

IP (Ingress Protection) Rating for Equipment and Enclosures

A three-digit number is used to provide an IP Rating to a piece of electronic or to an enclosure for electronic equipment. The three digits represent three different forms of environmental influence:

The first digit represents protection against ingress of solid objects

The second digit represents protection against ingress of liquids

The third digit represents protection against mechanical impact damage.

The third digit is often omitted, resulting in a 2-digit IP Rating covering ingress against solid objects and liquids only. The larger the value of each digit, the greater the protection from that influence. As an example, a product rated as IP573 would be better protected against environmental factors than another similar product that was only rated as IP432. The third digit (mechanic impact) may be omitted.

Value	First Digit Protection against ingress of Solids	Second Digit Protection against ingress of liquids	Third Digit Protection against mechanical impact damage
0	No protection	No protection	No protection
1	Protected against solid objects over 50mm e.g. hands, large tools	Protected against direct vertically falling drops of water	Protected against 0.225 joule impact (150g @ 15cm).
2	Protected against solid objects over 12mm e.g. hands, large tools.	Protected against direct sprays of water up to 15° from vertical.	Protected against 0.375 joule impact (250g @ 15cm)
3	Protected solid objects over 2.5mm e.g. wire, small tools	Protected against direct sprays of water up to 60° from vertical	Protected against 0.375 joule impact (250g @ 20cm).
4	Protected against solid objects over 1.0mm e.g. wires	Protected against water sprayed from any direction. Limited ingress permitted.	
5	Limited protection against dust ingress (no harmful deposit)	Protected against low pressure water jets from any direction. Limited ingress permitted.	Protected against 2.0 joule impact (500g @ 40cm).
6	Totally protected against dust ingress	Protected against high pressure water jets from any direction. Limited ingress permitted.	
7		Protected against immersion between 15cm and 1M.	Protected against 6.0 joule impact (1.5Kg @ 40cm).
8		Protected against immersion under pressure.	
9			Protected against 20 joule impact (5kg @ 40cm) Protected against 0.225 joule impact (150g @ 15cm).cm).