

SMC Expert Article – Machinery safety

Create a pneumatic safety circuit in just 3 minutes

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All machine builders will be aware of the requirement to design safety-related circuits. However, this task no longer needs to be an onerous one. By using a new online tool developed by our expert team, you can create a pneumatic safety circuit in minutes.

PneuSAFE is the name of our unique online tool. With a comprehensive list of functions and applications, you'll quickly find your way to the circuits you require, all of which have been confirmed to meet the stated ISO 13849 category and performance level by TÜV Rheinland. PneuSAFE also provides proposed product and circuit-related information.

Established circuits

At last machine builders have a way to simplify and speed up their safety system design, which is useful considering the circuits contain many components. We would also like to let you know that all of the circuits are based on existing designs developed for running applications.

Importantly, the interface is very user friendly with options available that cover the majority of typical machine safety functions.

If you already have technical knowledge in machine safety, you can simply select from an easy-to-use list of safety functions. These functions include safe venting, safe stopping and closing, safety-limited speed, prevention of unexpected start-up, safety-reduced pressure, safe brake control, safe direction, two-hand control, safe last position, safe pressure monitoring, residual pressure release, and safe equilibrium of force. Clicking on any of these will take you directly to your choice of either single or dual-channel architecture and then on to the available circuits.

Alternatively, you can use the applications menu for guidance to the right solutions. Here, non-machine-specific applications include pick and place, clamping, light curtains, two-hand control, gripping, machine doors, holding up heavy loads, conveyor stopping, and conveyor gates. By clicking on your required application, you will gain immediate access to a list of typical safety functions for that task. The SRP/CS (Safety-Related Parts of Control System) architecture defining the Category, the Diagnostic Coverage, maximum Performance Level and related information for the circuit are all included here too. Using our published data, it is straightforward to determine your actual achievable Performance Level.

Instant results

After selecting the safety option and application sizing, PneuSAFE will provide the circuit description, the bill of materials (with all product references), the TÜV circuit report, and guidance for correct implementation.

As a further point of note, for safety-related data such as B10D, SMC has a SISTEMA library available. SISTEMA is a safety-integrity software tool for the evaluation of machine applications provided by the IFA Institute for Occupational Safety and Health in Germany. This free of charge software will help you to evaluate your safety system and provides a summary document for your technical file.

Ultimately, our PneuSAFE online tool provides an easy way of sharing our extensive knowledge in safety, helping you to design circuits in a matter of minutes. Why not find out for yourself at <https://etools.smc.at/pneusafe/>

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