



INGRESS PROTECTION

IP Code

The **IP Code, International Protection Marking**, IEC standard 60529, sometimes interpreted as **Ingress Protection Marking**, classifies and rates the degree of protection provided against intrusion (body parts such as hands and fingers), [dust](#), accidental contact, and water by mechanical casings and [electrical enclosures](#). It is published by the [International Electrotechnical Commission](#) (IEC). The equivalent European standard is EN 60529.

The standard aims to provide users more detailed information than vague marketing terms such as *waterproof*. For example, a cellular phone rated at IP58 is "dust resistant" and can be "immersed in 1.5 meters of freshwater for up to 30 minutes". Similarly, an electrical socket rated IP22 is protected against insertion of fingers and will not be damaged or become unsafe during a specified test in which it is exposed to vertically or nearly vertically dripping water. IP22 or IP2X are typical minimum requirements for the design of electrical accessories for indoor use.

The digits indicate conformity with the conditions summarized in the tables below. The digit 0 is used where no protection is provided. The digit is replaced with the letter X when insufficient data has been gathered to assign a protection level.

IP60	Protected from total dust ingress.	Not protected from liquids.
IP61	Protected from total dust ingress.	Protected from condensation.
IP62	Protected from total dust ingress.	Protected from water spray less than 15 degrees from vertical.
IP63	Protected from total dust ingress.	Protected from water spray less than 60 degrees from vertical.
IP64	Protected from total dust ingress.	Protected from water spray from any direction.
IP65	Protected from total dust ingress.	Protected from low pressure water jets from any direction.
IP66	Protected from total dust ingress.	Protected from high pressure water jets from any direction.
IP67	Protected from total dust ingress.	Protected from immersion between 15 centimeters and 1 meter in depth.
IP68	Protected from total dust ingress.	Protected from long term immersion up to a specified pressure.
IP69K	Protected from total dust ingress.	Protected from steam-jet cleaning.