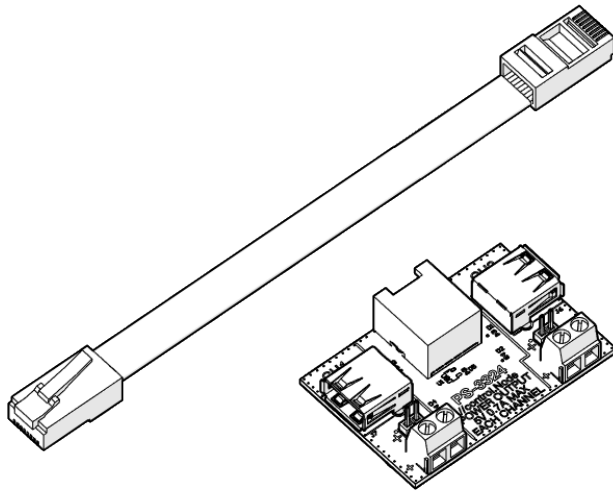


# Power Output Board

PS-3324

## What's included



- Power Output Board
- Power Out cable

## Getting started

### Required items

- //control.Node (PS-3232)
- SPARKvue or PASCO Capstone software

1. Connect the Power Output Board to a **Power Out** port on the //control.Node using the included cable. Push the plug into each port until you hear a click.
2. Connect a device to CH1 on the board using either the USB port, terminal pins, or terminal block.
3. Repeat previous step for CH2, if desired.
4. Turn on the //control.Node and connect it to SPARKvue or PASCO Capstone software.
5. In the software, open the **Code** tool and select the **Hardware** group. Drag the **set power output** block to the workspace.

set power output for //control.Node port A, CH1 using USB on: true

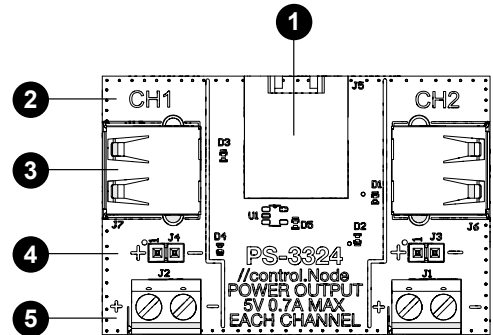
6. Configure the block according to your setup:
  - a. Select the //control.Node port (A or B) and Power Output Board channel (CH1 or CH2) your device is connected to.
  - b. Select the type of connection (USB or terminal).

**ⓘ Important:** Make sure that `terminal` isn't selected when a USB device is connected. The USB device might get damaged.

- c. Enter a value for the power:
  - **USB:** Select `true` to have the power on or `false` to have the power off.
  - **terminal:** Enter a power value between `-100` and `100%`. The percentage indicates the duty cycle of the pulse width modulation (PWM) signal.

## Features

The Power Output Board includes two channels to control up to two devices. You can connect a device to each channel using the USB port or terminals. Each channel provides 5 volts with up to 0.7 amps of current.



- 1 **Power Out port**  
Use this port with the included cable to connect the board to a Power Out port on the //control.Node.
- 2 **Channel ID**  
Reference the channel ID when configuring the **set power output** block in the Code tool.
- 3 **USB port**  
Connect a device that can be powered using USB. You can set the power to on (5 volts) or off (0 volts) using the **set power output** block in the Code tool.
- 4 **Terminal pins**  
Connect jumper cables to the pins to control a device. The //control.Node provides power using pulse width modulation (PWM). You can set the duty cycle between -100 and +100% using the **set power output** block in the Code tool.
- 5 **Terminal block**  
Insert bare wires into the terminal block to control a device. Turn the screws to hold the wire in place. The //control.Node provides power using pulse width modulation (PWM). You can set the duty cycle between -100 and +100% using the **set power output** block in the Code tool.

## Download an experiment

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Download one of several student-ready activities from the PASCO Experiment Library that use the Power Output Board. Experiments include editable student handouts and teacher notes. Go to [pasco.com/freelabs/PS-3324](https://www.pasco.com/freelabs/PS-3324) to access the files.

If you want to explore on your own, check out the SPARKvue and PASCO Capstone help guides to search for specific topics.

### SPARKvue

**Software:** Go to the Main Menu  then select Help.

**Online:** Go to [pasco.com/help/sparkvue](https://www.pasco.com/help/sparkvue).

### PASCO Capstone

**Software:** In the menu bar, click Help then select PASCO Capstone Help.

**Online:** Go to [pasco.com/help/capstone](https://www.pasco.com/help/capstone).

## Specifications and accessories

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Visit the product page at [pasco.com/product/PS-3324](https://www.pasco.com/product/PS-3324) to view the specifications and explore accessories. Experiment files and support documents can also be found on the product page.

## Technical Support

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Need more help? Our knowledgeable and friendly Technical Support staff is ready to provide assistance with this or any other PASCO product.

Phone (USA)	1-800-772-8700 (Option 4)
Phone (International)	+1 916 462 8384
Online	<a href="https://www.pasco.com/support">pasco.com/support</a>

## Regulatory information

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### Warranty, Copyright, and Trademarks

#### Limited Warranty

For a description of the product warranty, see the Warranty and Returns page at [www.pasco.com/legal](https://www.pasco.com/legal).

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### Product end of life disposal instructions



This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle or disposal service, or the place where you purchased the product.

The European Union WEEE (Waste Electronic and Electrical Equipment) symbol on the product or its packaging indicates that this product must not be disposed of in a standard waste container.