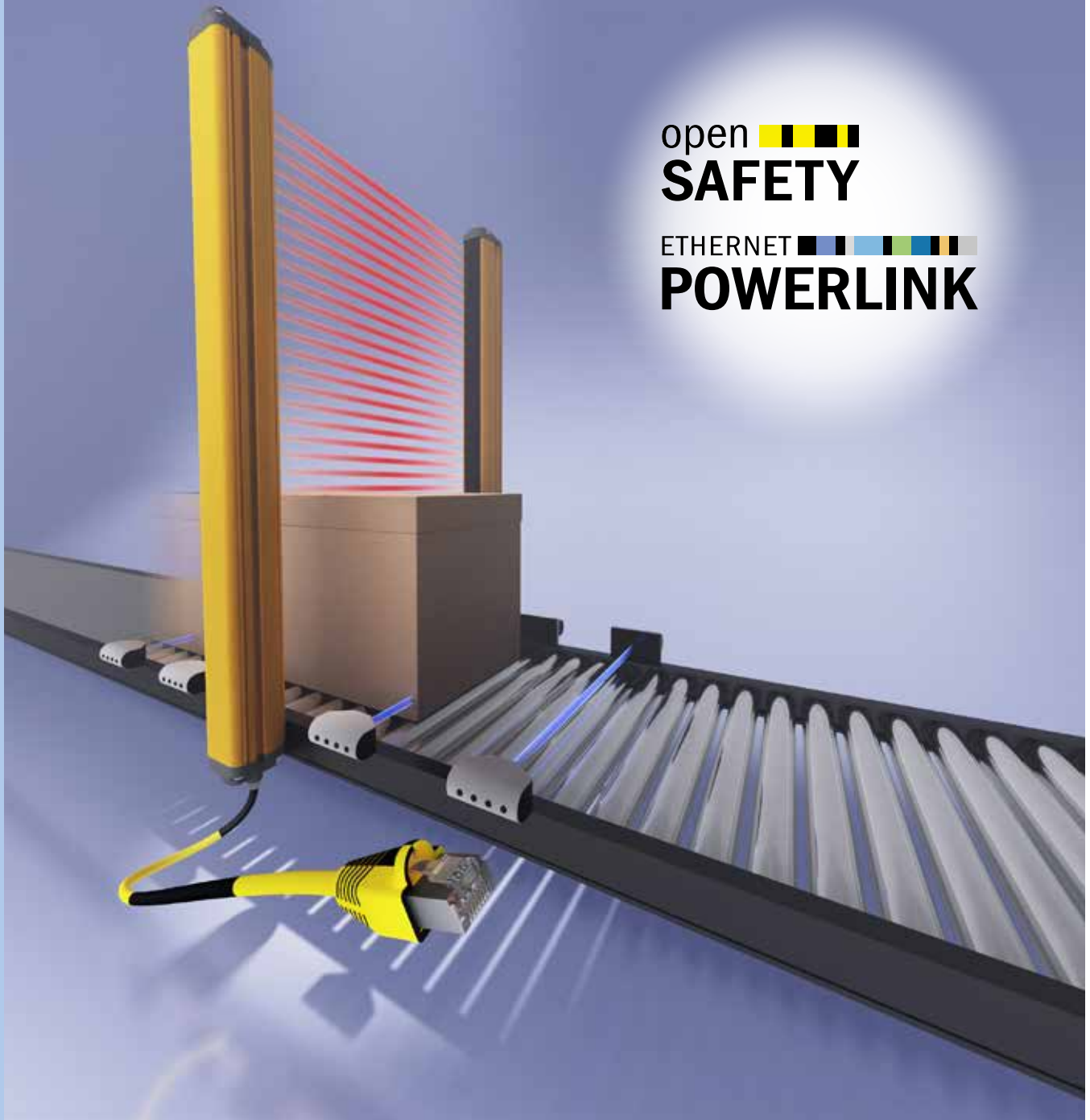


open   
**SAFETY**

ETHERNET   
**POWERLINK**

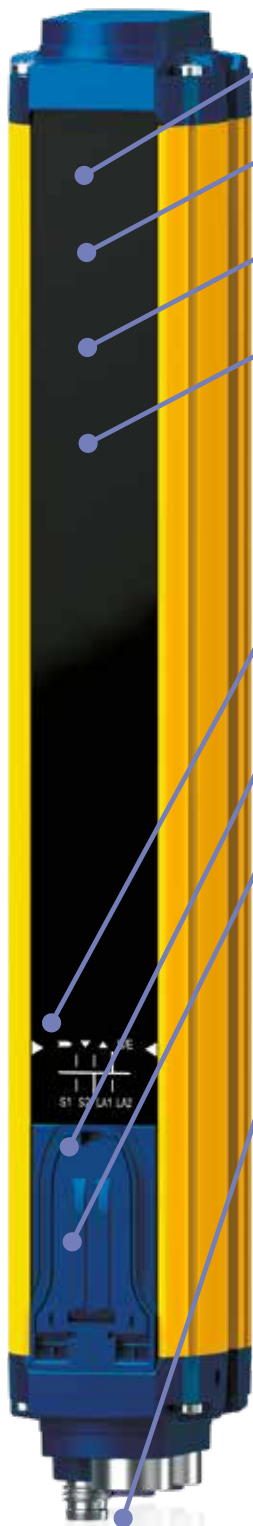


> SG4 Fieldbus

The first fully integrated safety  
light curtain with Industrial Ethernet

 **DATALOGIC**  
THE VISION IS YOURS

## Receiver



Operating distance up to 20 m

Type 4 safety light curtain, SIL3, PLc

Protective height from 150 mm to 1800 mm

14 mm, 30 mm resolution and body protection

LED indicators for easy installation and alignment

IP65 mechanical protection

Rotary switches for node allocation

M12 connectors for POWERLINK network

open SAFETY  
ETHERNET POWERLINK

### OPEN AUTOMATION TECHNOLOGIES: POWERLINK AND openSAFETY

POWERLINK is the standard for high-performance real-time Industrial Ethernet communication. openSAFETY is the most advanced and versatile protocol for functional safety on the automation market and leverages the "black-channel" principle. POWERLINK and openSAFETY, are fully scalable in terms of hardware platforms and compatible with future technologies such as OPC-UA and TSN. Both technologies are vendor-independent and managed by the Ethernet POWERLINK Standardization Group (EPSG). The specifications are freely available on [www.ethernet-powerlink.org](http://www.ethernet-powerlink.org), and the open source stacks of both technologies are available on SourceForge under BSD licensing. Open automation technologies provide the highest investment protection for Industrial IoT including machine, factory and process automation in all kinds of industries.



### B&R: PERFECTION IN AUTOMATION FOR SAFETY APPLICATIONS

As a global leader in industrial automation, B&R combines state-of-the-art technology with advanced engineering to provide customers in virtually every industry with complete solutions for machine and process automation, motion control, HMI and integrated safety technology. The B&R hardware portfolio includes the famous X20 controllers as well as the SafeLOGIC, the most advanced safety PLC on the market. The B&R engineering tool is Automation Studio, which also includes SafeDESIGNER software for programming safety applications. The complete B&R product portfolio relies on open automation technologies, POWERLINK and openSAFETY. Visit [www.br-automation.com](http://www.br-automation.com) for more information.

# SAFETY LIGHT CURTAIN

SG4 FIELDBUS is the first safety light curtain with integrated openSAFETY protocol over POWERLINK network. Adding the POWERLINK interface to the field-proven SG4 light curtain platform allows for a new solution for safety that's easy to integrate in existing networks and communicates seamlessly with safety programmable controllers through openSAFETY protocol. These features result in less wiring and hardware, fewer errors in commissioning and maintenance and increase the overall machine availability. New advanced functions, such as blanking and muting are integrated in order to improve flexibility and safety of the machine. With finger, hand and body protection, the SG4 FIELDBUS models can be implemented in any application where standard safety light curtains are currently used, in a wide range of applications such as food & beverage, packaging, machine tools, warehouses, wood, ceramics.

## Emitter



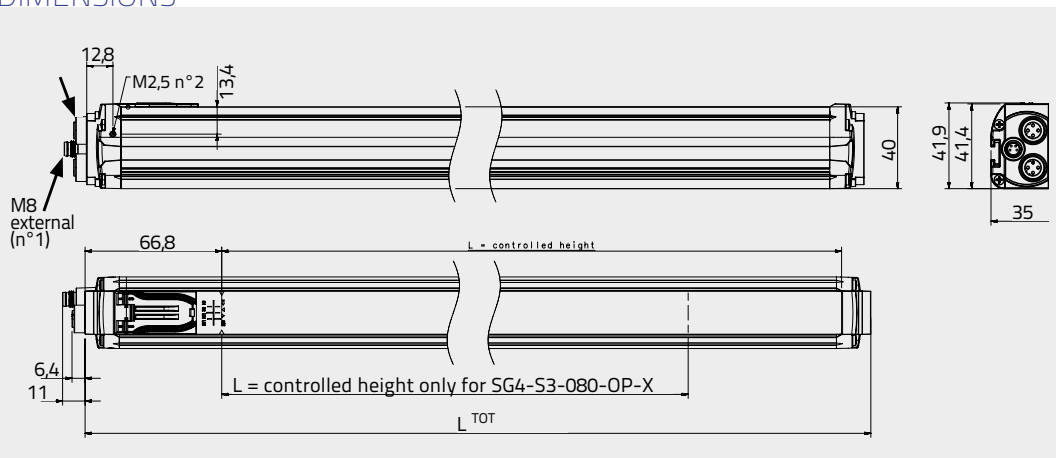
### TECHNICAL DATA

Power Supply (Vdd)	24 Vdc $\pm$ 20 %
Protocol	openSAFETY over POWERLINK
Operating Temperature	0 ...+55 °C
Humidity	15 ... 95 % (no condensation)

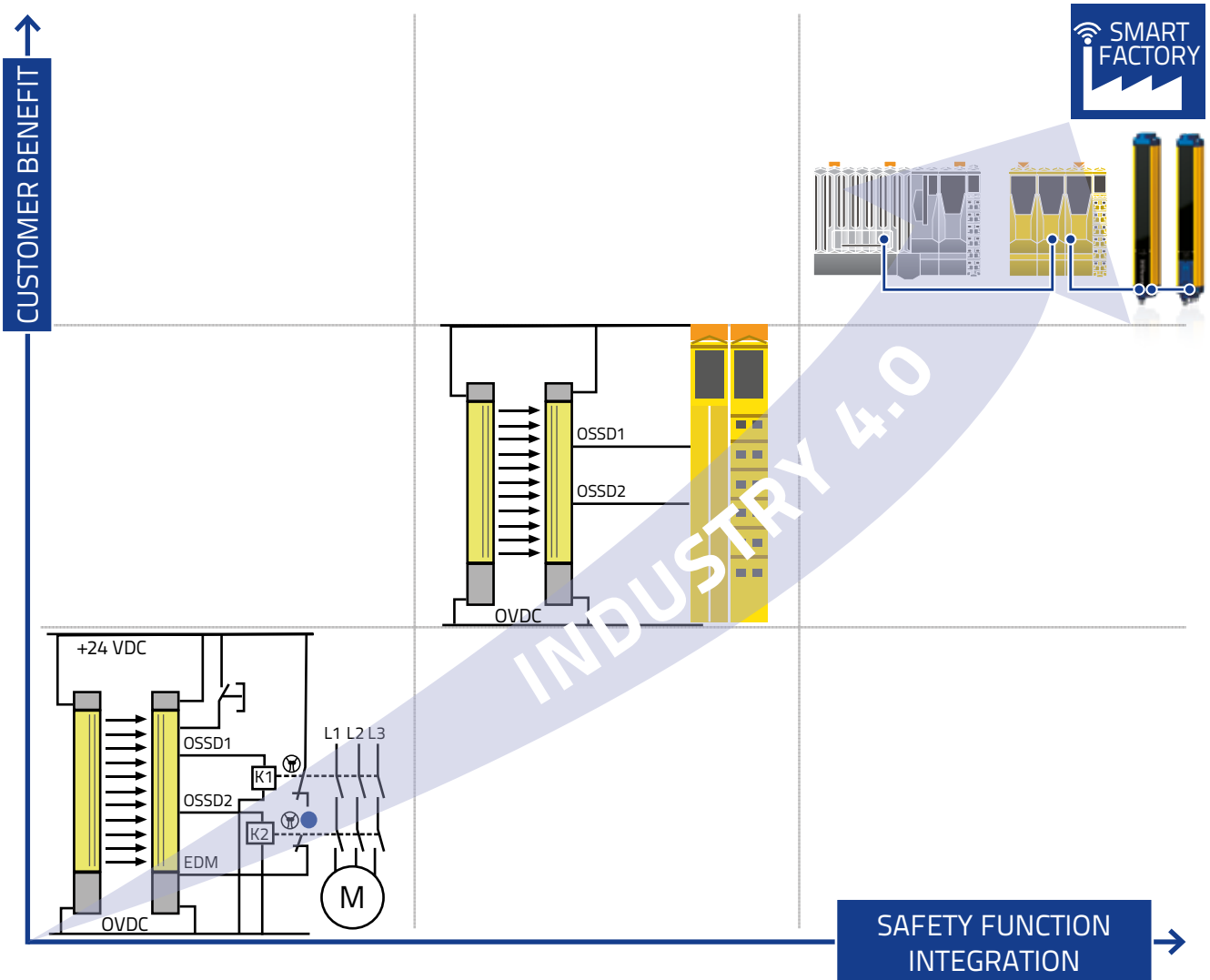
MODEL	L TOT	L (CONTROLLED HEIGHT)
SG4-xx-015-OP-x	233.6	150
SG4-xx-030-OP-x	383.3	300
SG4-xx-045-OP-x	533	450
SG4-xx-060-OP-x	682.7	600
SG4-xx-075-OP-x	832.4	750
SG4-xx-090-OP-x	982.1	900
SG4-xx-105-OP-x	1131.8	1050
SG4-xx-120-OP-x	1281.5	1200
SG4-xx-135-OP-x	1431.2	1350
SG4-xx-150-OP-x	1580.9	1500
SG4-xx-165-OP-x	1730.6	1650
SG4-xx-180-OP-x	1880.3	1800
SG4-S2-060-OP-x	682.7	600
SG4-S3-080-OP-x	982.1	825
SG4-S4-090-OP-x	982.1	900
SG4-S3-120-OP-x	1281.5	1200

Dimensions in [mm]

### DIMENSIONS



# A REVOLUTIONARY APPROACH HIGHER VALUE FOR CUSTOMERS THROUGH INTEGRATION



## Hardwiring

Safety functionality is provided by electromechanical components which are directly connected to the safety relevant portions of the machine. In order to achieve a certain SIL or PL rating, the wires must be installed redundantly from point-to-point; this makes the engineering, commissioning and maintenance process demanding for the safety personnel. Furthermore, this system only supports "Safe-ON" and "Safe-OFF" states, which negatively impacts machine availability. Its lack of flexibility can bring people to bypass safety in dangerous ways.

## Safety I/Os

Safety functionality, such as partial muting and blanking, is handled by independent safety devices which are interfaced to the machine network via safe I/Os. This solution eliminates unnecessary wires throughout the machine, but still requires redundant wires between the I/Os and the safety devices. Because of the hardwired section, the safe PLC is unable to directly access the safety device. Therefore, central firmware and configuration management is not possible.

## Full integration

Machine safety is directly merged with the corresponding process. Specifically, the safety devices are fully integrated into the machine network making sensor and actuator data is directly accessible. This enables efficient engineering and features such as firmware updates and advanced diagnostic functionality. By incorporating more differentiated safe-states into the machine process, machine availability and productivity can be effectively increased.

# INTEGRATED SAFETY FOR INCREASED PRODUCTIVITY



## Effective Engineering

B&R Automation Studio is the only engineering software needed. The included SafeDESIGNER tool allows easy drag and drop programming with predefined function blocks and supports safe software development. All the parameters of the safety system, including the light curtain's, are stored in one configuration.



## Simple Installation

Only one cable is needed to connect SG4 FIELDBUS to a POWERLINK network, reducing installation time by avoiding time consuming and error-prone hardwiring. No DIP switches to configure or configuration to download required. Emitter and receiver alignment quality is indicated by local LEDs. Standard or rotating brackets allow flexible installation in any position.



## Increased Safety

The safe PLC programming in conjunction with the advanced functionality of SG4 FIELDBUS makes the safety system much more flexible and reduces impact on the production process. Compared to a conventional hardwired system, this solution eliminates the temptation to bypass the protections by machine operators.



**mapp**  
TECHNOLOGY

## Rapid Diagnostics

SG4 FIELDBUS diagnostic is available to PLC and HMI systems and any message can directly be read on the operator interface as well as on remote web interfaces using simple messages and native languages. No more need for interpretation of LED blinking codes and long walking distances.



# VIA INCREASED UP-TIME

ETHERNET 

## POWERLINK Standardization Group

### Easy Maintenance



During maintenance or periodical checks, the risk of errors is significantly reduced by the simplicity of the system. There is no need of special safety training or documentation for service personnel. Multiple permission levels ensure that only authorized people can change the configuration on the safe PLC.

### Fast Replacement



Replacing a unit is fast and easy. Set the new light curtain at the same node address of the one replaced. Remote firmware update is possible via the POWERLINK network in a safe way that doesn't require specific tests. The reconfiguration of the new device is performed completely automatically by the openSAFETY system.

### Seamless Integration



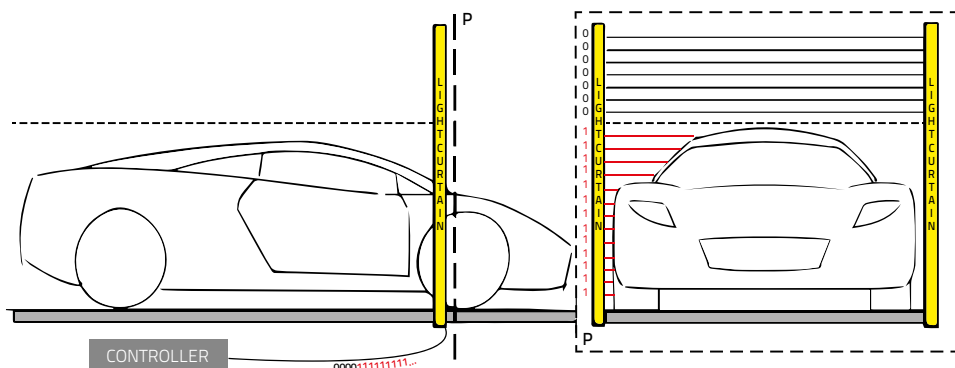
From the software viewpoint, the integration of SG4 FIELDBUS in the safety system with safe PLC and HMI is extremely simple due to standardized device description files "XDD" (POWERLINK) and "OSDD" (openSAFETY). From hardware viewpoint, standard Ethernet infrastructure and cables can be used. Safety I/O interfaces are not required to connect the light curtain.

### High Scalability



Multiple light curtains can be synchronized with other safety devices such as robots, drives, encoders, and more. The total cost of ownership is reduced through efficient installation, maintenance, substitution and the choice of the most effective solution for the safety functions of the machine.

# SG4 FIELDBUS ADVANCED MODELS

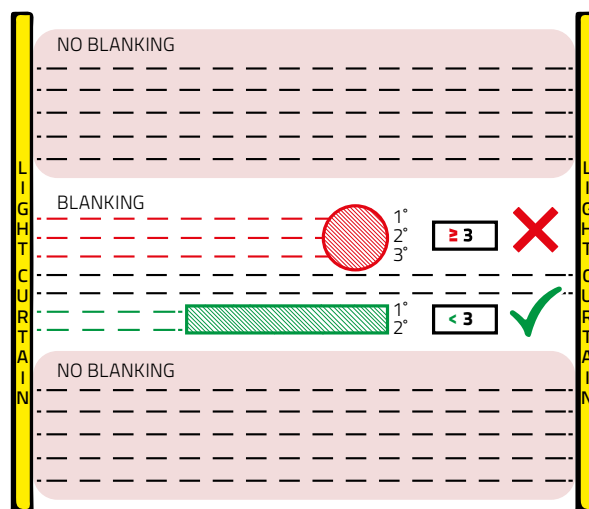


## DIMENSIONAL MEASUREMENT

An added value to the safety function is the possibility to perform measurement of material that is passing through the safety light curtain and to transmit the result via POWERLINK to the control system. The concept can be expanded to the recognition of the contour or to the calculation of a volume.

## FIXED AND FLOATING BLANKING

Monitoring individual beams makes it possible to define areas that can be blanked and areas that are always active. Inside the blanked areas, the position of the blanked beams can change (floating blanking) or be predefined (fixed blanking). It is also possible to synchronize the blanking time window with the process phases (for example activating the blanking in correspondence with a robot movement).



## COMPATIBILITY WITH B&R HARDWARE AND SOFTWARE

Due to the characteristics of the functional blocks that have been developed by B&R in order to communicate with DATALOGIC SG4 FIELDBUS safety light curtains, always check to have the following versions or newer:

### 1) SG4 Fieldbus Base:

HW: SafeLOGIC SL81xx, SLXxxx

SW: SafetyRelease 1.10, SafeDESIGNER 4.2.x, Automation Studio 4.2.8.x, SL Upgrades 1.10.x.x

### 2) SG4 Fieldbus Advanced:

HW: SL81xx only

SW: SafetyRelease 1.10, SafeDESIGNER 4.3.3, Automation Studio 4.3.3, SL Upgrades 1.10.2.x

## TYPICAL INDUSTRIES

- Automotive
- Packaging
- Material Handling
- Metal Working
- Food & Beverage
- Wood
- Textile
- Logistics

## TYPICAL APPLICATIONS

- Robotics
- Palletizer/Depalletizers
- Machine Tools / CNC
- Automatic Warehouses
- Printing Machines



[www.datalogic.com](http://www.datalogic.com)

Rev. 01, 03/2018