

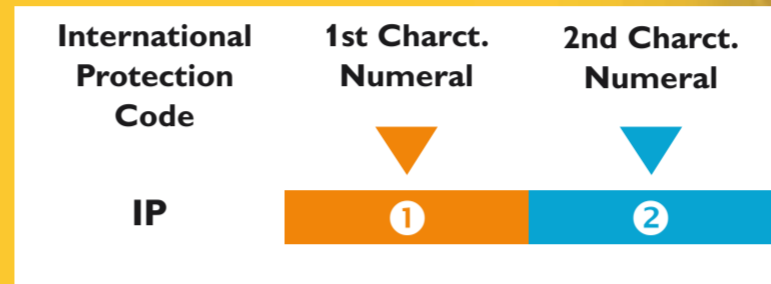
Sensor Actuator Cabling

High IP Protection Included

Degrees of Protection for Electrical Equipment

(According to IEC 60529 or EN 60529)

For safety reasons, housing must be used to protect electrical equipment from external influences, such as direct contact, foreign bodies, dust, moisture and water. The degree of protection provided by the housing for electrical equipment is indicated by an abbreviation, which comprises the letters IP and two characteristic numerals.



The first characteristic numeral indicates the level of contact and foreign body protection, and the second characteristic numeral indicates the water protection.

Degree of Protection Against Access to Dangerous Parts and Against Solid Foreign Bodies

Short Description	Definition
0 No special protection.	
1 Protected against touching dangerous parts with the back of hand. Protected against solid foreign bodies of Ø 50 mm and larger.	The access probe, a sphere Ø 50 mm, must be at a sufficient distance from dangerous parts. The object probe, a sphere Ø 50 mm, must not penetrate fully.*
2 Protected against touching dangerous parts with a finger. Protected against solid foreign bodies of Ø 12 mm and larger.	The test finger, Ø 12 mm, with a length of 80 mm, must be at a sufficient distance from dangerous parts. The object probe, a sphere Ø 12 mm must not penetrate fully.*
3 Protected against touching dangerous parts with a tool. Protected against solid foreign bodies of Ø 2,5 mm and larger.	The access probe, Ø 2.5 mm, must not enter. The object probe, Ø 2.5 mm, must not enter at all.*
4 Protected against touching dangerous parts with a wire. Protected against solid foreign bodies of Ø 1.0 mm and larger.	The access probe, Ø 1.0 mm, must not enter. The object probe, Ø 1.0 mm, must not enter at all.*
5 Dust-protected.	The penetration of dust is not completely prevented, but dust may not penetrate in such an amount that the satisfactory operation of the device or the safety is impaired.
6 Dust-proof.	No penetration of dust.

Degrees of protection 1 to 6 also include the lower degrees of protection.

*The complete diameter of the object probe must not pass through an opening in the housing.

Degree of Protection Against Water

Short Description	Definition
0 No special protection.	
1 Protected against dripping water.	Vertically falling drops must not have any detrimental effect.
2 Protected against drips if the housing is bent at an angle of 15°.	Vertically falling drops must not have any detrimental effect when the housing is inclined at an angle of up to 15° on both sides of the perpendicular.
3 Protected against spray water.	Water that is sprayed at an angle of up to 60° on both sides of the perpendicular must not have any detrimental effect.
4 Protected against splash water.	Water that is sprayed against the housing from every direction must not have any detrimental effect.
5 Protected against jet-water.	Water that is sprayed against the housing as a jet from every direction must not have any detrimental effect.
6 Protected against strong jet water.	Water that is sprayed against the housing as a strong jet from any direction must not have any detrimental effect.
7 Protected against the effects of temporary submersion in water.	Water must not penetrate in a quantity, which has any detrimental effect, if the housing is temporarily submerged in water under standard pressure and time conditions.
8 Protected against the effects of permanent submersion in water.	Water must not penetrate in a quantity, which has any detrimental effect, if the housing is submerged under water continuously under conditions to be agreed between the manufacturer and user. However, the conditions must be more stringent than those of characteristic numeral 7.
9 Protection against high pressure and vapor cleaning	Water that is sprayed against the housing with a spray nozzle that is fed with 80 °C water at 8-10 MPa (80-100 bar) and a flow rate of 14-16 L/min. The nozzle is held 10-15 cm from the tested device at angles of 0°, 30°, 60° and 90° for 30 s each. The test device sits on a turntable that rotates once every 12 s (5 rpm).

Degrees of protection 1 to 6 also include the lower degrees of protection.

Due to varying physical effects, this does not necessarily apply to degrees of protection 7 and 8.



Mehr Informationen unter
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