

## Industrial-Grade IP/IK Protection Rating Quick Reference Guide

Standard Basis: IP Protection – IEC 60529 / GB/T 4208–2017 | IK

Protection – IEC 62262 / GB/T 20138–2023 Applicable Scenarios:

Selection reference for industrial switches, industrial control equipment, outdoor meters and automation hardware

### I. IP Protection Rating (Dust + Water Resistance)

Format Description: IPXX, the first digit = dust protection grade (0–6), the second digit/character = water resistance grade (0–9K)

#### 1. Dust Protection Grade

Grade	Protection Scope	Industrial Application
0	No protection	Clean room equipment
1	Protection against large objects $\geq$ 50mm	Indoor cabinets
2	Protection against objects $\geq$ 12mm (fingers)	Indoor industrial control panels
3	Protection against tools and wires $\geq$ 2.5mm	Routine workshop equipment
4	Protection against fine particles and debris $\geq$ 1.0mm	Light industry environments
5	Dust protected (limited ingress, no functional impact)	Dusty workshops
6	Dust tight (complete protection)	Outdoor, heavy industry, high-dust

	against dust ingress)	hazard scenarios
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## 2. Water Resistance Grade

Grade	Protection Scope	Industrial Application
0	No protection	Dry and clean indoor areas
4	Protection against splashing water from any direction, no operational impact	Splash-proof workshop equipment
5	Protection against low-pressure water jets	Routine outdoor equipment
6	Protection against powerful water jets and sea wave scouring	Outdoor open-air, coastal scenarios
7	Short-term immersion in 1m water depth (30min)	Temporary wading, humid environments
8	Continuous immersion at specified water depth	Underwater equipment, buried wiring
9K	Protection against high-temperature and high-pressure steam cleaning at 80°C	Food, pharmaceutical, heavy industry cleaning scenarios

## 3. Quick Memorization of Commonly Used IP Combinations in Industry

IP20: Indoor dust and touch protection, no water resistance

IP54: Universal for workshops, dust protection + splash proof

IP65: Standard for outdoor use, dust tight + low-pressure water jet protection

IP67: Short-term immersion, humid/outdoor high-hazard scenarios

IP69K: High-temperature and high-pressure cleaning, exclusive for food and pharmaceutical industries

## II. IK Protection Rating (Impact Resistance)

Format Description: IKXX, Unit: Joule (J), a measure of equipment's resistance to external impact

<b>IK Grade</b>	<b>Impact Energy (J)</b>	<b>Industrial Application Scenarios</b>
IK06	1	Minor collision in indoor areas
IK07	2	Routine workshops, industrial control cabinets
IK08	5	Outdoor equipment, frequent collision scenarios
IK09	10	Heavy industry, logistics, high impact risk scenarios
IK10	20	Highest protection, high-hazard scenarios with heavy object impact and hammer strike

### **III. Quick Judgment for Industrial Selection**

- Standard Combination: IP65/IK08 for routine industrial equipment |  
IP67/IK10 for outdoor/high-hazard equipment
- Core Principle: Evaluate dust and water exposure for IP rating, and impact intensity for IK rating

This guide is for industrial product selection, solution compilation and customer explanation only.