



Ingress Protection

Explanation of IP numbers for degrees of protection

The type of protection covered by this system of classification is as follows:

The first numeral indicates the degree of protection described under item A) and the second numeral the degree of protection described under item B)

A) Protection of persons against contact with or approach to live parts and against contact with moving parts (other than smooth rotating shafts and the like) inside the enclosure and protection of the equipment against ingress of solid foreign bodies.

B) Protection of the equipment inside the enclosure against harmful ingress of water.

The designation to indicate the degrees of protection consists of the characteristic letters IP followed by two numerals (the "characteristic numerals") indicating conformity with the conditions stated in tables 1 and 2 respectively.

| First Characteristic Numeral (A) | Degree Of Electrical Protection | |
|----------------------------------|--|---|
| | Short description | Brief details of objects which will be "excluded" from the enclosure |
| 0 | Non-protected | No special protection |
| 1 | Protected against solid objects greater than 50mm | A large surface of the body, such as a hand (but no protection against deliberate access). Solid objects exceeding 50 mm in diameter |
| 2 | Protected against solid objects greater than 12mm | Fingers or similar objects not exceeding 80 mm in length. Solid objects exceeding 12 mm in diameter |
| 3 | Protected against solid objects greater than 2,5mm | Tools, wires, etc., of diameter or thickness greater than 2,5 mm. Solid objects exceeding 2,5 mm in diameter |
| 4 | Protected against solid objects greater than 1,0mm | Wires or strips of thickness greater than 1,0 mm. Solid objects exceeding 1,0 mm in diameter |
| 5 | Dust-protected | Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the equipment |
| 6 | Dust-tight | No ingress of dust |

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Issue April 2012

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| Second characteristic Numeral (B) | Degree of protection | |
|--|--|---|
| | Short description | Details of the type of protection provided by the enclosure |
| 1 | Non-protected | No special protection |
| 2 | Protected against dripping water | Dripping water (vertically falling drops) shall have no harmful effect |
| 3 | Protected against dripping water when tilted up to 15° | Vertically dripping water shall have no harmful effect when the enclosure is tilted at any angle up to 15° from its normal position |
| 4 | Protected against spraying water | Water falling as a spray at an angle up to 60° from the vertical shall have no harmful effect |
| 5 | Protected against splashing water | Water splashed against the enclosure from any direction shall have no harmful effect |
| 6 | Protected against water jets | Water projected by a nozzle against the enclosure from any direction shall have no harmful effect |
| 7 | Protected against heavy seas | Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities |
| 8 | Protected against the effects of immersion | Ingress of water in a harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time |
| 9 | Protected against Submersion | The equipment is suitable for continuous submersion in water under conditions which shall be specified by the manufacturer. NOTE Normally, this will mean that the equipment is hermetically sealed. However with certain types of equipment it can mean that water can enter but only in such a manner that it produces no harmful effects |
| | Protection against chemical vapour | The equipment is suitable for hazardous areas where the chance of an explosion is high. The equipment needs to be designed so that, should vapours get into the equipment, these vapours are contained and any explosion that may occur will stay within the equipment causing no effect to the equipment or it's environment. |
| <p>Specialist cleaning techniques are not covered by IP ratings. Manufacturers are recommended to give appropriate information regarding cleaning techniques, where necessary. This is in line with the recommendations contained within IEC 60529 for specialist cleaning techniques</p> | | |

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