

IEC/IP Coding system

What is the IEC?

The IEC is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

The Commission's objectives are:

- meet the requirements of global market efficiency
- ensure primacy and maximum world-wide use of its standards and conformity assessment schemes
- assess and improve the quality of products and services covered by its standards
- establish the conditions for the interoperability of complex systems
- increase the efficiency of industrial processes
- contribute to the improvement of human health and safety
- contribute to the protection of the environment

Where is the IEC/IP coding defined?

The following is brief overview of the coding system described in the IEC publication 529 and the DIN standard number 40050. Both standards code the classification of degrees of protection provided by enclosures. The complete definition of the IEC standard you can find in the mentioned documents.

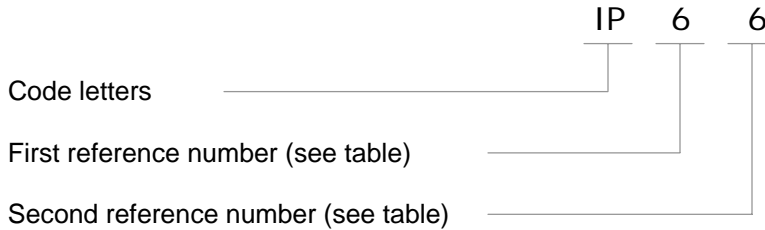
The meaning of the IP code

The two code letters, IP (international protection) followed by the two reference numbers, indicates the level of environmental protection. The first

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reference number indicates the protection level as to the penetration of solid objects. The second reference number indicates the protection level, if any, against water entry.

Example



As you can see in the table, the first letter in the example indicates a protection against solid objects greater than 1mm. The second letter indicates a protection against splashing water from any direction.

Table of reference numbers

Degrees of Protection Against Solid Objects		
Description	Definition	First reference number
Non-protected		0
Protected against solid foreign objects of 50mm diameter and greater	The object probe, sphere of 50mm diameter shall not fully penetrate	1
Protected against solid foreign objects of 12.5mm diameter and greater	The object probe, sphere of 12.5mm diameter shall not fully penetrate	2
Protected against solid foreign objects of 2.5mm diameter and greater	The object probe, sphere of 2.5mm diameter shall not penetrate at all	3
Protected against solid foreign objects of 1.0mm diameter and greater	The object probe, sphere of 1.0mm diameter shall not penetrate	4
Dust protected	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety	5
Dust tight	No ingress of dust	6

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Degrees of Protection Against Water		
Description	Definition	Second reference number
No protection		0
Protected against vertically falling water drops	Vertically falling water drops shall have no harmful effects	1
Protected against vertically falling water drops when enclosure tilted up to 15 degrees	Vertically falling water drops shall have no harmful effects when the enclosure is tilted at any angle up to 15 degrees on either side of the vertical axis	2
Protected against spraying water	Water sprayed at an angle up to 60 degrees on either side of the vertical axis shall have no harmful effects	3
Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects	4
Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects	5
Protected against powerful water jets	Water projected in powerful water jets against the enclosure from any direction shall have no harmful effects	6
Protected against the effects of temporary immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under standardized conditions of pressure and time	7
Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7	8