



Design by Initiative LLC

IP Ratings (Ingress Protection) Rating for Equipment and Enclosures

A three-digit number established by the International Electro technical Commission, is used to provide an IP Rating to a piece of electronic equipment or to an enclosure for electronic equipment. The IP code indicates the level, or amount of the protection.

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.

	First Number (Solids)	Second Number (Liquids)	Third Number (Mechanical Impact)
0	No protection	No protection	No protection
1	Protected against solid objects over 50mm e.g. hands, large tools.	Protected against vertically falling drops of water or condensation.	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 against solid objects over 2.5mm e.g. wire, small tools.	Protected against direct sprays of water up to 60° from vertical.	Protected against 0.5 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. (Shipdeck)	
7	N/A	Protected against the effects of immersion between 15cm and 1M.	Protected against 6.0 joule impact (1.5Kg @ 40cm).
8	N/A	Protected against long periods of immersion under pressure.	
9	N/A	N/A	Protected against 20 joule impact (5Kg @ 40cm). Protected against 0.225 joule impact (150g @ 15cm).