

# Wiring I/O Modules

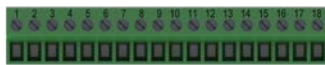
## Wiring Methods

There are two available methods for wiring most I/O modules: The ZIPLink wiring system (See page following), or hand wiring to the optional Removable Terminal Blocks.

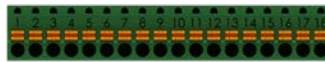
## Removable Terminal Blocks

For most I/O modules you can purchase a removable terminal block (p/n shown below).

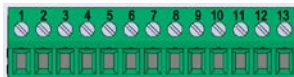
**Note:** Thermocouple and RTD modules are not compatible with the ZIPLink system and are shipped with the optional terminal blocks included.



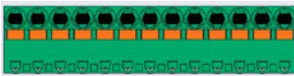
Removable Terminal Block: p/n [P2-RTB](#)



Removable Terminal Block: p/n [P2-RTB-1](#)



Removable Terminal Block: p/n [P2-RTB13](#)



Removable Terminal Block: p/n [P2-RTB13-1](#)



### Removable Terminal Block Specifications

Part Number	<a href="#">P2-RTB</a>	<a href="#">P2-RTB-1</a>
Price	\$9.75	\$9.75
Number of positions	18 screw terminals	18 push release terminals
Wire Range	30–16 AWG (0.051–1.31 mm <sup>2</sup> ) Solid/stranded conductor 3/64 in (1.2 mm) insulation max. 1/4 in (6–7 mm) strip length	28–16 AWG (0.081–1.31 mm <sup>2</sup> ) Solid/stranded conductor 3/64 in (1.2 mm) insulation max. 19/64 in (7–8 mm) strip length
Conductors	USE COPPER CONDUCTORS, 75°C or equivalent.	
Screw Driver Width	0.1 in. (2.5 mm) maximum	N/A
Screw Size	M2	N/A
Screw Torque	2.5 lb·in (0.28 N·m)	N/A

\* Recommended screw driver: P/N [TW-SD-MSL-1](#).

### Removable Terminal Block Specifications

Part Number	<a href="#">P2-RTB13</a>	<a href="#">P2-RTB13-1</a>
Price	\$11.50	\$11.50
Number of positions	13 screw terminals	13 push release terminals
Wire Range	24–12 AWG (0.25–4 mm <sup>2</sup> ) Solid/stranded conductor 3/64 in (1.2 mm) insulation max. 3/8 in (9–10 mm) strip length	
Conductors	USE COPPER CONDUCTORS, 75°C or equivalent.	
Screw Driver Width	0.13 in. (3.5 mm) maximum	N/A
Screw Size	M2.5	N/A
Screw Torque	4.4 lb·in (0.5 N·m)	N/A

\* Recommended screw driver: P/N [TW-SD-MSL-1](#).

## Terminal Block Removal

Removable Terminal Blocks fit firmly into the I/O module terminal recess. To remove, firmly grasp the removable terminal block and wiggle side to side while pulling away from the module.





# Wiring Solutions

## Wiring Solutions using the ZIPLink wiring system

ZIPLinks eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end and terminating wires at only one end. Prewired cables keep installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring solutions available when using the ZIPLink System ranging from

CPU I/O-to-ZIPLink Connector Modules that are ready for field termination, options for connecting to third party devices, GS Series, DuraPulse and SureServo Drives, and specialty relay, transorb and communications modules. Pre-printed I/O-specific adhesive label strips for quick marking of ZIPLink modules are provided with ZIPLink cables. See the following solutions to help determine the best ZIPLink system for your application.

### **Solution 1: DirectLOGIC, CLICK, Productivity® 1000, Productivity® 2000 and Productivity3000® I/O Modules to ZIPLink Connector Modules**

When looking for quick and easy I/O-to-field termination, a ZIPLink connector module used in conjunction with a prewired ZIPLink cable, consisting of an I/O terminal block at one end and a multi-pin connector at the other end, is the best solution.



Use the CPU I/O Modules to ZIPLink Connector Modules selector tables located in the ZIPLink Wiring Solutions section to:

1. Locate your I/O module/CPU,
2. Select a ZIPLink Module, and
3. Select a corresponding ZIPLink Cable.

### **Solution 2: DirectLOGIC, CLICK, Productivity1000, Productivity2000 and Productivity3000 I/O Modules to 3rd Party Devices**

When wanting to connect I/O to another device within close proximity of the I/O modules, no extra terminal blocks are necessary when using the ZIPLink Pigtail Cables. ZIPLink Pigtail Cables are prewired to an I/O terminal block with color-coded pigtail with soldered-tip wires on the other end.



Use the I/O Modules to 3rd Party Devices selector tables located in the ZIPLink Wiring Solutions section to:

1. Locate your CPU I/O module, and
2. Select a ZIPLink Pigtail Cable that is compatible with your 3rd party device.

### **Solution 3: GS Series and DuraPulse Drives Communication Cables**

Need to communicate via Modbus RTU to a drive or a network of drives?

ZIPLink cables are available in a wide range of configurations for connecting to CPUs, SureServo, SureStep, Stellar Soft Starter and AC drives. Add a ZIPLink communications module to quickly and easily set up a multi-device network.

Use the Drives Communication selector tables located in the ZIPLink Wiring Solutions section to:

1. Locate your Drive and type of communications, and
2. Select a ZIPLink cable and other associated hardware.





## Wiring Solutions

### **Solution 4: Serial Communications Cables**

ZIPLink offers communications cables for use with DirectLOGIC, CLICK, Productivity1000, Productivity2000 and Productivity3000 CPUs, that can also be used with other communications devices. Connections include a 6-pin RJ12 or 9-pin, 15-pin and 25-pin D-Sub connectors which can be used in conjunction with the RJ12 or D-Sub Feedthrough modules.

Using the Serial Communications Cables selector table located in the ZIPLink Wiring Solutions section,

1. Locate your connector type
2. Select a cable.



### **Solution 5: Specialty ZIPLink Modules**

For additional application solutions, ZIPLink Specialty Modules are available in a variety of configurations including stand-alone relays, 24VDC and 120VAC transorb modules, D-Sub, RJ12 and RJ45 feedthrough modules, communication port adapter and distribution modules, and SureServo 50-pin I/O interface connection.

Using the ZIPLink Specialty Modules selector table located in the ZIPLink Wiring Solutions section:

1. Locate the type of application.
2. Select a ZIPLink module.



### **Solution 6: ZIPLink Connector Modules to 3rd Party Devices**

If you need a way to connect your device to terminal blocks without all that wiring time, then our pigtail cables with color-coded soldered-tip wires are a good solution. Used in conjunction with any compatible ZIPLink Connector Modules, a pigtail cable keeps wiring clean and easy and reduces troubleshooting time.

Use the Universal Connector Modules and Pigtail Cables table located in the ZIPLink Wiring Solutions section to:

1. Select module type,
2. Select the number of pins
3. Select cable.





# I/O Modules to ZIPLink Connector Modules - Productivity2000

## Discrete Input Modules

Productivity2000 Input Module ZIPLink Selector					
I/O Input Module	ZIPLink Parameters				
	# of Terms	Component	Part No.	Cable Part No.	
	<u>P2-08ND3-1</u>	18	Feedthrough	<u>ZL-RTB20 (-1)</u>	<u>ZL-P2-CBL18 *</u>
	<u>P2-16ND3-1</u>	18	Sensor/LED	<u>ZL-LTB16-24-1</u>	
	<u>P2-16ND-TTL</u>	18	Feedthrough	<u>ZL-RTB20 (-1)</u>	
	<u>P2-08NE3</u>				
	<u>P2-16NE3</u>				
	<u>P2-32ND3-1</u>	40	Feedthrough	<u>ZL-RTB40 (-1)</u>	<u>ZL-CBL40 *</u>
			Sensor/LED	<u>ZL-LTB16-24-1</u>	
	<u>P2-32NE3</u>	40	Feedthrough	<u>ZL-RTB40 (-1)</u>	<u>ZL-P2-CBL18 *</u>
<u>P2-08NAS</u>	8	Feedthrough	<u>ZL-RTB20 (-1)</u>		
<u>P2-16NA</u>	18				

## Discrete Output Modules

Productivity2000 Output Module ZIPLink Selector				
I/O Output Module	ZIPLink Parameters			
	# of Terms	Component	Part No.	Cable Part No.
<b>P2-08TD1S</b>	8	Feedthrough	<a href="#">ZL-RTB20 (-1)</a>	<a href="#">ZL-P2-CBL18 *</a>
<b>P2-08TD2S</b>	8			
<b>P2-15TD1</b>	15			
<b>P2-15TD2</b>	15			
<b>P2-08TD1P</b>	18			
<b>P2-16TD-TTL</b>	18			
<b>P2-08TD2P</b>	18			
<b>P2-08TRS</b>	18			
<b>P2-08TAS</b>	18			
<b>P2-16TA</b>	18	Feedthrough	<a href="#">ZL-RTB20 (-1)</a>	
		Fuse	<a href="#">ZL-RFU20 <sup>2</sup></a>	
<b>P2-16TD1P</b>	18	Feedthrough	<a href="#">ZL-RTB20 (-1)</a>	<a href="#">ZL-P2-CBL18 *</a>
		Relay (Sinking)	<a href="#">ZL-RRL16-24-1</a>	
			<a href="#">ZL-RRL16W-24-1</a>	
			<a href="#">ZL-RRL16F-24-1</a>	
			<a href="#">ZL-RRL16HDF-24-1</a>	
<b>P2-16TD2P</b>	18	Feedthrough	<a href="#">ZL-RTB20 (-1)</a>	
		Relay (Sourcing)	<a href="#">ZL-RRL16-24-2</a>	
			<a href="#">ZL-RRL16W-24-2</a>	
			<a href="#">ZL-RRL16F-24-2</a>	
			<a href="#">ZL-RRL16HDF-24-2</a>	
<b>P2-32TD1P</b>	32	Feedthrough	<a href="#">ZL-RTB40 (-1)</a>	<a href="#">ZL-CBL40 *</a>
<b>P2-32TD2P</b>	32			
<b>P2-16TR</b>	18	Feedthrough	<a href="#">ZL-RTB20 (-1)</a>	<a href="#">ZL-P2-CBL18 *</a>
		Fuse	<a href="#">ZL-RFU20 <sup>2</sup></a>	

## Specialty Modules

Productivity2000 Specialty & Motion Modules ZIPLink Selector				
I/O Module	ZIPLink Parameters			
	# of Terms	Component	Part No.	Cable Part No.
<b>P2-HSI</b>	40	Feedthrough	<a href="#">ZL-RTB40 (-1)</a>	<a href="#">ZL-CBL40-S</a>
<b>P2-HSO</b>				<a href="#">ZL-CBL40-1S</a>
				<a href="#">ZL-CBL40-2S</a>
<b>P2-02HSC</b>	See Note 1			
<b>P2-04PWM</b>	18	Feedthrough	<a href="#">ZL-RTB20 (-1)</a>	<a href="#">ZL-P2-CBL18 *</a>
<b>P2-08SIM</b>	See Note 1			
<b>P2-SCM</b>	See Note 1			

\* Select the cable length by replacing the \* with: Blank = 0.5 m, -1 = 1.0 m, or -2 = 2.0 m.

1. These modules are not supported by the ZIPLink wiring system

2. Note: Fuses (5 x 20 mm) are not included. See Edison Electronic Fuse section for (5 x 20 mm) fuse. S500 and GMA electronic circuit protection for fast-acting maximum protection. S506 and GMC electronic circuit protection for time-delay performance. Ideal for inductive circuits.

To ensure proper operation, do not exceed the voltage and current rating of ZIPLink module. [ZL-RFU20](#) = 2A per circuit; [ZL-RFU40](#) = 400 mA per circuit.





# I/O Modules to ZIPLink Connector Modules - Productivity2000

## Analog Input Modules

Productivity2000 Analog Input Module ZIPLink Selector				
I/O Analog Module	ZIPLink Parameters			
	# of Terms	Component	Part No.	Cable Part No.
<a href="#"><u>P2-04AD</u></a>	18	Feedthrough	ZL-RTB20 (-1)	<a href="#"><u>ZL-P2-CBL18</u></a> *
<a href="#"><u>P2-04AD-1</u></a>				
<a href="#"><u>P2-04AD-2</u></a>				
<a href="#"><u>P2-08AD-1</u></a>				
<a href="#"><u>P2-08AD-2</u></a>				
<a href="#"><u>P2-08ADL-1</u></a>				
<a href="#"><u>P2-08ADL-2</u></a>				
<a href="#"><u>P2-16AD-1</u></a>	24			<a href="#"><u>ZL-P2-CBL24</u></a> *
<a href="#"><u>P2-16AD-2</u></a>				
<a href="#"><u>P2-16ADL-1</u></a>				
<a href="#"><u>P2-16ADL-2</u></a>				
<a href="#"><u>P2-06RTD</u></a>	Matched Only	See Note 1		
<a href="#"><u>P2-08THM</u></a>	T/C Wire Only	See Note 1		
<a href="#"><u>P2-08NTC</u></a>	Copper Conductors	See Note 1		

\* Select the cable length by replacing the \* with: Blank = 0.5 m, -1 = 1.0 m, or -2 = 2.0 m.

1. These modules are not supported by the ZIPLink wiring system.

## Analog Output Modules

Productivity2000 Analog Output Module ZIPLink Selector				
I/O Analog Module	ZIPLink Parameters			
	# of Terms	Component	Part No.	Cable Part No.
<a href="#"><u>P2-04DA</u></a>	18	Feedthrough	<a href="#"><u>ZL-RTB20 (-1)</u></a>	<a href="#"><u>ZL-P2-CBL18 *</u></a>
<a href="#"><u>P2-04DA-1</u></a>				
<a href="#"><u>P2-04DA-2</u></a>				
<a href="#"><u>P2-04DAL-1</u></a>				
<a href="#"><u>P2-04DAL-2</u></a>				
<a href="#"><u>P2-08DA-1</u></a>				
<a href="#"><u>P2-08DA-2</u></a>				
<a href="#"><u>P2-08DAL-1</u></a>	24	Feedthrough	<a href="#"><u>ZL-RTB20 (-1)</u></a>	<a href="#"><u>ZL-P2-CBL24 *</u></a>
<a href="#"><u>P2-08DAL-2</u></a>				
<a href="#"><u>P2-16DA-1</u></a>				
<a href="#"><u>P2-16DA-2</u></a>				
<a href="#"><u>P2-16DAL-1</u></a>	18	Feedthrough	<a href="#"><u>ZL-RTB20 (-1)</u></a>	<a href="#"><u>ZL-P2-CBL18 *</u></a>
<a href="#"><u>P2-16DAL-2</u></a>				
<a href="#"><u>P2-8AD4DA-1</u></a>	18	Feedthrough	<a href="#"><u>ZL-RTB20 (-1)</u></a>	<a href="#"><u>ZL-P2-CBL18 *</u></a>
<a href="#"><u>P2-8AD4DA-2</u></a>				





# Dimensions and Installation

It is important to review and understand the installation requirements for your Productivity® 2000 system. Your knowledge of these requirements will help ensure that your system operates within safe environmental and electrical limits.

## Plan for Safety

This catalog should never be used as a replacement for the product inserts and user manual. Each base, CPU, power supply, I/O module, and specialty module comes with a product insert. You can purchase, download for free, or view online the Productivity2000 user manual ([P2-USER-M](#)). These documents, along with the software help files, contain important safety information that must be followed.

The system installation should comply with all appropriate electrical codes and standards.

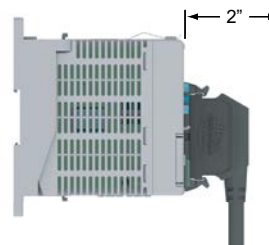
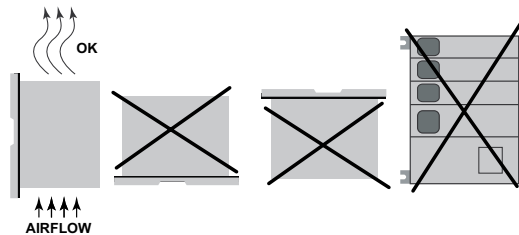
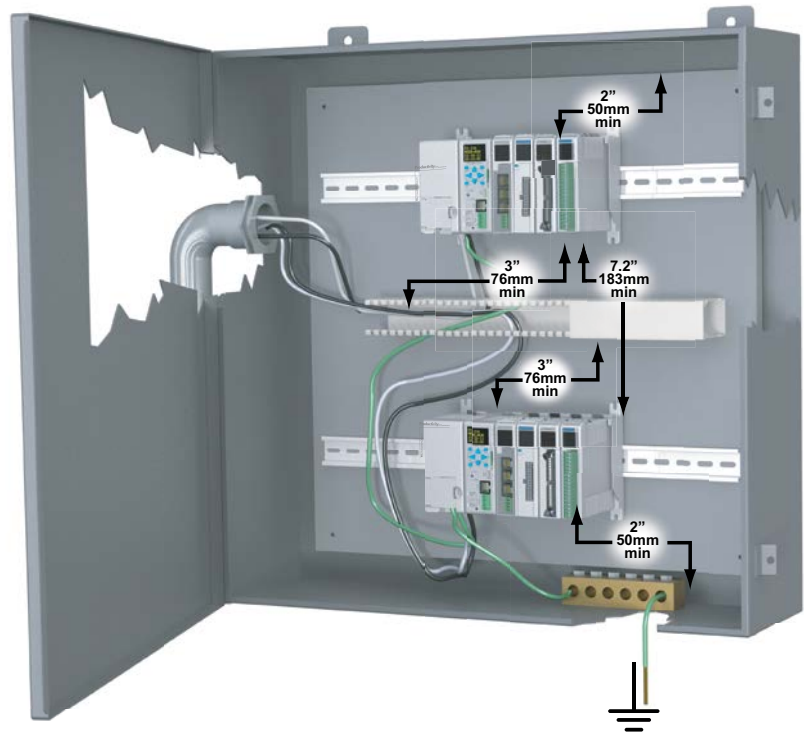
## Enclosures

Your selection of a proper enclosure is important to ensure safe and proper operation of your Productivity2000 system. Applications for the Productivity2000 system vary and may require additional hardware considerations. The minimum considerations for enclosures include:

- Conformance to electrical standards
- Protection from the elements in an industrial environment
- Common ground reference
- Maintenance of specified ambient temperature
- Access to the equipment
- Security or restricted access
- Sufficient space for proper installation and maintenance of the equipment

## Mounting Position

Mount the bases horizontally, as shown in the illustration, to provide proper ventilation. Do not mount the bases vertically, upside down, or on a flat horizontal surface.



**NOTE:** Add 2" to mounting depth when using **ZIPLink** cable.