

# International Standard - Ingress Protection

As you see a mark of IP68 or IP 65 or any other number on your electrical or electronic device, or your mobile phone, what does it tell you ? What do you understand by that ?



What is an IP rating?

## IP Rated Enclosures Explained

IP (or "Ingress Protection") ratings are defined in international standard EN 60529. They are used to define levels of sealing effectiveness of electrical enclosures against intrusion from foreign bodies (tools, dirt etc) and moisture.

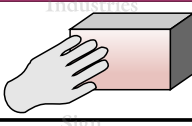

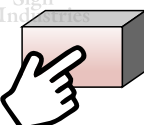

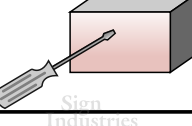
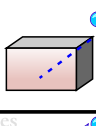
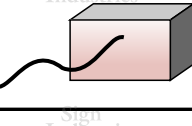
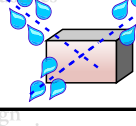
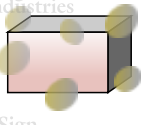

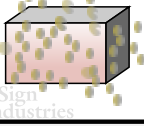

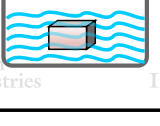
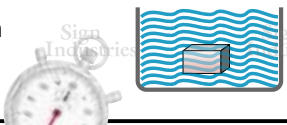


What do the numbers in an IP Rating mean?

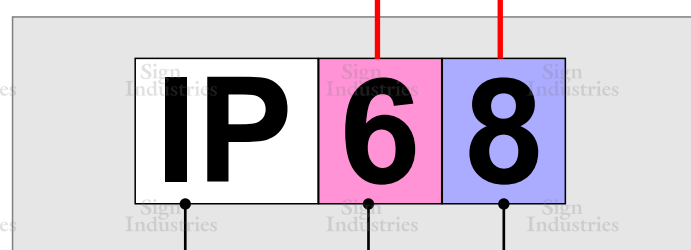
The numbers that follow the letters IP, each have a specific meaning.

The first number (digit) following IP indicates the degree of protection (of people) from moving parts, as well as the protection of enclosed equipment from foreign bodies & exterior particles.

The second number (digit) following IP defines the protection level that the enclosure enjoys from various forms of moisture and water (drips, rain, sprays, submersion etc). The tables below should help make sense of it:

## IP Ratings Chart

| First Index Number   | Foreign particle protection  | Second Index Number | Water protection   |
|--|--|---------------------|--|
| 1  | Protected against a solid object greater than 50mm such as a palm                                 | 1                   | Protected against vertically falling drops of water for 10 minutes @ of 1mm/min   |
| 2  | Protected against a solid object greater than 12.5mm such as a finger                             | 2                   | Protected against diagonally falling (upto 15°) drops of water for 10 minutes @ of 3mm/min    |
| 3  | Protected against a solid object greater than 2.5mm such as a screw driver                        | 3                   | Protected against diagonally falling (upto 60°) spray (from a hose) for 5 minutes at 0.7 LPM at 80-100 kPa    |
| 4  | Protected against a solid object greater than 1mm such as a wire                                  | 4                   | Protected against water splashed from all directions for 5 minutes at 10 LPM at 80-100 kPa    |
| 5  | Dust proof. Dust must not penetrate to an extent that equipment operation or safety are impaired  | 5                   | Protected against 6.3mm water nozzle for 3 minutes @ 12.5 LPM at 30 kPa at a distance of 3 m.   |
| 6  | Dust-tight: No ingress of dust    | 6                   | Protected against 12.5mm water nozzle for 3 minutes at 100 LPM @ 100 kPa at distance of 3 m   |
| <b>Ingress Protection (IP) and what it means</b><br>The IP Code (or International Protection Rating, sometimes also interpreted as Ingress Protection Rating*) consists of the letters IP followed by two digits and an optional letter. As defined in international standard IEC 60529, it classifies the degrees of protection provided against the intrusion of solid objects (including body parts like hands and fingers), dust, accidental contact, and water in electrical enclosures. The standard aims to provide users more detailed information than vague marketing terms such as waterproof, water resistant or sometimes as rain proof without specifics |  | 7                   | Protected against a 30 minutes submersion to a depth of 100 cms   |
|  |  | 8                   | Protected against continuous submersion to a depth of 300 cms   |
|  |  | 9                   | (as per DIN 40050) Protection against -water jet at 0, 30, 60, & 90 degrees for 30 seconds each - Distance 10-15 cms / Water volume 14-15 LPM Water Temp: 176 deg F*+/- 5 deg Water Pressure: 80-100 bar  |
| Chart prepared by:<br> <b>Sign Industries Ltd.</b><br><a href="http://www.signindustries.co.tz">www.signindustries.co.tz</a><br>Sources:<br><a href="http://en.wikipedia.org/wiki/IP_Code">http://en.wikipedia.org/wiki/IP_Code</a><br><a href="http://www.dsmt.com/resources/ip-rating-chart/">http://www.dsmt.com/resources/ip-rating-chart/</a>  |  |                     |  |



Ingress Protection Marking

Protection against Solid

Protection against Water

Our LED Modules Are normally IP 68

Our LED Drivers Are normally IP66 & IP67

Upon special project IP68 rated drivers are Used

The digits (characteristic numerals) indicate conformity with the conditions summarized in the tables above. For example, 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 2X are typical minimum requirements for the design of electrical accessories for indoor use.

For more information on IP rating, visit:  
<http://www.dsmt.com/resources/ip-rating-chart/>