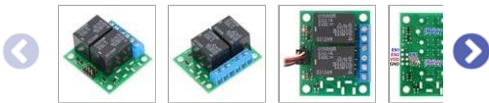
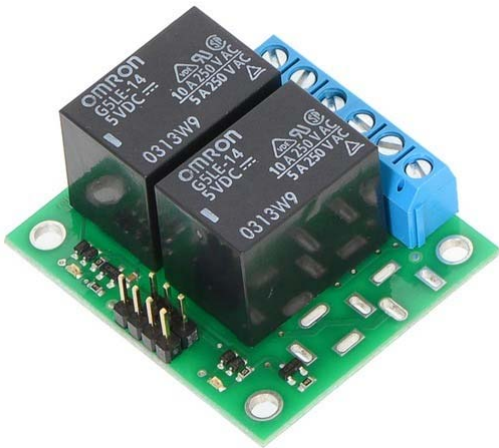


Pololu Basic 2-Channel SPDT Relay Carrier with 5VDC Relays (Assembled)



Pololu item #: 2485 69 in stock

Price break	Unit price (US\$)
1	8.95
5	7.90
25	7.15
100	6.65

Quantity:

Add to cart

backorders allowed

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The Pololu basic 2-channel relay carrier modules allow simple, independent control of two single-pole, double-throw (SPDT) switches from low-voltage, low-current control signals. This item includes the basic carrier PCB with two soldered-in 5 V relays, 5.0 mm terminal blocks for the switch connections, and straight 0.1" male header for the control connections. The included power relays are Omron G5LE-14-DC5 and are rated for up to 10 A under most conditions.

Select options:

5 V

partial kit? N

Go ▶

Description Specs (4) Pictures (7) Resources (4) FAQs (0) On the blog (1)

Overview

The Pololu basic 2-channel relay carrier modules make it easy to control two single-pole, double-throw (SPDT) switches independently from low-voltage, low-current control signals. The modules are available with 5 V and 12 V power relays—[Omron G5LE-14-DC5 and G5LE-14-DC12](#) (1MB pdf), respectively—and they are available pre-soldered or as partial kits that allow greater application flexibility:

Select options:

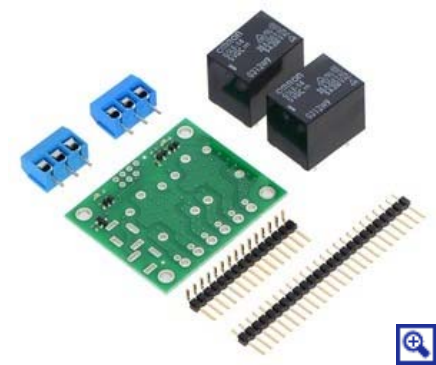
5 V

partial kit? N

Go ▶

The carrier board routes the relay control pins to 0.1"-spaced pins compatible with standard [solderless breadboards](#) and [female servo cable connectors](#). The assembled version of this board has all seven control pins populated with [0.1" straight male headers](#) while the partial kit version includes 25×1 straight and 15×1 [right angle](#) 0.1" male header strips that can optionally be broken into pieces and soldered in. The relay switch pins are routed to a set of large pads intended for use with two [3-pin 5mm-pitch terminal blocks](#) and a set of smaller pads with a 0.2" pitch, making them compatible with 0.1" perfboards. The assembled version of this board has the terminal blocks soldered to these pins while the

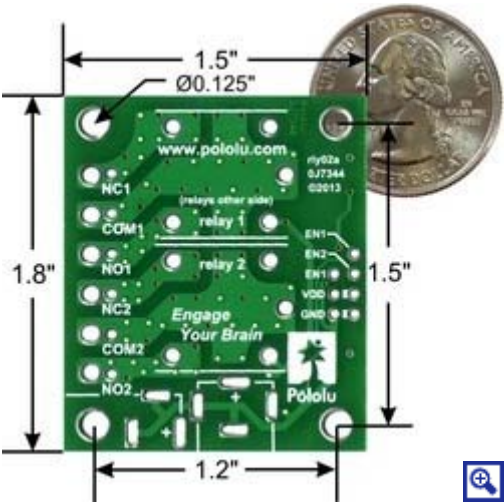
partial kit version includes 6-pin terminal blocks that can be optionally soldered in. The carrier board has four mounting holes that work with #4 or M3 screws.



Pololu basic 2-channel SPDT relay carrier with 5 VDC relays (partial kit).



Pololu basic 2-channel SPDT relay carrier with 5 VDC relays (assembled).



Advantages over similar products

- Compact layout
- LEDs to indicate coil actuation
- Zener diodes for fast current decay on relay coils
- Specification of electrical routing clearance rules on relay switch nodes

Comparison to the single-channel version

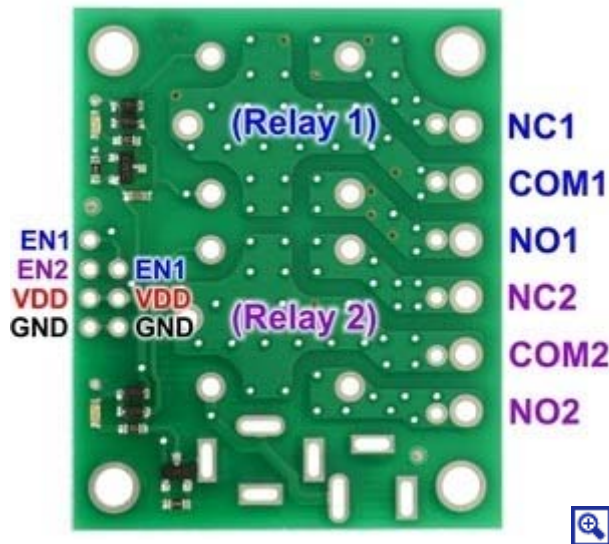


Pololu basic 2-channel SPDT relay carrier with both relays energized.

Our basic relay carrier boards are available in single-channel and dual-channel versions. The single-relay carrier is less than half the size of the 2-channel carrier (due in part to its smaller mounting holes and lack of barrel jack footprints), so it might be more appropriate to use two single-channel boards instead of one 2-channel board in some space-constrained applications. The following table shows some of the key differences between the two versions:

	Voltage options	Board size	Mounting hole size	# of channels	DC power jack option
Single-relay carrier	5 V and 12 V	1.15" × 1"	0.086" (#2 or M2)	1	no
Dual-relay carrier	5 V and 12 V	1.5" × 1.8"	0.125" (#4 or M3)	2	yes

Using the relay modules



The switch portion of the relays are accessible on one side of the board while the control pins are routed to the other. The relay coils are powered by supplying 5 V or 12 V across the VDD and GND pins (depending on the relay), and they are activated by digital high control signals on their respective EN pins. The control signals are fed directly to the BSS138 N-channel MOSFETs, which in turn actuate the relay coils when the signal voltage exceeds approximately 2.5 V (see [BSS138 datasheet](#) (92k pdf) for details). The control pins are arranged to allow for several connection options: a single 1×4 cable can be used to supply coil power and the two control signals, or two 1×3 cables (such as servo cables) can be used side-by-side (one for each relay).

The relay switch terminals COM (common), NO (normally open), and NC (normally closed) are routed on the PCB with a minimum clearance of 60 mils (1.5 mm) from other copper and the edges of the board, though manufacturing variations in the board edges can make those distances slightly lower.

In most applications, the current and voltage ratings for the module will match the ratings of the relay used. Maximum current, maximum voltage, and life expectancy are interdependent; we therefore recommend careful examination of your relay's datasheet.

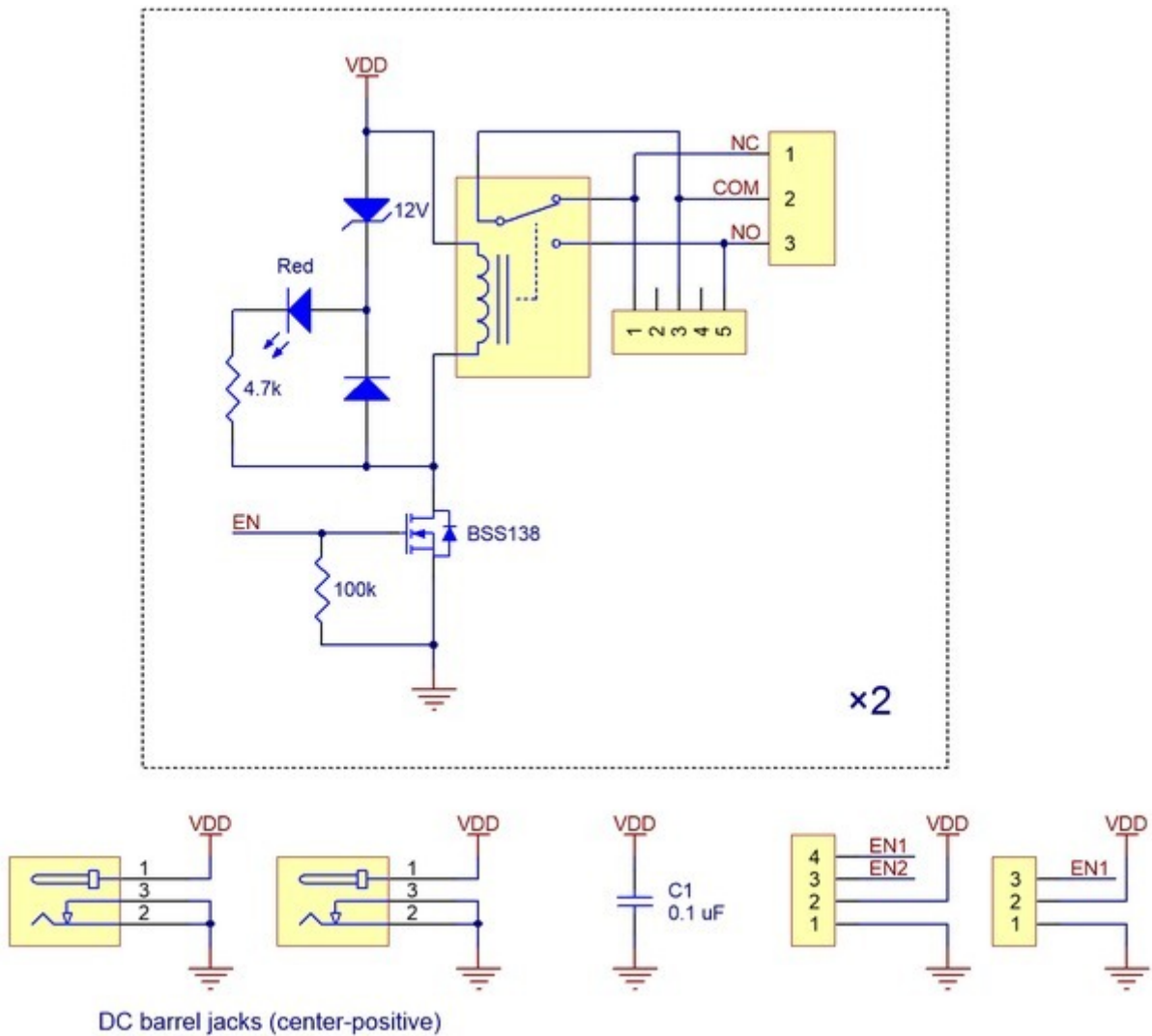
Warning: This product is not designed to or certified for any particular high-voltage safety standard. Working with voltages above 30 V can be extremely dangerous and should only be attempted by qualified individuals with appropriate equipment and protective gear.

Optional DC barrel jack



The carrier board makes it possible to optionally power the relays from a [DC barrel jack](#) (not included). The DC barrel jack can be placed in three configurations, two of which are shown in the pictures above (the jack can also be installed in one configuration on the bottom side of the PCB).

Schematic diagram



Pololu basic 2-channel SPDT relay carrier schematic diagram.

This schematic is also available as a [downloadable pdf](#) (144k pdf).

People often buy this product together with:



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