

# CompactLogix Power Supplies Specifications

## 1768 CompactLogix Power Supplies Catalog Numbers 1768-PA3, 1768-PB3

## 1769 Compact I/O Power Supplies Catalog Numbers 1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4

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### Environmental Specifications - 1768 and 1769 Power Supplies

Attribute	1768-PA3, 1769-PB3 1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0...60 °C (32...140 °F)
Temperature, storage IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40...85 °C (-40...185 °F)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	5 g @ 10...500 Hz
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	50 g

## 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 [SGI-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.

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### 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.

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### IMPORTANT

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

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### 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

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### 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.

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### 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.

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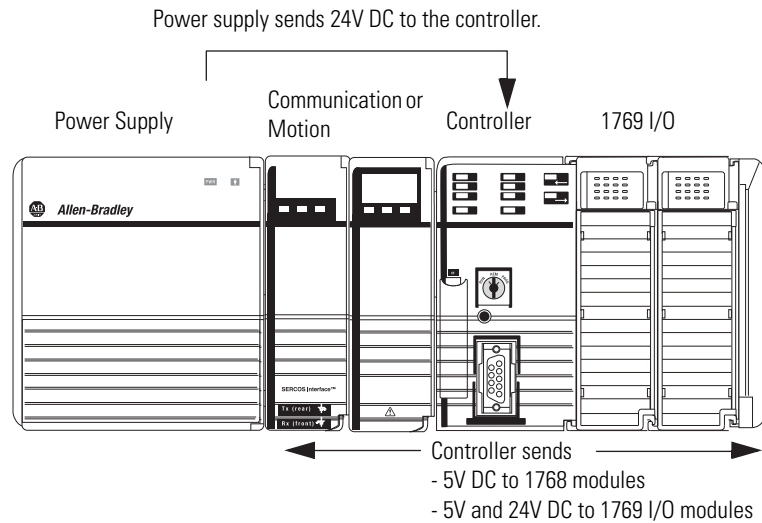
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## 1768 CompactLogix Power Supplies

The 1768 backplane requires one 1768 power supply. The power supply is a dual input supply that operates in multiple ranges. The power supply also offers a 24V dc external power source. The power supply sends 24V dc to the controller in slot 0.

- The controller converts the 24V dc to 5V dc and 24V dc and distributes it as needed.
  - 5V and 24V power to 1769 I/O modules on the right side of the controller
  - 24V power to 1768 modules on the left side of the controller



The 1768 modules do not have a distance rating to the 1768 power supply. For the 1769 I/O modules in the 1768 system, the distance rating is from the controller and not the 1768 power supply.

### Technical Specifications - 1768 CompactLogix Power Supplies

Attribute	1768-PA3	1768-PB3
Input voltage range	85...265V AC 108...132V DC	16.8...31.2V DC
Input voltage, nom	120V/220V AC	24V DC
Input frequency range	47...63 Hz	DC
Input power, max	120VA/120 W	112 W
Output power, max	90 W 24V DC to backplane: 3.5 24V DC to user-accessible terminal block: 0.25 A	
Output power, min	6 W 24V DC to backplane: 0.25 A 24V DC to user-accessible terminal block: 0.0 A	
Power dissipation	30 W	22 W
Inrush current, max	50 A @ 85...132V AC 80 A @ 195...265V AC	50 A @ 16.8...31.2V DC <sup>(1)</sup>

**Technical Specifications - 1768 CompactLogix Power Supplies**

<b>Attribute</b>	<b>1768-PA3</b>	<b>1768-PB3</b>
Isolation voltage	250V, reinforced insulation type, input to system and 24V DC AUX Tested at 4250V DC for 60 s 150V, basic insulation type, 24V DC AUX to system Tested at 2200V dc for 60 s	
Internal overcurrent protection	Non-replaceable fuse is soldered in place	
Recommended external overcurrent protection	4...6 A @ 28.5...36.7 A <sup>2</sup> S	8...12 A @ 166...250 A <sup>2</sup> S
Overcurrent protection	15 A, user supplied	
Weight, approx.	0.98 kg (2.15 lb)	1.01 kg (2.22 lb)
Dimensions (HxWxD), approx.	131.25 x 132.75 x 105.50 mm (5.17 x 5.23 x 4.15 in.)	
Module location	DIN rail or panel mount	
Mounting screw torque	1.16 N•m (10 lb•in) - use M4 or #8 screws	
Wire category	1 - on power ports <sup>(2)</sup>	
Wire size, input power terminal	14 AWG (2.5 mm <sup>2</sup> ) solid or stranded copper wire rated at 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation maximum	
Wire size, output power terminal	14 AWG (2.5 mm <sup>2</sup> )...22 AWG (0.25 mm <sup>2</sup> ) solid or stranded copper wire rated at 75 °C (167 °C) or greater, 1.2 mm (3/64 in.) insulation max	
Conductor screw torque	0.6 N•m (5 lb•in)	
North American temperature code	T4	
Output #1: 24V DC to backplane		
Ride-through interval time, min	25 ms @ 90 W	5 ms @ 90 W
Full power hold-up interval	5 ms @ 90 W	
Extended hold-up interval	8...12 s @ 1.25 W	
Output #2: 24V DC to front panel terminal block		
Voltage	18...27.60V @ front panel	
Output disable	Disable output during hold-up periods	
Enclosure type rating	None (open-style)	

<sup>(1)</sup> Does not include X-capacitor charging current.

<sup>(2)</sup> Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

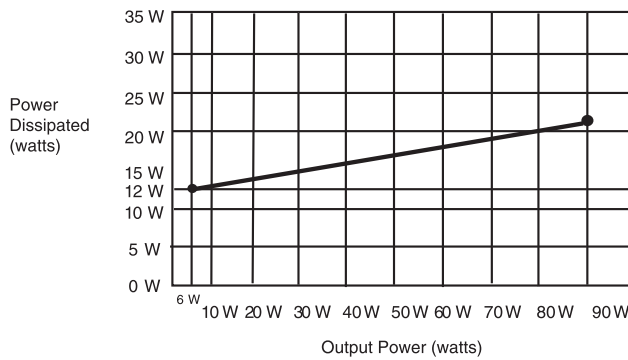
**Certifications - 1768 CompactLogix Power Supplies**

Certification <sup>(1)</sup>	1768-PA3, 1768-PB3
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.  UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CE	European Union 89/336 EEC EMC Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 50082-2; Industrial Immunity</li> <li>• EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> <li>• EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul> European Union 73/23/EEC LVD Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 1010-1; Meas./Control/Lab</li> </ul>
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

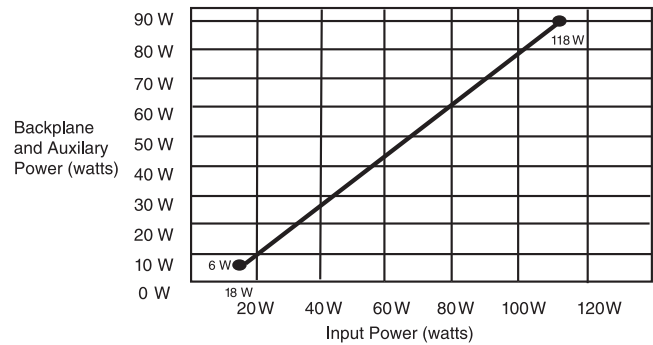
<sup>(1)</sup> When marked. See the Product Certification link at <http://www.ab.com> for Declarations of Conformity, Certificates, and other certification details.

**Power Requirements and Transformer Sizing - 1768 CompactLogix Power Supplies**

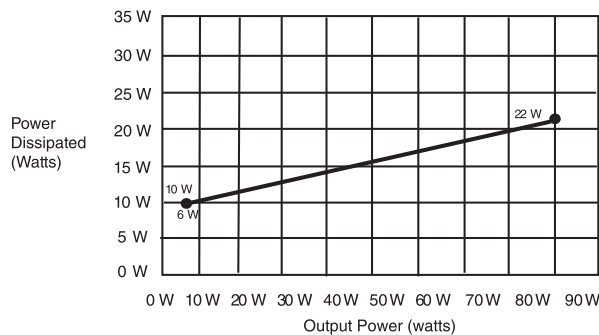
**1768-PA3 Power Dissipation**



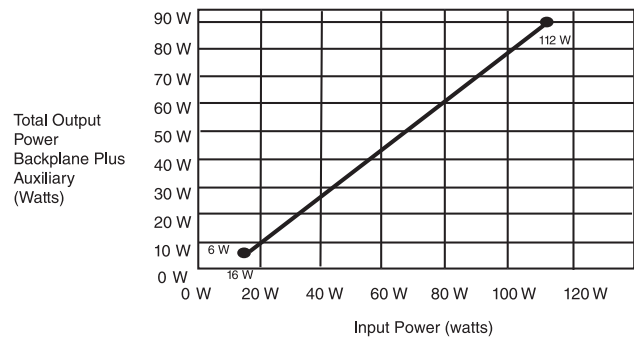
**1768-PA3 Input Power Requirements**



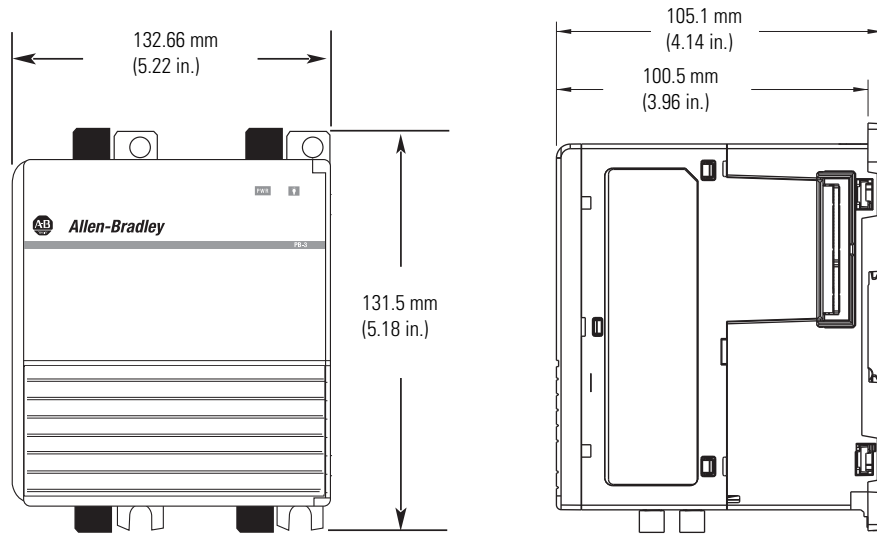
**1768-PB3 Power Dissipation**



**1768-PB3 Input Power Requirements**



### Mounting Dimensions - 1768 CompactLogix Power Supplies



## 1769 Compact I/O Power Supplies

Each 1769-L3x controller and additional bank of I/O modules requires a 1769 power supply. Place 1769 I/O modules to the left or right of the 1769 power supply. As many as eight I/O modules can be placed on each side of the power supply.

Each 1769 module also has a power supply distance rating (the number of modules from the power supply). Each module must be located within its distance rating. See the specifications for the module to determine its distance rating.

### Technical Specifications - 1769 Compact I/O Power Supplies

Attribute	1769-PA2	1769-PB2	1769-PA4	1769-PB4
Input voltage range	85...265V AC	19.2...31.2V DC	85...265V AC or 170...265V AC, switch selectable	19.2...31.2V DC
Input voltage, nom	120V/220V AC	24V DC	120V/220V AC	24V DC
Power consumption	100 VA @ 120V AC 130 VA @ 240V AC	50 VA @ 24V DC	200 VA @ 120V AC 240 VA @ 240V AC	100 VA @ 24V DC
Power dissipation	8 W @ 60° C (140° F)	7.5 W @ 60° C (140° F)	18 W @ 60° C (140° F)	14.5 W @ 60° C (140° F)
Current capacity @ 5V	2.0 A	2.0 A	4.0 A	4.0 A
Current capacity @ 24V	0.8 A	0.8 A	2.0 A	2.0 A
Inrush current, max	25 A @ 132V AC	30 A @ 31.2V DC	25 A @ 132V AC	30 A @ 31.2V DC
Isolation voltage	265V (continuous), reinforced insulation type (IEC Class 1 grounding required) Routine tested @ 2596V DC for 1 s, AC power input to system and AC power input to 24V DC user power	75V (continuous), reinforced insulation type (IEC Class 1 grounding required) Routine tested at 1697V DC for 1 s, DC power input to system	265V (continuous), reinforced insulation type (IEC Class 1 grounding required) Routine tested at 2596V DC for 1 s, AC power input to system	75V (continuous), reinforced insulation type (IEC Class 1 grounding required) Routine tested at 1697V DC for 1 s, DC power input to system
Fuse type	Wickmann 19195-3.15A Littelfuse 02183.15MXP	Wickmann 19193-6.3A Littelfuse 021706.3MXP	Wickmann 19195-3.15A Littelfuse 02183.15MXP	Wickmann 19193-6.3A Littelfuse 021706.3MXP
Weight, approx.	525 g (1.16 lb)		630 g (1.39 lb)	
Dimensions (HxWxD), approx.	118 x 70 x 87 mm (4.65 x 2.76 x 3.43 in.)			
Module location	DIN rail or panel mount			
Mounting screw torque	1.16 N•m (10 lb•in) - use M4 or #8 screws			
Power supply distance rating	8 8 I/O modules can be connected on either side of the power supply for a maximum of 16 modules			
Wire category <sup>(1)</sup>	1 - on power ports	2 - on power ports	1 - on power ports	2 - on power ports
Wire size	14 AWG (2.5 mm <sup>2</sup> ) solid copper wire rated at 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max			
North American temperature code	T3C			
IEC temperature code	—	T4	—	T4
Enclosure type rating	None (open-style)			

<sup>(1)</sup> Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

**Certifications - 1769 Compact Power Supplies**

<b>Certification<sup>(1)</sup></b>	<b>1769-PA2, 1769-PA4</b>	<b>1769-PB2, 1769-PB4</b>
c-UL-us	UL Listed for Class 1, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E10314	
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> </ul>	
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions	
	—	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (Zone 2)</li> <li>• EN 60079-0; General Requirements (Zone 2)</li> </ul>

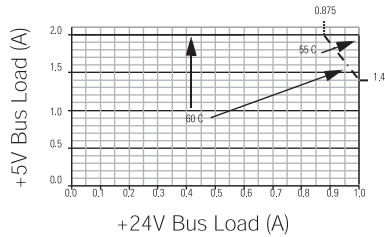
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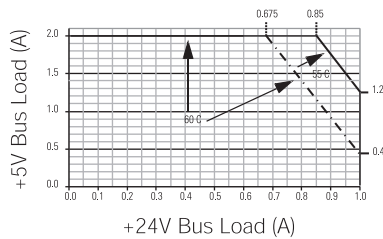
## Power Requirements and Transformer Sizing - 1769 CompactLogix Power Supplies

### 1769-PA2 Output Derating

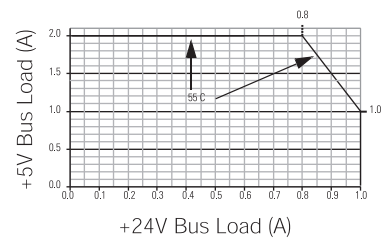
User +24V Current Draw at 0 A



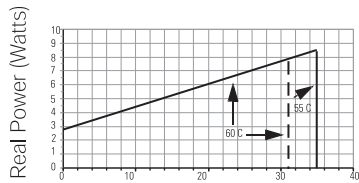
User +24V Current Draw at 0.2 A



User +24V Current Draw at 0.25 A

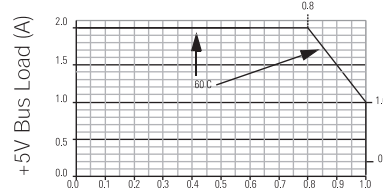


### 1769-PA2 Power Dissipation



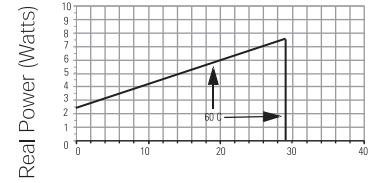
Bus +5V, +24V, and User Load (Watts)

### 1769-PB2 Output Derating



+24V Bus Load (A)

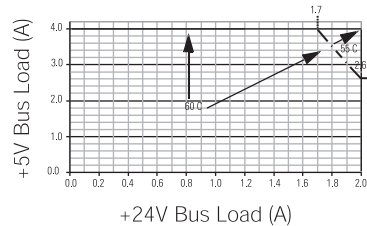
### 1769-PB2 Power Dissipation



Bus +5V, +24V, and User Load (Watts)

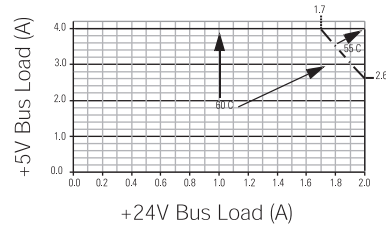
### 1769-PA4 Output Derating

Total Output: 68 W @ 55 °C (131 °F) or below  
61 W @ 60 °C (140 °F) or below

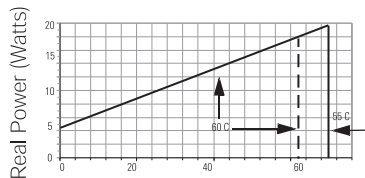


### 1769-PB4 Output Derating

Total Output: 68 W @ 55 °C (131 °F) or below  
61 W @ 60 °C (140 °F) or below

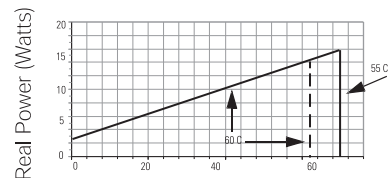


### 1769-PA4 Power Dissipation



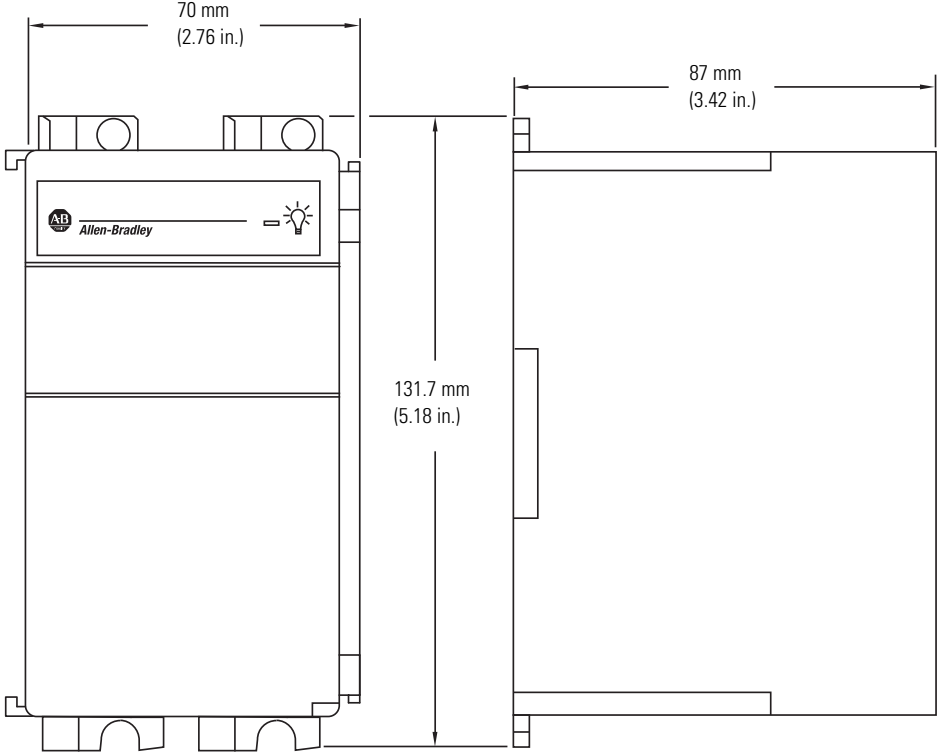
Bus +5V, +24V, and User Load (Watts)

### 1769-PB4 Power Dissipation



Bus +5V, +24V, and User Load (Watts)

### Mounting Dimensions - 1769 CompactLogix Power Supplies



**Notes:**

# 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 an anomaly 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/>.

## [www.rockwellautomation.com](http://www.rockwellautomation.com)

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