Jico Electronics

Electronics reference guide

Resistor Colour Code Reference Guide

Quickly read resistor bands, calculate values, and check tolerance ranges.

How to Read a 4-Band Resistor

1
First digit

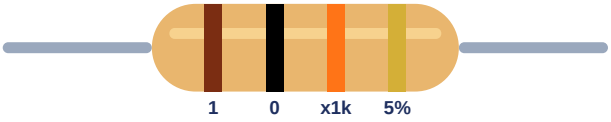
2
Second digit

3
Multiplier

4
Tolerance

Example: Brown - Black - Orange - Gold

Brown = 1, Black = 0, Orange = x1k, Gold = +/- 5%



Result: 10 kOhms +/- 5%

Tolerance range: 9.5 kOhms to 10.5 kOhms

Quick Notes

What is tolerance?

Tolerance is the accepted variation from the printed resistor value.

Which side do I read from?

Start from the side where the colour bands are grouped closer together.

Why use the calculator?

It reduces mistakes when working quickly with small components.

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Colour Code Chart

Reference Table

Use the chart below to identify each band colour. The first two or three bands are digits, the next band is the multiplier, and the last band is tolerance.

Colour	Band Colour	Digit	Multiplier	Tolerance
Black		0	x1	-
Brown		1	x10	+/- 1%
Red		2	x100	+/- 2%
Orange		3	x1k	-
Yellow		4	x10k	-
Green		5	x100k	+/- 0.5%
Blue		6	x1M	+/- 0.25%
Violet		7	x10M	+/- 0.1%
Grey		8	x100M	+/- 0.05%
White		9	x1G	-
Gold		-	x0.1	+/- 5%
Silver		-	x0.01	+/- 10%

Helpful reminder

Gold and silver are normally used for multiplier or tolerance bands, not for the first digit bands.

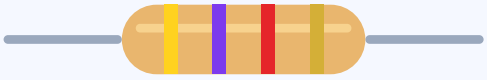
Quick Examples and Practical Notes

Red - Red - Brown - Gold

220 Ohms +/- 5%

Yellow - Violet - Red - Gold

4.7 kOhms +/- 5%



Brown - Black - Red - Gold

1 kOhm +/- 5%

Useful Tips

4-Band Resistors

Most common for general use. Read two digits, multiplier, then tolerance.

5-Band Resistors

Used for higher precision. Read three digits, multiplier, then tolerance.

Formula

4-Band: Resistance = first two digits x multiplier

5-Band: Resistance = first three digits x multiplier

Tolerance gives the possible minimum and maximum value of the resistor.