

BrightOnLEDlighting

What is an IP number and why is it used?

LED lights and transformers may be given a number to signify its protection against solids and/or liquids. This rating is known as “Ingress Protection” and appears as “IP” followed by 2 or 3 digits.

The first digit of the rating indicates the level of protection against solid objects accessing harmful parts and the degree that equipment is protected against these foreign bodies, such as tools, dust or fingers.

The second digit indicates the level of protection from moisture. Occasionally a number is omitted and replaced with an “x”. This means it has not been tested or testing is not relevant.

The higher the number, the better the protection.

If a piece of equipment does not have an IP number it must not be used in bathroom zones 0, 1 or 2, or anywhere else with a wet or damp environment.

First number (Solid objects)	Definition	Second number (Liquids)	Definition
0	No protection	0	No protection
1	Protected against solids objects over 50mm (e.g. accidental touch by hands)	1	Protected against vertically falling drops of water
2	Protected against solids objects over 12mm (e.g. fingers)	2	Protected against direct sprays up to 15° from the vertical
3	Protected against solids objects over 2.5mm (e.g. tools and wires)	3	Protected against direct sprays up to 60° from the vertical
4	Protected against solids objects over 1mm (e.g. tools, wires and small wires)	4	Protected against sprays from all directions - limited ingress permitted
5	Protected against dust - limited ingress (no harmful deposit)	5	Protected against low pressure jets of water from all directions - limited ingress permitted
6	Totally protected against dust	6	Protected against strong jets of water e.g. for use on ship decks - limited ingress permitted
		7	Protected against the effects of temporary immersion between 15cm and 1m. Duration of test 30 minutes
		8	Protected against long periods of immersion under pressure

Bathroom Zones



For the purposes of installing electrical equipment, a bathroom is divided into zones. The criteria for each zone is based on the risk of electric shock. The zones relate to the IP rating of products and where they can be safely installed.

Zone 0 - the interior of the bath or shower that can hold water. Requires electrical products to be low voltage (max 12V) and rated IPX7.

Zone 1 - the area directly above zone 0, limited to a height of 2.25m above the bath or shower. Requires electrical products to have an IPX4 or better. Products should use safety extra low voltage (SELV) with the transformer located in zone 3 or beyond.

Zone 2 - the area beyond zones 0 and 1, stretching 0.6m horizontally and up to 2.25m vertically. Also includes the recessed area of a window with a sill next to the bath. Requires electrical products to have an IPX4 or better. SELV with the transformer located in zone 3 or beyond.

Zone 3 - the area beyond zone 2, stretching 2.4m horizontally and up to 2.25m vertically. There is not a specified IP number for this zone, although some products are marked as not for bathroom use. SELV or shaver units are permitted, all other portable electrical equipment is not.

All electrical work in a bathroom must be carried out by a qualified electrician, if you have questions in relation to bathroom lighting that are specific to your situation we strongly advise you contact a professional for further advice.

This Document is purely advisory and the information given is to the best of our knowledge but without responsibility.