

Electric Level 5

Wiring Diagrams for 3-Way and 4-Way Switch Combinations

What's it all About?

This project sheet shows various ways 3-way and 4-way switches can be wired to control lights from two or more locations. The switches must create a complete circuit for current to flow and the bulb to light.

Black or **Red** indicates a current carrying hot wire (120 volts ac).

Bare or **Green** indicates a grounding wire at ground/earth potential.

White indicates a current carrying neutral wire or grounded wire. In a switching circuit, it can be used as a current carrying hot wire, but must be identified as a current carrying hot wire.

For choosing wire cable for your circuit, follow common practices in wiring a multi-switch circuit by using a two-conductor (black and white) and three-conductor (black, red, white) cable, where white denotes neutral, and black and red are used for "hot" conductors with respect to ground.

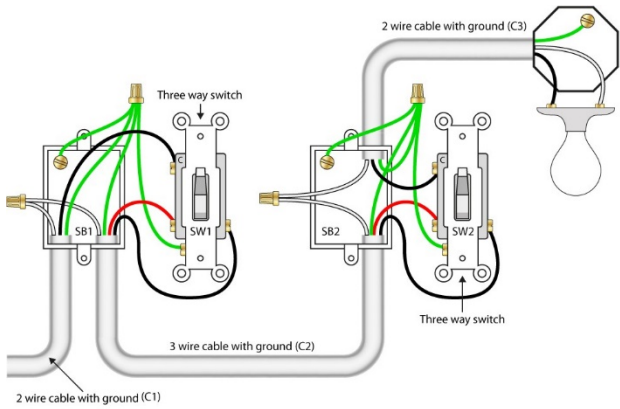
Keys to Remember

- When wiring or troubleshooting 3-way and 4-way switches, remember one common/identified terminal is always connected to the power source, and the other common/identified terminal is always connected to the light.
- With any wiring project, safety for the people and property is most important. The grounding wire (green or bare) is what provides protections. It must be properly bonded/connected to all of the metallic component in the circuit.
- Size of the conductors matters. If you remember from previous divisions, the conductor must be sized correctly for the load (watts) and protected by the correctly sized fusing/breaker.
- The switches themselves are also rated in amps to match loads and conductors.

For the Project

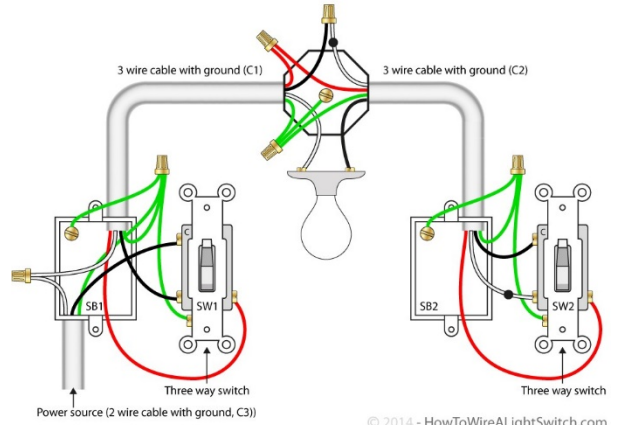
- Material List with Costs
- References
- Include diagrams, schematics, and pictures
- Planning and Research
- Dimension
- Title and Labels
- Pictures (if exhibiting a report or poster)
- Record sheet

3-Way Light Switch with Powered Feed via the Light Switch



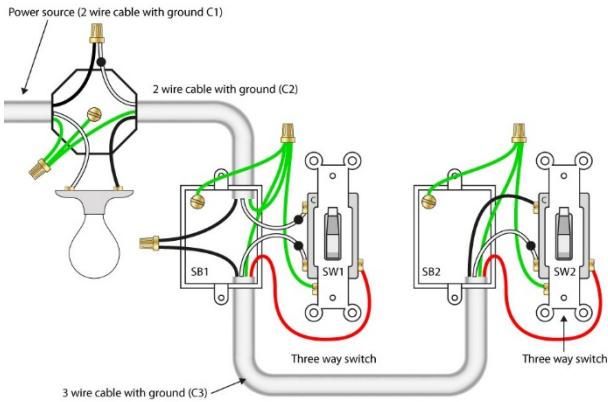
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Single Light between 3-Way Light Switches with Power via Switch



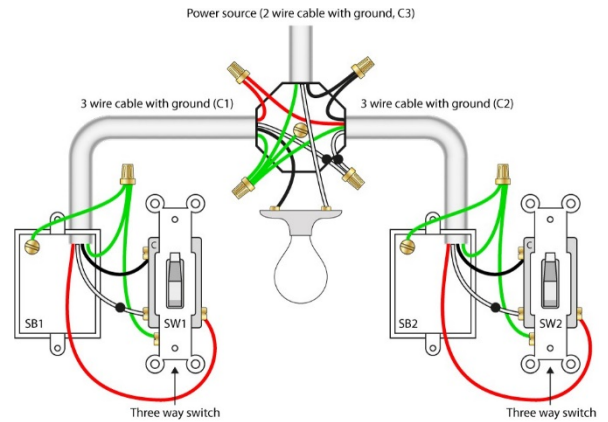
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3-Way Light Switch with Power Feed via the Light



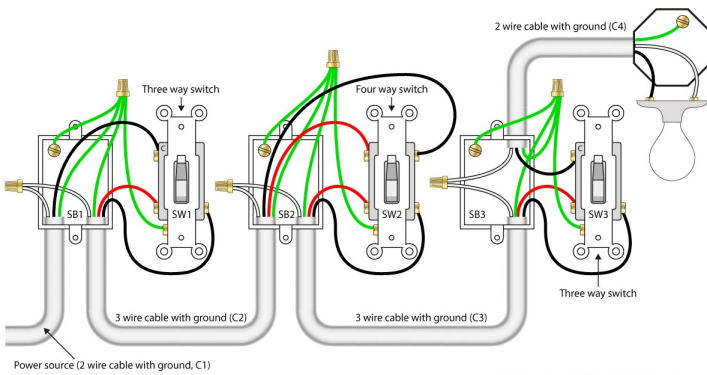
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Single Light between 3-Way Switches with Power via Light



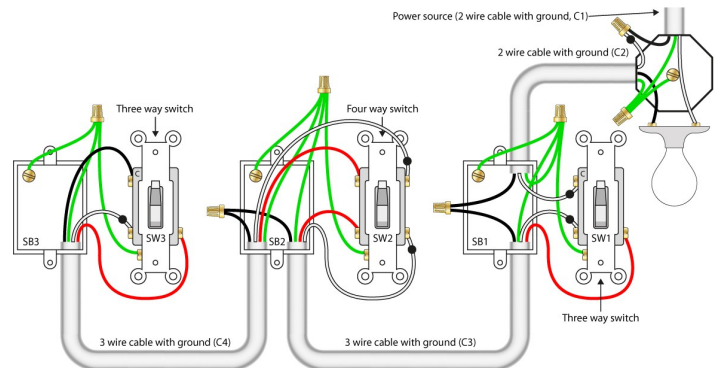
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4-Way Light Switch with Power Feed via the Light Switch



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4-Way Light Switch with Power Feed via the Light



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