

What is IP rating?

The IP ratings were introduced as a standard the aim being to provide the user with more detailed information rather than the former use of vague terms as waterproof, water resistant, dust resistant.

The IP Code, International Protection marking, ratings are defined in the international standard IEC standard 60529. They are used to define levels of sealing effectiveness of electrical enclosures or housings, from intrusion of foreign bodies (tools, hands and fingers, etc) and also its water ingress resistance .

There are usually two numbers in the IP rating the first number indicates the degree of mechanical protection this can be to protect the user from moving parts but also to protect the enclosed equipment from ingress by particles, tools or dust etc. The second number indicates the degree of moisture protection in various forms such as condensation water spray or submersion.

The table set out below gives the definitions for each number. Any number replaced by x indicates the enclosure is not rated for that specification.

IP Rated Enclosures

First Digit (mechanical protection)

- 0 No special protection
- 1 Protection from a large part of the body such as a hand (but no protection from deliberate access); from solid objects greater than 50mm in diameter.
- 2 Protection against fingers or other object not greater than 80mm in length and 12mm in diameter.
- 3 Protection from entry by tools, wires etc, with a diameter of 2.5 mm or more.
- 4 Protection against solid bodies larger than 1mm (eg fine tools/small etc).
- 5 Protected against dust that may harm equipment.
- 6 Totally dust tight.

Second Digit (moisture resistance)

- 0 No protection.
- 1 Protection against condensation.
- 2 Protection against water droplets deflected up to 15° from vertical
- 3 Protected against spray up to 60° from vertical.
- 4 Protected against water spray from all directions.
- 5 Protection against low pressure water jets (all directions)
- 6 Protection against string water jets and waves.
- 7 Protected against temporary immersion.
- 8 Protected against prolonged effects of immersion under pressure.