

IP indication**Solid particle protection****Liquid ingress protection**

IP

Single numeral: 0-6

Single numeral: 0-8

Solid particle protection

| Level | Object size protected against | Effective against |
|-------|-------------------------------|--|
| 0 | — | No protection against contact and ingress of objects |
| 1 | >50 mm | Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part |
| 2 | >12.5 mm | Fingers or similar objects |
| 3 | >2.5 mm | Tools, thick wires, etc. |
| 4 | >1 mm | Most wires, screws, etc. |
| 5 | Dust protected | Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact |
| 6 | Dust tight | No ingress of dust; complete protection against contact |

Liquid ingress protection

| Level | Protected against | Testing for | Details |
|-------|--------------------------------------|---|---|
| 0 | Not protected | — | — |
| 1 | Dripping water | Dripping water (vertically falling drops) shall have no harmful effect. | Test duration: 10 minutes Water equivalent to 1 mm rainfall per minute |
| 2 | Dripping water when tilted up to 15° | Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position. | Test duration: 10 minutes Water equivalent to 3 mm rainfall per minute |
| 3 | Spraying water | Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect. | Test duration: 5 minutes Water volume: 0.7 litres per minute Pressure: 80–100 kPa |
| 4 | Splashing of water | Water splashing against the enclosure from any direction shall have no harmful effect. | Test duration: 5 minutes Water volume: 10 litres per minute Pressure: 80–100 kPa |

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|---|----------------------|--|---|
| 5 | Water jets | Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects. | <p>Test duration: at least 3 minutes</p> <p>Water volume: 12.5 litres per minute</p> <p>Pressure: 30 kPa at distance of 3 m</p> |
| 6 | Powerful water jets | Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects. | <p>Test duration: at least 3 minutes</p> <p>Water volume: 100 litres per minute</p> <p>Pressure: 100 kPa at distance of 3 m</p> |
| 7 | Immersion up to 1 m | Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion). | <p>Test duration: 30 minutes</p> <p>Immersion at depth of at least 1 m measured at bottom of device, and at least 15 cm measured at top of device</p> |
| 8 | Immersion beyond 1 m | <p>The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer.</p> <p>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.</p> | <p>Test duration: continuous immersion in water</p> <p>Depth specified by manufacturer</p> |