

IP Ratings Explained

An IP rating (or Ingress Protection rating) is an international standard rating that indicates how well the enclosure of an electrical device like a two-way radio is protected against the entry of solids and liquids. When choosing a two-way radio, the IP rating is an important factor to consider; what kind of environmental challenges are your radios going to face during day-to-day use that you need to protect against?

For some environments you might not need any special protection. Some workplaces might only require protection against the occasional accidental drop in a puddle, whereas others need a radio that is completely dustproof and waterproof.

The first number in an IP rating indicates how well the device resists foreign materials getting into it.

0. No special protection
1. Protected against objects greater than 50mm in diameter
2. Protected against objects greater than 12.5mm in diameter
3. Protected against objects greater than 2.5mm in diameter (tools/thick wires)
4. Protected against objects larger than 1mm (wires/screws or large ants)
5. Dust protected – not entirely prevented but cannot enter in sufficient quantity to interfere with the operation of the equipment
6. Complete protection (dust tight)

The second number shows resistance to liquid ingress (fresh water only).

0. None
1. Protected against dripping water (vertically falling drops)
2. Protected against dripping water (when tilted at 15 degrees)
3. Protected against spraying water (at any angle up to 60 degrees)
4. Protected against splashing water
5. Protected against low pressure water jets
6. Protected against powerful water jets and waves
7. Protected against temporary immersion (up to 1 metre in depth) for up to 30 minutes
8. Protected against prolonged immersion under pressure (beyond 1 metre)

The Motorola SL4000e, which is commonly used in retail and other environments where it doesn't have to withstand the elements, has a rating of IP54 and so is well protected against dust and can withstand splashing water.

The Motorola DP4400E on the other hand is built for more rugged environments like building sites and has the highest possible IP rating of IP68, meaning it is completely protected against dust and can withstand prolonged immersion in fresh water under pressure.

