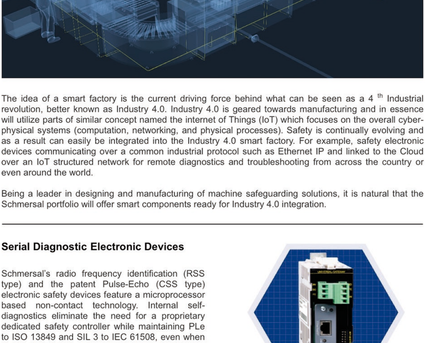
The GATEKEEPER
Man - Machine Safeguarding News from SCHMERSAL

April 2019

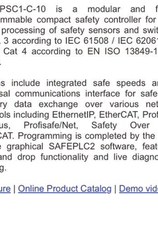
## Technology of Machine Safeguarding



The idea of a smart factory is the current driving force behind what can be seen as a 4 th Industrial revolution, better known as Industry 4.0. Industry 4.0 is geared towards manufacturing and in essence will utilize parts of similar concept named the internet of Things (IoT) which focuses on the overall cyber-physical systems (computation, networking, and physical processes). Safety is continually evolving and as a result can easily be integrated into the Industry 4.0 smart factory. For example, safety electronic devices communicating over a common industrial protocol such as Ethernet IP and linked to the Cloud over an IoT structured network for remote diagnostics and troubleshooting from across the country or even around the world.

Being a leader in designing and manufacturing of machine safeguarding solutions, it is natural that the Schmersal portfolio will offer smart components ready for Industry 4.0 integration.

### Serial Diagnostic Electronic Devices



Schmersal's radio frequency identification (RSS type) and the patent Pulse-Echo (CSS type) electronic safety devices feature a microprocessor based non-contact technology. Internal self-diagnostics eliminate the need for a proprietary dedicated safety controller while maintaining PLe to ISO 13849 and SIL 3 to IEC 61508, even when wired in series.

The electronic Serial Diagnostics (SD) options provide detail status information for each component wired to a Gateway. With this, useful information about each participating sensor and the control of the individual interlock releases of locking devices from the connected PLC can be achieved; considerably reducing machine downtime.

Brochure | Online Product Catalog | Demo video

### Programmable Safety Controller PSC1

The PSC1-C-10 is a modular and freely programmable compact safety controller for safe signal processing of safety sensors and switches up SIL 3 according to IEC 61508 / IEC 62061, PL e and Cat 4 according to EN ISO 13849-1, EN 50178.

Options include integrated safe speeds and/or universal communications interface for safe and auxiliary data exchange over various network protocols including EthernetIP, EtherCAT, ProfiNet, ProfiBus, Profisafe/Net, Safety Over and EtherCAT. Programming is completed by the easy to use graphical SAFEPLC2 software, featuring drag and drop functionality and live diagnostics viewing.

Brochure | Online Product Catalog | Demo video

### AS-I interface

The AS-Interface system is an open protocol with a simple structure: at field level, components with integrated AS-Interface Safety at Work (AS-i Safety) interface are connected to a central flat cable which carries both power and data. A master-monitor combination or Safety Gateway module can process up to 60 safe dual-channel input and output signals. The status and diagnostic signals can be processed by higher-level control systems and from there on transmitted to control or visualization systems.

Because of the open protocol, switches from a variety of manufacturers can be integrated into the system, including safety switchgear available from Schmersal.

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## Reference



**Video: PSC1 animation**

A series of animated videos demonstrates the diversity of the Programmable Safety Controller PSC1, including safe speed monitoring.

View the videos



**Video: Series Wiring with Serial Diagnostic**

A quick animated video demonstrating a series connection of electronic devices into a Serial Diagnostic gateway for communication to fieldbus.

View the video

**Electronic Safety Switches**

Learn more about the various Electronic Safety Sensors and Solenoid Interlocks available from Schmersal. These switches have self diagnostic and series wiring capabilities, and options for Serial Diagnostic to communicate to fieldbus.

Download the brochure

**Effect of Industry 4.0**

Efficiently increase production while improving safety: This article discusses the goals of Industry 4.0 and the path taken to arrive at this groundbreaking transformation to combine cutting edge technology with rigorous safety requirements.

Download the article

**Efficiency in Machine Safety**

This paper looks at the growing trend of designing safety systems to meet the efficiency requirements of other machine control systems. It provides several examples of systems currently being used such as electronic switches and AS-I.

Download the article

## Upcoming Webinar

### Machine Guarding Technology




Many technologies evolve and advance over time, and machine safety technology is no different. Adding intelligence to individual components can improve your safety levels, increase tamper resistance, and have more diagnostic capabilities - All of which results in increased machine up-time and longevity. Join us for this informative webinar, where we will review some of these technological advances and the reasons for them.

Date: April 23 | 2 pm EDT (11 am PDT)
Duration: 1 hour
Hosted by Machine Design

Register the webinar

## Ask The Expert



**Devin Murray**
TUV Functional
Safety Engineer
ID-No. 4274/11

**Q: What is the difference between the Internet of Things (IoT) and Industry 4.0?**

**A:** In regards to machine safeguarding IoT and Industry 4.0 are more or less synonymous. Both refer to the integration of electronic safety devices which are connected and communicate over a network of dedicated remote data servers known as the Cloud.

Both concepts are still evolving due to the continuing development of safety devices and standards as well as the need for further machine information from the plant floor among the industry. Industry 4.0 is the term commonly used in Europe originating from Germany while the term IoT is better known in North America.

**Have a question?** Ask Devin: dmurray@schmersal.com