



IP RATINGS EXPLAINED

The 'IP' in IP codes, or sometimes called IP ratings, stands for "Ingress Protection". These codes rate the degree of protection that a housing offers from objects such as dust and water. These ratings are defined by the IEC 60529 Standard. The standard makes it possible to quantify the degree of protection instead of using a subjective term like "waterproof."

Example: Referencing the tables below, **IP68** would mean that the product is **completely sealed against dust intrusion** and could be continuously immersed in water deeper than one meter.

SOLIDS - The first number stands for the degree of protection against solids.

Level:	Object Size Protected Against:	Effective Against:
0	—	No protection against contact and ingress of objects.
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part.
2	>12.5 mm	Fingers or similar objects.
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact.
6	Dust tight	No ingress of dust; complete protection against contact.

LIQUIDS - The first number stands for the degree of protection against liquids.

Level:	Object Size Protected Against:	Effective Against:
0	Not protected	—
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.
4	Splashing water	Water splashing against the enclosure from any direction shall have no harmful effect.
5	Water jets	Water projected by a nozzle (6.3 mm) against the enclosure from any direction shall have no harmful effect.
6	Powerful water jets	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effect.
7	Immersion up to 1 meter	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 meter of submersion).
8	Immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.

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