ELECTRICAL DIAGRAMS

READING_GUIDE	NO_SIGN-UP	US / UK / AU →	FREE

ONE DIAGRAM
PER PAGE.
PLAIN WORDS.
HOT, NEUTRAL,
SWITCHES,
OUTLETS, GFCI.

FREE PDF GUIDE
19 PAGES

LOT 15 · HOME CIRCUITS MODULE

15

HOT / NEUTRAL / SWITCH / LOAD

READ THEM. DO NOT WIRE THEM.

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15

START HERE

Before you start

19 pages | Reading only

SAFETY FIRST. READ THIS ONCE.

- This guide teaches you to **read** diagrams. It does not teach installation, repair or changes to a home.
- Never open a breaker panel, switch plate or wall box. Call a licensed electrician.
- Voltage and colors change by country and by age of the home (US 120 V; GB and AU 230 V).

Each page has one diagram. Read the short text, follow the three points, then read the note at the bottom. About two minutes per page.

COLORS USED IN THE DIAGRAMS

Line	Meaning
Red	Hot (US) / live (GB, AU): carries power out
Blue	Neutral: brings the current back
Green dashed	Ground (US) / earth (GB, AU): safety path
Orange	Travelers between switches

These colors are for clarity in this guide only. They are not real colors in your home.

Reading guide, not installation instructions. Call a licensed electrician.
Study material. Electrical rules and colors vary by country: follow your local code.

Aa

SYMBOLS

The 13 symbols to know

WHAT YOU ARE SEEING

Learn these and most home diagrams stop looking like code.

Switch (on/off)

Two-way / three-way switch

Lamp / light

Outlet / socket

Breaker

AC source

Dimmer

Ground (earth)

Lines joined (dot)

Lines crossing, not joined

Ceiling fan

Smart (radio)

Half-switched outlet

HOW TO READ IT

- A dot where lines meet means **connected**.
- Lines that cross without a dot are **not connected**.
- A wedge on a switch means **dimmer**; radio arcs mean **smart**.

Caution: The colors and symbols here are for reading only. A drawing never tells you what a real line is.

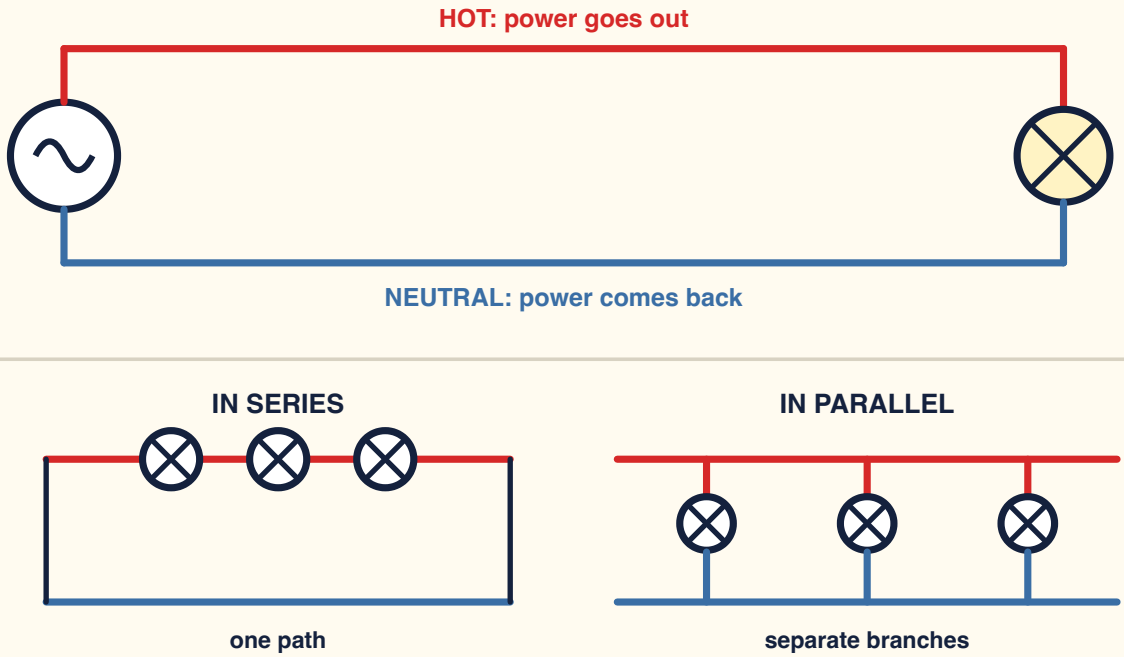
01

DIAGRAM 1 OF 15

The basic loop

WHAT YOU ARE SEEING

Every circuit is a loop. Power leaves the source on the hot line, passes the load, and returns on neutral. The rest of this guide builds on this page.



HOW TO READ IT

- Follow the red line from the source to the lamp.
- The blue line brings the current back.
- Below: lamps in series share one path, lamps in parallel each get their own branch. In a home, lamps and outlets hang side by side, not in a row.

Caution: A drawing is a simplified version of a real circuit. Use it to read symbols only.

Other countries: GB/AU: hot = live

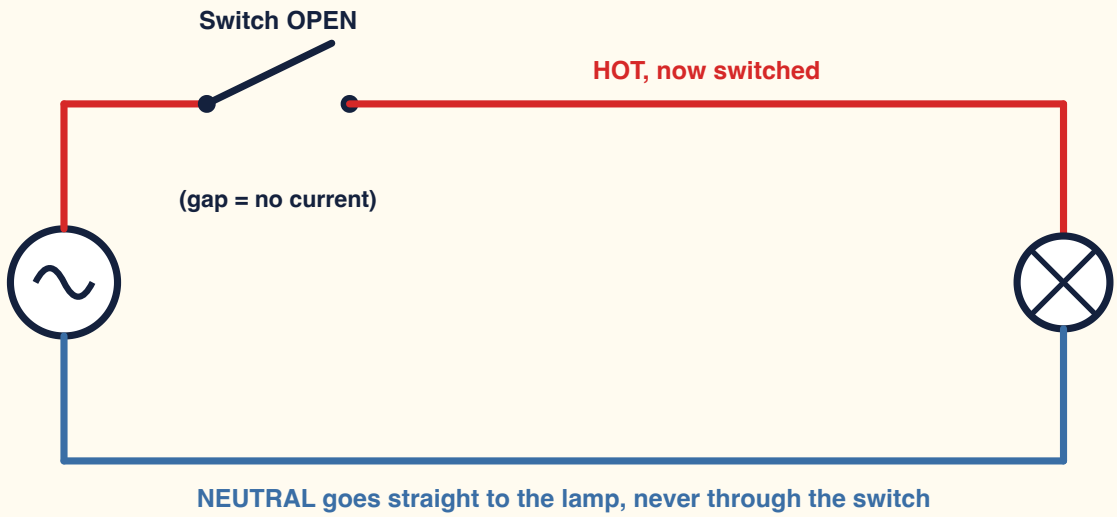
02

DIAGRAM 2 OF 15

The switch

WHAT YOU ARE SEEING

A single-pole switch sits on the hot line only. Open, it leaves a gap and the lamp is off. Closed, it completes the loop.



HOW TO READ IT

- The switch sits on the red line.
- The red line after the switch is called switched hot.
- The blue line goes straight to the lamp.

Caution: In drawings, the switch is always on the hot side. A drawing cannot tell you what a real wire is.

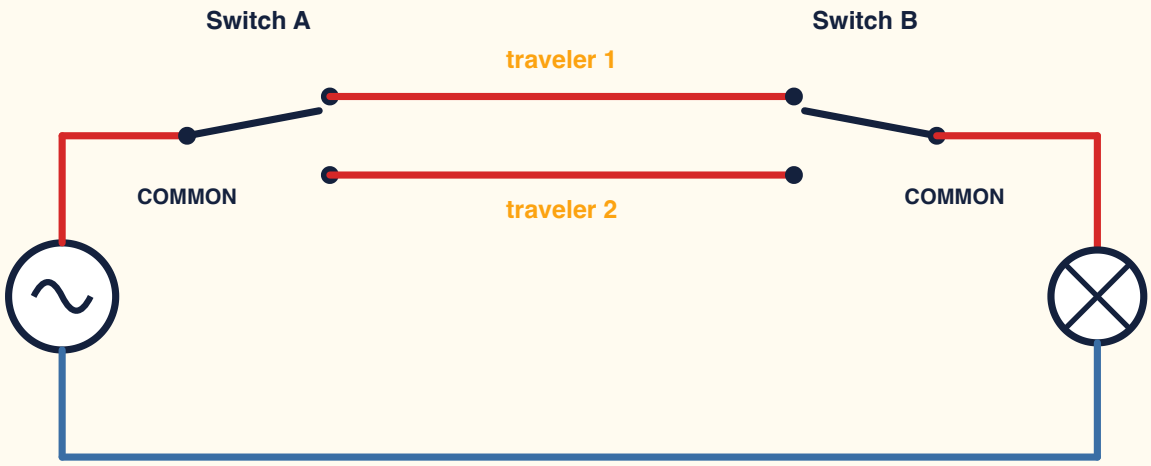
03

DIAGRAM 3 OF 15

Two switches, one lamp

WHAT YOU ARE SEEING

Think of the light at the top and the bottom of a staircase: two switches, one lamp. Each switch has a common point and two travelers between them.



Either switch can change the path: two-way in GB and AU, three-way in the US.

HOW TO READ IT

- Switch A takes power in at its common.
- Two travelers (orange) link the switches.
- Switch B sends power on from its common to the lamp.

Caution: Use the drawing to learn the symbols, nothing more. It never tells you what is true in a real home. Any question about your home goes to a licensed electrician.

Other countries: US: three-way · GB/AU: two-way

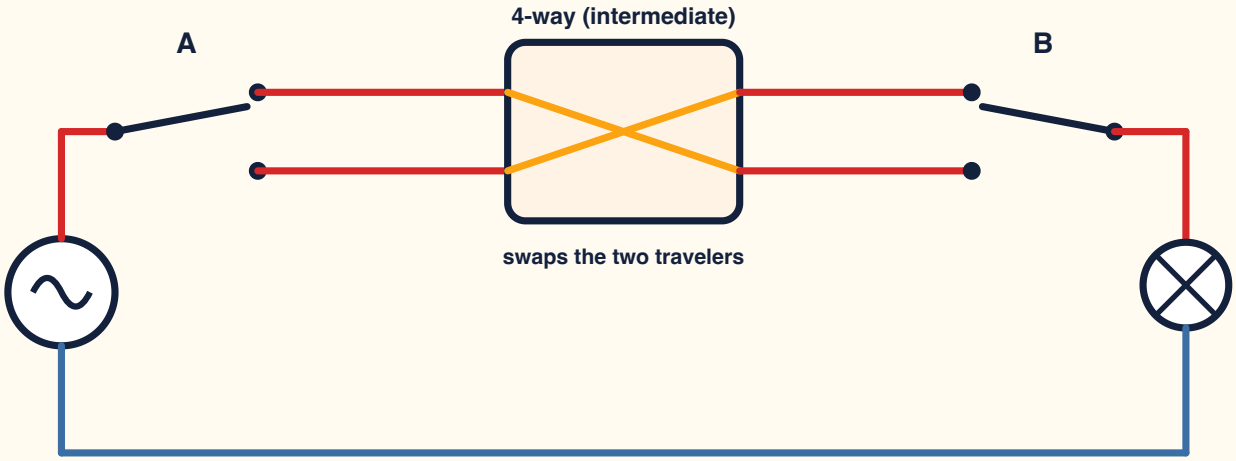
04

DIAGRAM 4 OF 15

A third control point

WHAT YOU ARE SEEING

A four-way switch sits between the two travelers and swaps them. It gives a third control point.



Each extra control point is drawn as another middle box.

HOW TO READ IT

- A and B stay at the ends.
- The middle box crosses the two travelers.
- Each extra control point is drawn as another middle box.

Caution: The most confusing diagram for beginners. Read the crossed lines first, then the ends.

Other countries: US: 4-way · GB/AU: intermediate switch

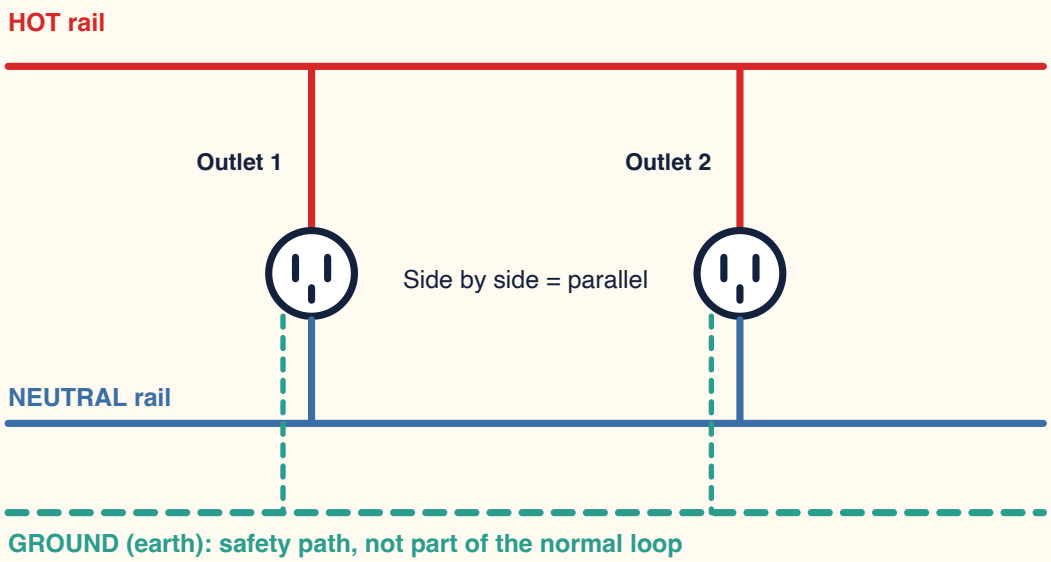
05

DIAGRAM 5 OF 15

Outlet

WHAT YOU ARE SEEING

Outlets hang between the hot rail and the neutral rail, side by side. That is parallel: each outlet gets full voltage.



HOW TO READ IT

- Each outlet is its own branch between the two rails.
- The dashed green line is the ground (earth): a safety path.
- One branch does not depend on the other.

Caution: Use the drawing to learn the symbols, nothing more. It never tells you what is true in a real home. Any question about your home goes to a licensed electrician.

Other countries: US: outlet, receptacle, 120 V · GB/AU: socket or power point, 230 V

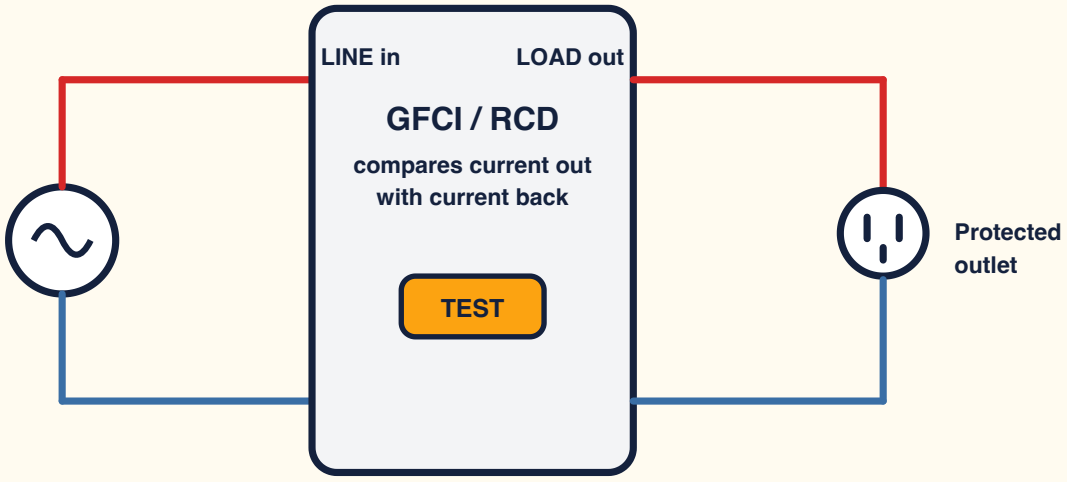
06

DIAGRAM 6 OF 15

GFCI / RCD

WHAT YOU ARE SEEING

A GFCI or RCD compares the current going out with the current coming back. When the two numbers differ, the symbol is drawn tripping.



If the two currents differ, it trips in a fraction of a second.

HOW TO READ IT

- LINE is where power comes in; LOAD is what the symbol protects.
- The box carries a button labeled TEST. This page only names it.
- The protected outlet sits on the LOAD side.

Caution: From a drawing you cannot tell what is wrong in a real home. Any concern goes to a licensed electrician.

Other countries: US: GFCI · GB: RCD · AU: safety switch (RCD)

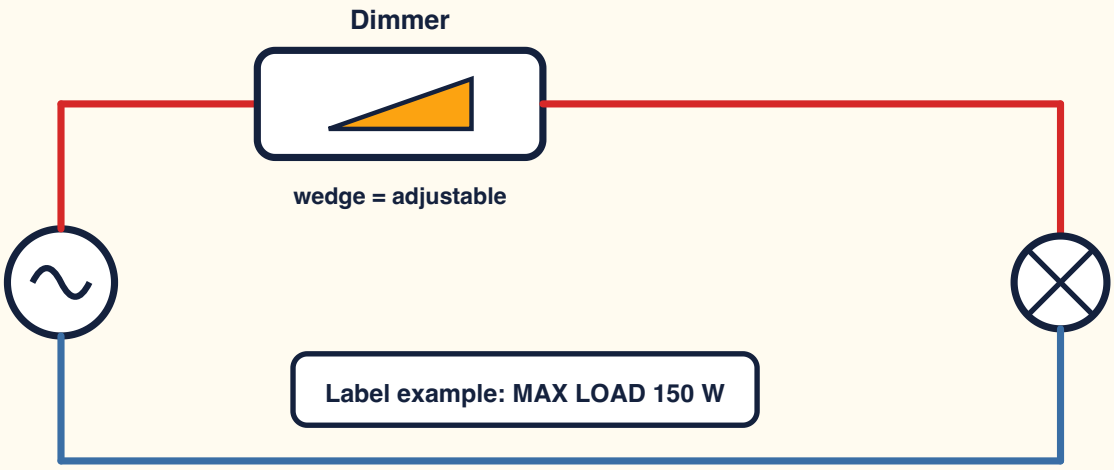
07

DIAGRAM 7 OF 15

Dimmer

WHAT YOU ARE SEEING

A dimmer sits on the hot line in place of a plain switch. The wedge symbol means the amount of power is adjustable.



HOW TO READ IT

- Same loop as the basic switch, with the dimmer box on the red line.
- The wedge is the standard dimmer symbol.
- A real dimmer is labelled with its maximum load in watts. The drawing only gives an example.

Caution: The symbol does not say which lamps suit a dimmer. Any question about your home goes to a licensed electrician.

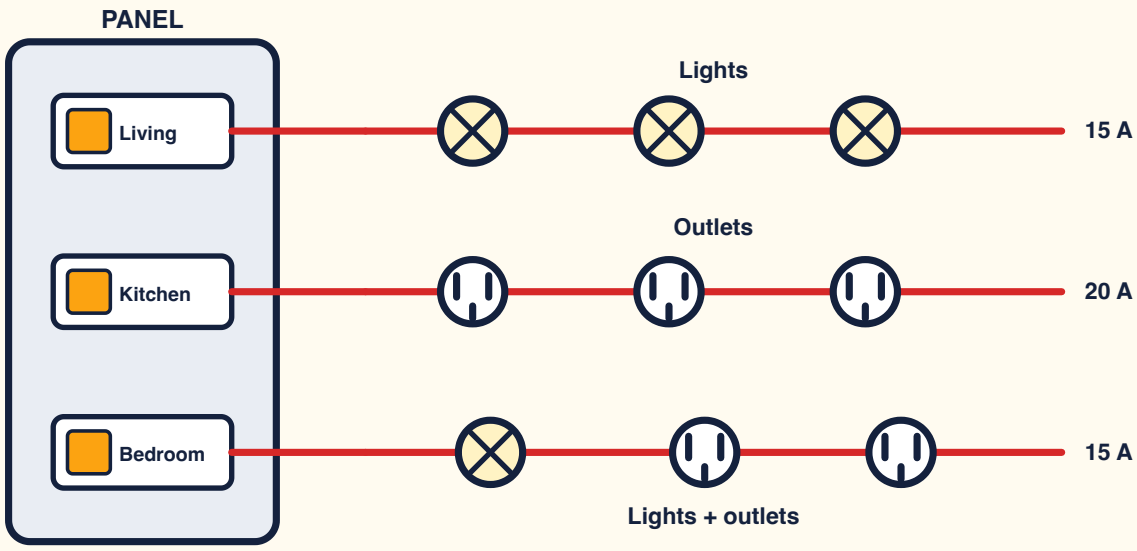
08

DIAGRAM 8 OF 15

Which breaker feeds what

WHAT YOU ARE SEEING

Every home is split into several circuits. The map groups the lights and outlets that sit behind one breaker.



HOW TO READ IT

- Each breaker feeds one line of the map.
- When a breaker trips, everything after it goes dark.
- The number (15 A, 20 A) is the ceiling for that circuit: the most current it may carry.

Caution: The map shows who shares what. It does not say if a real circuit is safe. Ask a licensed electrician about your own home.

Other countries: GB/AU: MCB = circuit breaker

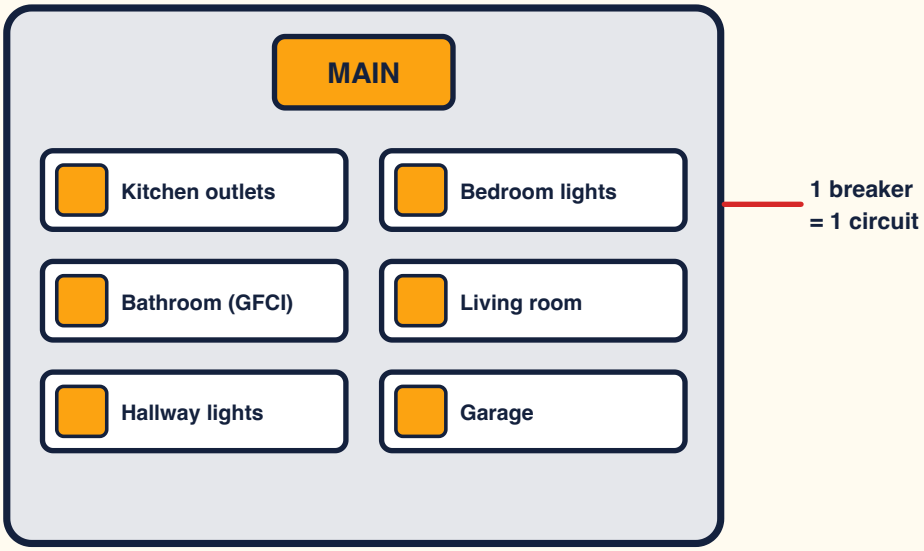
09

DIAGRAM 9 OF 15

Breaker panel

WHAT YOU ARE SEEING

A panel is a row of breakers, each guarding one circuit. The directory is a map of what each breaker controls.



Reading only: the label is the circuit directory. Do not open the panel cover.

HOW TO READ IT

- MAIN feeds everything below it.
- One breaker, one circuit.
- Labels like "Kitchen outlets" say which room a breaker feeds.

Caution: Read the labels only. Opening the panel cover is a job for licensed electricians.

Other countries: UK: consumer unit, AU: switchboard

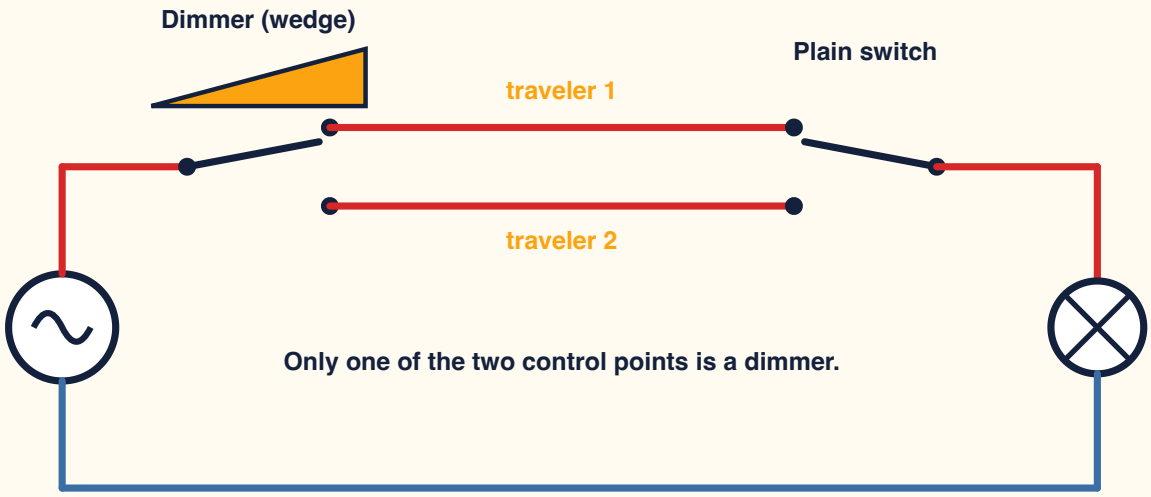
10

DIAGRAM 10 OF 15

Dimmer at two control points

WHAT YOU ARE SEEING

One lamp, two places to control it, and one of them is a dimmer. Both sit in the same circuit in the drawing.



HOW TO READ IT

- The wedge box is the dimmer. The second point is a regular three-way switch.
- The two travelers connect them, just like on the three-way page.
- Only one point adjusts brightness.

Caution: Use the drawing to learn the symbols, nothing more. What can be combined in a real home is up to an electrician to decide.

Other countries: GB/AU: two-way dimming

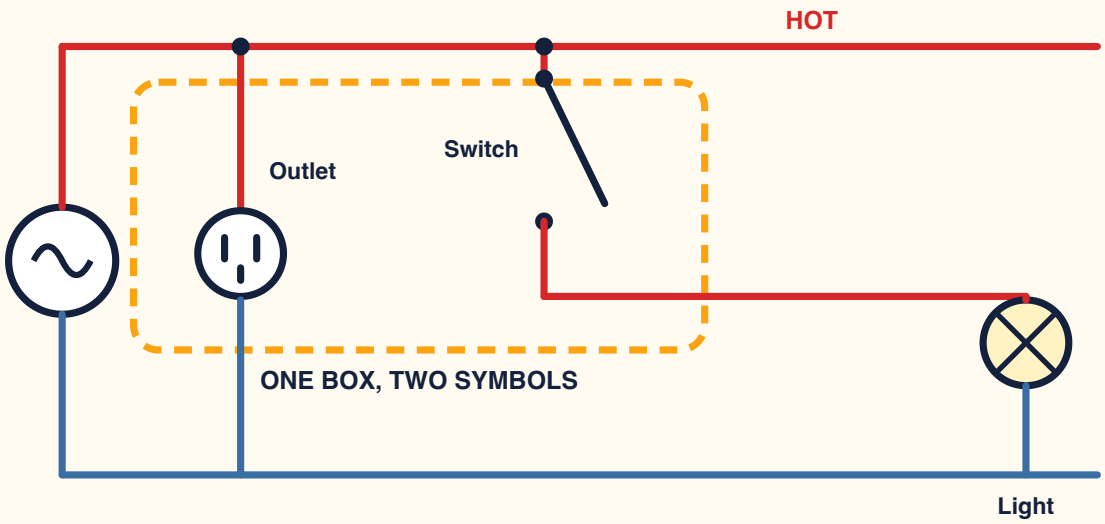
11

DIAGRAM 11 OF 15

One box, a switch and an outlet

WHAT YOU ARE SEEING

You may find a switch and an outlet behind the same wall plate. The drawing keeps them apart: two separate parts of a circuit.



The outlet stays live. The switch only sits on the path to the light.

HOW TO READ IT

- The dashed outline is the one box they share.
- The switch sits on the path to the light.
- The outlet sits between hot and neutral and stays powered in the drawing.

Caution: Sharing a box is not sharing a path. A drawing cannot judge a real wall.

Other countries: US: combination device

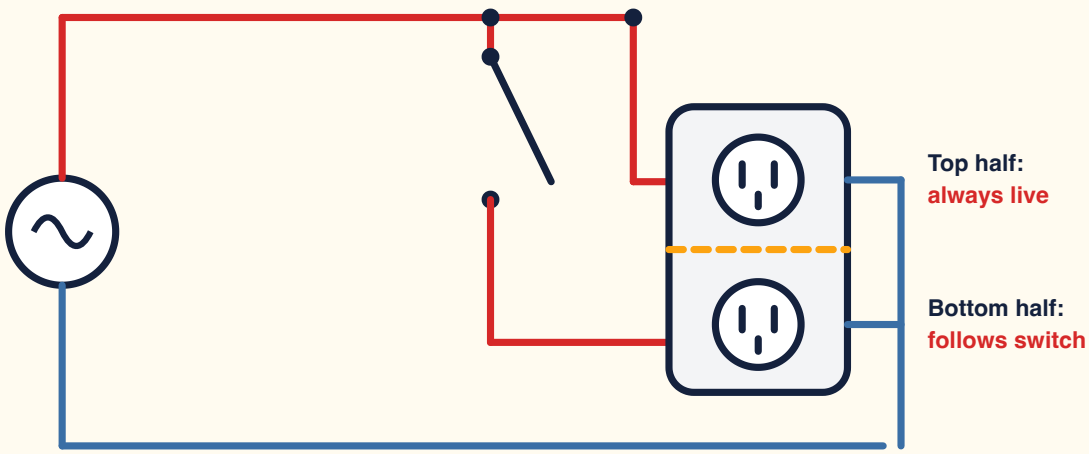
12

DIAGRAM 12 OF 15

One outlet, two halves

WHAT YOU ARE SEEING

One outlet has two halves. The top half stays powered; the bottom half follows a wall switch.



The amber line splits the two halves of one outlet.

HOW TO READ IT

- The top half goes straight to the hot rail, so it is always live.
- The bottom half reaches the hot rail only through the switch.
- The dashed amber line splits the two halves of the outlet.

Caution: You cannot see from the outside of a real outlet which half is switched. Leave that to a licensed electrician.

Other countries: US: split receptacle

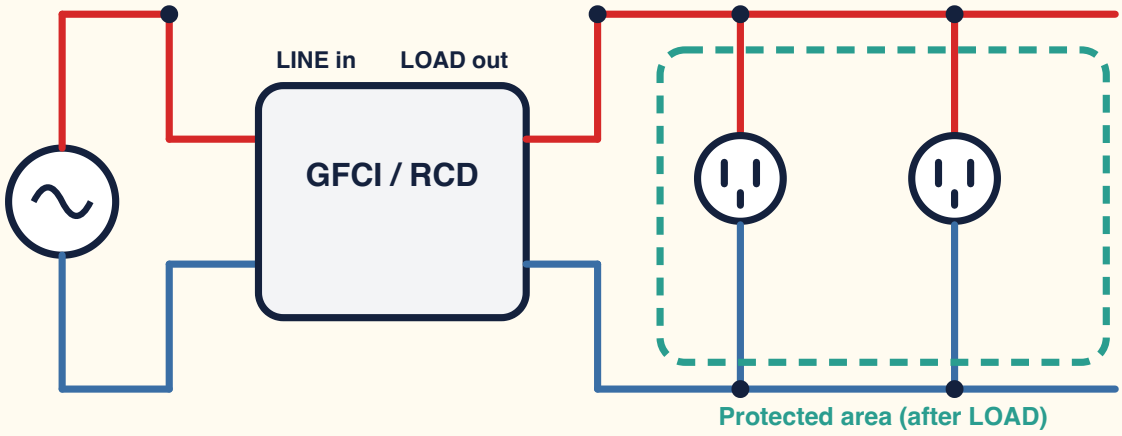
13

DIAGRAM 13 OF 15

One GFCI, next outlets protected

WHAT YOU ARE SEEING

The single GFCI page shows one outlet. This page shows protection reaching the outlets that come after it.



HOW TO READ IT

- LINE is the input of the symbol; LOAD is the output.
- The dashed green area marks what the symbol protects.
- Anything upstream of the GFCI is not inside the protected area.

Caution: On a real device the drawing cannot show you which line goes to which terminal. Leave that to a licensed electrician.

Other countries: US: LINE and LOAD · GB: RCD at the consumer unit · AU: safety switch

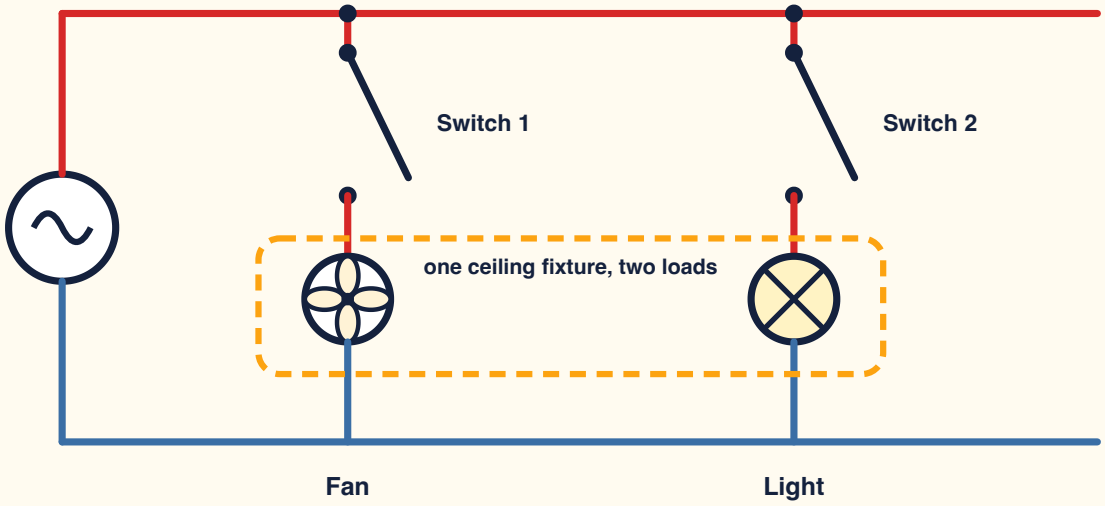
14

DIAGRAM 14 OF 15

Fan with light

WHAT YOU ARE SEEING

A ceiling fan with a light is really two loads in one. In the drawing each load gets its own switch.



HOW TO READ IT

- The hot rail splits into two branches.
- One ends at the fan symbol (circle with blades), the other at the lamp.
- Both come back on the same neutral rail.

Caution: The drawing shows loads only. Weight and mounting are not part of it. A real fan is a job for a licensed electrician.

Other countries: US: fan with light kit

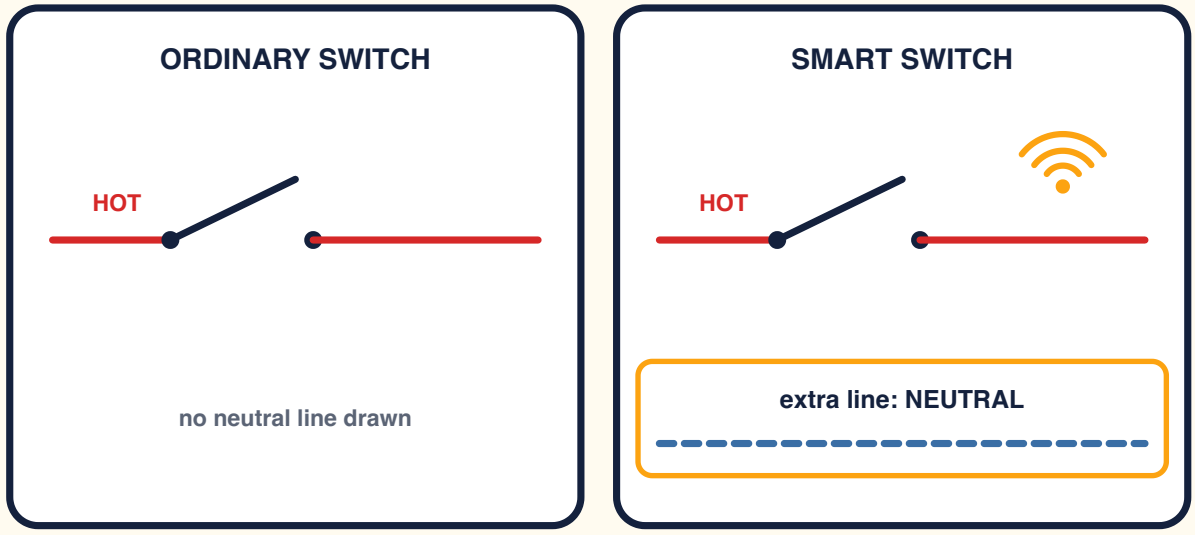
15

DIAGRAM 15 OF 15

Smart switch

WHAT YOU ARE SEEING

Take a plain switch symbol and add two marks: radio arcs and a neutral line. That is the smart switch.



HOW TO READ IT

- Radio arcs mean the switch talks to the home wirelessly.
- The extra line is the neutral, which the plain switch next to it does not have.
- The rest of the loop reads like the single switch.

Caution: This page covers the symbol and nothing else. It says nothing about any home or product.

CHEAT SHEET

Keep practicing

Pick one diagram a day and follow it with your finger: source, hot, switch, load, neutral, back. If you can say the path out loud, you can read it. Questions about your own home: ask a licensed electrician.

US, GB AND AU TERMS

US	UK	Australia
hot wire	live wire	active (live) wire
neutral	neutral	neutral
ground	earth	earth
mains voltage: 120 V	230 V	230 V
outlet / receptacle	socket	power point (GPO)
split receptacle	as drawn	as drawn
breaker panel	consumer unit	switchboard
GFCI	RCD	RCD or safety switch
GFCI with LINE / LOAD	RCD at the consumer unit	RCD or safety switch
three-way switch	two-way switch	two-way switch
four-way switch	intermediate switch	intermediate switch
dimmer	dimmer switch	dimmer
smart switch	smart switch	smart switch

Same ideas, different words. The US uses 120 V outlets; GB and AU use about 230 V.

TEST WHAT YOU LEARNED

Take the free quiz on **pouplix.com** and keep this PDF on your phone.

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