

# SCHMERSAL Tech Briefs: IP69 / IP69K Rated Safety Devices



Electronic Solenoid Interlock



Safety Sensors



Safety Light Curtains and Grids



Joysticks, Pushbuttons & Enclosures

## Overview

Ingress Protection ratings are established in IEC 60529 (Degrees of protection provided by enclosures), rating electrical equipment for ingress of dust and water under various conditions. Subsequently, the German standard DIN 40050-9, which evaluates road vehicles that are exposed to regular and intensive cleaning, created a special IP rating class: IP69K. It established the requirements to withstand high pressure (to 1450 PSI) and high temperature (to 176° F / 80° C) wash downs. The rating became popular because it also met the cleaning requirements of hygienic applications in food processing, pharmaceutical, and medical industries, as well as in marine and other outdoor areas. Recently, IEC 60529 was updated to include an IP69 rating, meeting the same requirements as IP69K. And recently, ISO 20653 replaced DIN 40050-9 standard.

IP69 devices are characterized by fully enclosed housings, with special sealing at transition points, where parts move, or where wiring enters the device enclosure. Since IP69 devices are often found in hygienic applications, they are also typically designed to hygienic design standards. This includes smooth surface contours to limit possible places for food and other particles to aggregate that might promote bacterial growth.

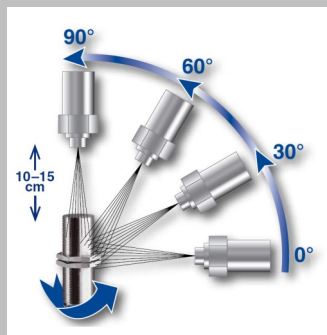
Application in hygienic environments also means these devices are exposed to various cleaning agents. These devices tend to be constructed of materials which stand up to most caustic cleaning solutions without degradation, thereby ensuring that a daily cleaning with harsh cleaners cannot harm the devices. Stainless steel V4A is a popular material. In this aspect, many of the Schmersal IP69 / IP69K devices also carry ECOLAB approval, allowing them to be used where industry approved cleaning agents are used.

Schmersal offers a variety of IP69 / IP69K safety devices, including solenoid interlocks, non-contact sensors, safety light curtains and grids, and machine controls such as pushbuttons, selector switches, joysticks, and indicator lights, and stainless steel protective enclosures with 1, 3, or 5 holes.



## IP69K Test Measures

The IP69K test is designed to insure that the device is able to withstand high-pressure and steam cleaning: The test device sits on a turntable that rotates once every 12 seconds (5 rpm) while a nozzle mounted 10–15 cm away sprays the device with water heated to 80°C (176°F) and pressurized to 80 – 100 bar with a flow rate of 14–16 Liters per min. The test is run with the nozzle at angles of 0° (horizontal), 30°, 60° and 90° (vertical) for 30 seconds each.



## Available Literature



GK-1 Safety Products Catalog



Command and Signaling Devices

## Various Models

Schmersal offers a variety of products designed to meet IP69 / IP69K standards:

**Electronic Solenoid Lock**  
AZM300 <sup>E</sup>

**Coded Magnet Safety Sensor**  
BNS16  
BNS40S \* <sup>E</sup>

**Electronic Safety Sensor**  
CSS30S \*  
RSS36 ST <sup>E</sup>

**Safety Light Curtains & Grids**  
SLC440COM + PH-COM4-ER-xx  
SLG440COM + PH-COM4-ER-xx

SLC440 + PH-440-ER-xx  
SLC440 + SH-440-ER-xx \* <sup>E</sup>  
SLG440 + PH-440-ER-xx  
SLG440 + SH-440-ER-xx \* <sup>E</sup>

SLC420...-69-RF  
SLG420...-69-RF

**Joysticks**  
RK  
NK <sup>H</sup>

**Controls** <sup>C</sup>  
NDT Pushbutton  
NDL Illuminated Pushbutton  
NDP Mushroom Button  
NDTP Mushroom Button  
NDLP Illuminated Mushroom Button  
NDRR E-Stop Button  
NME Signal light  
NML Signal light  
NW Selector switch  
NWSE Step switch  
NDAN Potentiometer dial  
NHS Main switch

**Pushbutton enclosures**  
NBGLC \* <sup>E</sup>

Additional approvals/features

- \* Stainless Steel
- <sup>E</sup> ECOLAB approved
- <sup>H</sup> DGUV certified hygienic
- <sup>C</sup> IPA cleanroom approved

## Applications

- Food processing machinery
- Pharmaceutical machinery
- Medical applications
- Outdoor equipment
- Material handling systems
- Packaging machinery
- Chemical processing equipment
- Robot cells
- Folding or brake presses
- Filter presses
- Punching machines
- Printing machines
- Injection molding
- Palletizers
- Packaging equipment

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