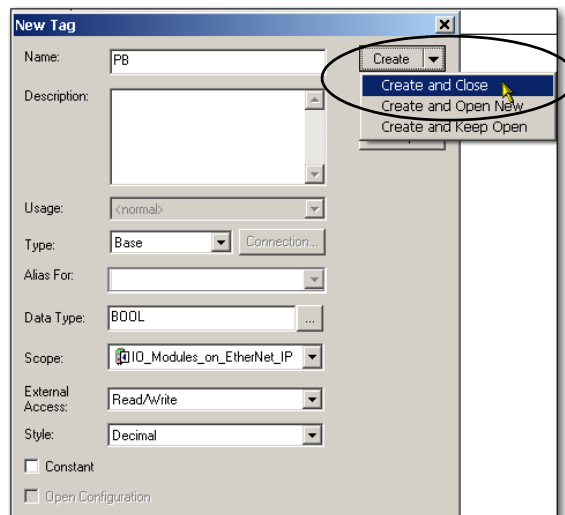
7. Press Enter.



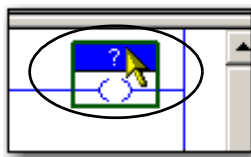
8. Right-click PB and choose New "PB".



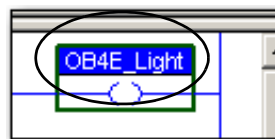
9. When the New Tag dialog box appears, click Create and Close to use the default values.



10. Double-click the ? in the Output Energize element.



11. Name the Output Energize element **OB4E\_Light**.



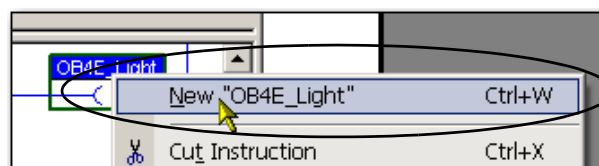
---

**IMPORTANT** Do not use spaces in the tag name. Use underscores ( `_` ) instead.

---

12. Right-click the **OB4E\_Light** tag and choose New “OB4E\_Light”.

**OB4E\_Light** is an alias tag for the I/O point tag name. With an alias tag, you can assign a simple name to a physical I/O point address.

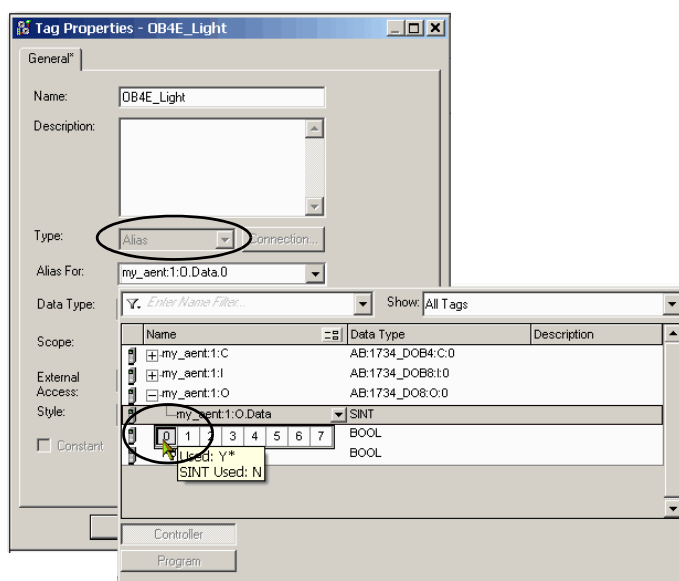


13. From the Type pull-down menu, choose Alias.

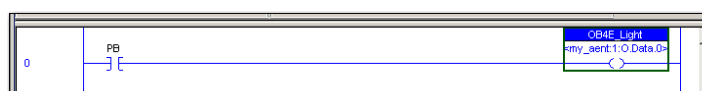
14. From the Alias For pull-down menu, browse to the 1734-OB4E digital output module and choose any bit.

This example uses  
my\_aent:1:O.Data[0].

15. Click Create and Close.

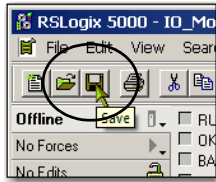


This graphic shows the rung created with these steps.

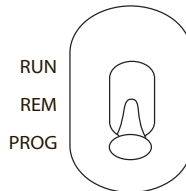


## Download the Project to Your Logix5000 Controller

1. Save your changes.



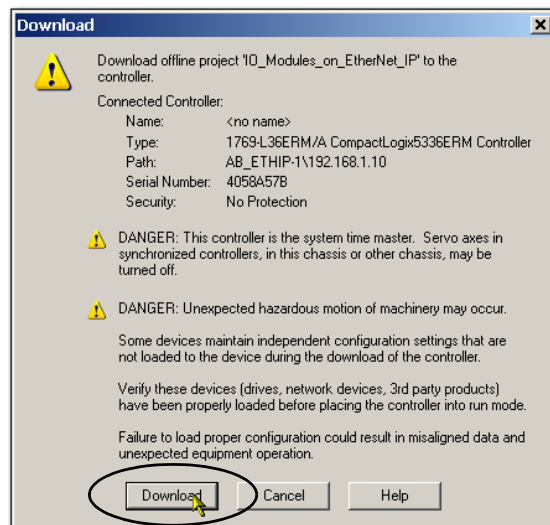
2. Move the controller's switch to Program.



3. Click the Controller Status icon and choose Download.



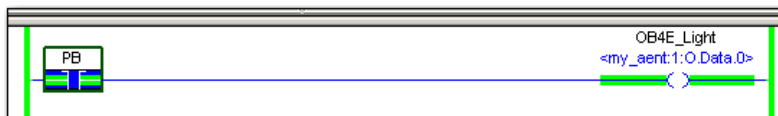
4. Click Download.



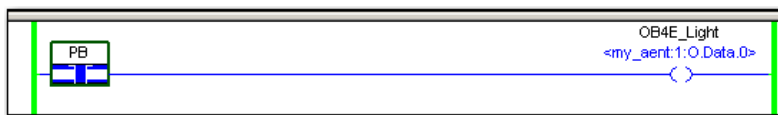
## Test the 1734-OB4E Output Module's Light

1. Move the controller's mode switch to the RUN position.
2. If not open, open the project's Main Routine to find the ladder logic written earlier in this chapter.
3. Select the PB and press Ctrl+T.

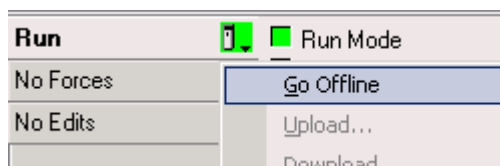
This toggles the state from 0 to 1 (off to on).



4. Verify that the light on the distributed digital output module turns on.
5. Press Ctrl+T to toggle the state back to 0 (off).



6. Choose Go Offline.



## Additional Resources

For a list of additional resources that might assist you when preparing the PowerFlex 40 drive hardware, see [page 11](#).

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## Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.

At <http://www.rockwellautomation.com/support/>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

## Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the <a href="#">Worldwide Locator</a> at <a href="http://www.rockwellautomation.com/support/americas/phone_en.html">http://www.rockwellautomation.com/support/americas/phone_en.html</a> , or contact your local Rockwell Automation representative.

## New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

## Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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