PILZ
THE SPIRIT OF SAFETY

# IO-Link Safety

Communicate Safely at Field Level – in One System



# IO-Link Safety System




IO-Link Safety is revolutionising industrial automation by combining the highest safety standards with easy integration and maximum flexibility. The standardised IO-Link Safety communication system enables safe point-to-point communication in accordance with IEC 61139-2 and provides the highest level of safety, up to PL e under EN ISO 13849-1 (or SIL 3 under IEC 61508/62061).

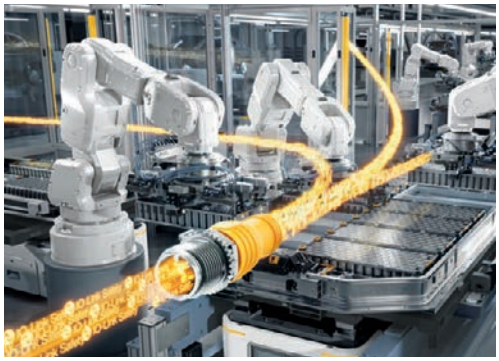
**Safe, intelligent communication**
Seamless communication with each sensor and actuator enables intelligent data evaluation. IO-Link Safety communication uses unshielded cables and standard industrial connectors, saving time and effort when replacing devices.

Pilz offers you a complete system solution comprising master, sensors, field devices and the suitable accessories. The first IO-Link Safety devices include the PSENopt II Advanced safety light curtains, the PITgatebox control unit and the IO-Link Safety Master PDP67.

The IO-Link Safety Master PDP67 acts as the interface to the safety controller and enables bidirectional communication right down to field level. Pilz IO-Link Safety devices provide important status information and extended diagnostic options. They can be identified and parameterised automatically, simplifying component replacement and reducing downtimes.

## Benefits at a Glance

- **Safe point-to-point communication from the controller to the sensor in the field**
- **Highest level of safety up to PL e in accordance with EN ISO 13849-1 (SIL 3 in accordance with IEC 61508/62061)**
- **Simplified installation**
- **Extended diagnostic options optimise production processes**
- **Automatic identification and parameterisation reduce the variety of device types and save storage space**



# Safe Communication up to Field Level – in One System

| Type | Technical features |
|---|---|
| **PDP67** | **IO-Link Safety Master**<br>• 4 IO-Link Safety ports (Class A) and 4 ports, each with two configurable safe digital inputs or outputs<br>• PROFINET/PROFIsafe device<br>• Interface: M12, 5-pin ports<br>• Functional safety: PL e/SIL 3<br>• Protection class: IP67/IP69K<br>• Housing: Die cast zinc metal |
| **PSENopt II Advanced** | **IO-Link Safety light curtain**<br>• Body, hand and finger protection, Type 3 (PL d)/Type 4 (PL e)<br>• Protected field height: 300 ... 1 800 mm<br>• Muting/blanking<br>• Single beam evaluation<br>• Reduced resolution<br>• Connectors: M12; transmitter: 5-pin; receiver: 12-pin<br>• Operating mode: IO-Link Safety or OSSDe mode |
| **PITgatebox** | **IO-Link Safety control unit**<br>• With 1 E-STOP pushbutton and 3 illuminated pushbuttons<br>• IO-Link Safety, 8-pin M12 female connector and 4-pin M12 male connector |



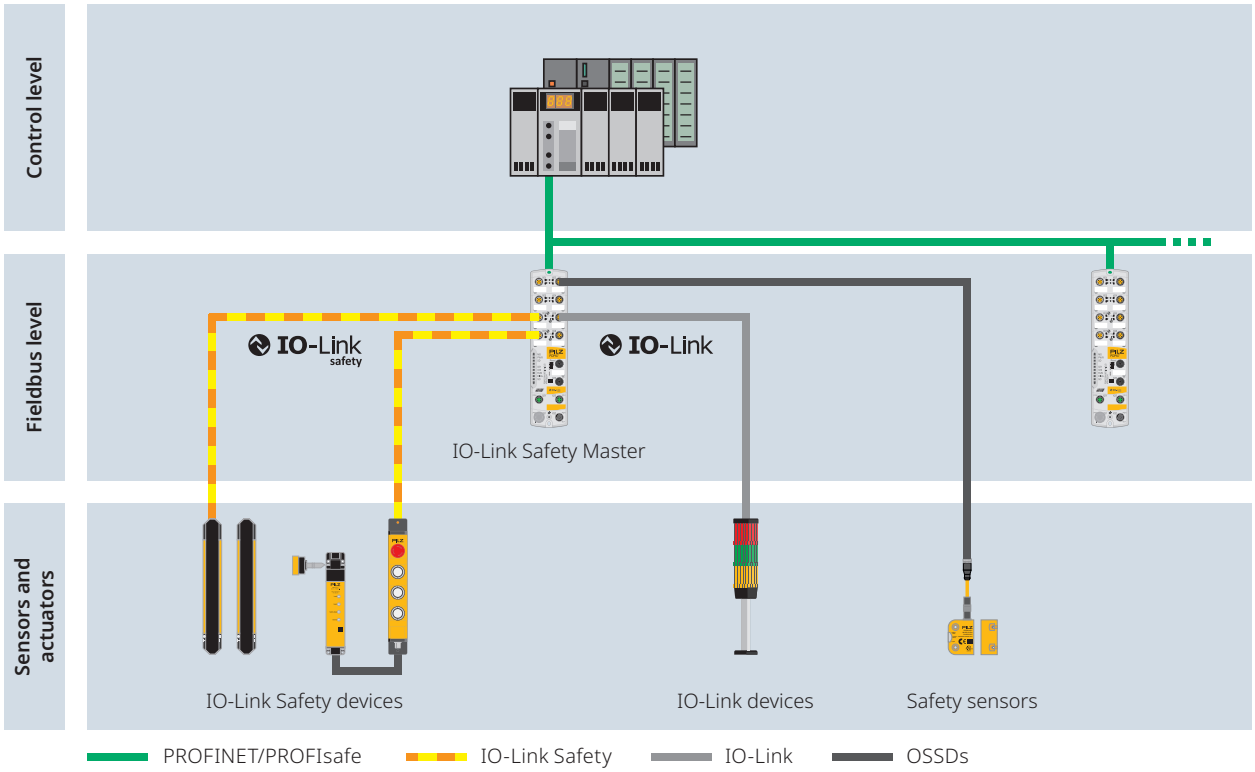
PDP67



PSENopt II Advanced



PITgatebox




Safe point-to-point communication from the controller up to field level

**Find out more:** pilz.com/io-link-safety

# IO-Link Safety Master **PDP67**




IO-Link safety

As a versatile all-round device, the Pilz IO-Link Safety Master PDP67 offers a wide range of options for connecting different devices, including IO-Link and IO-Link Safety devices, safe input and output signals, and standard signals. It also expands the functions of a conventional IO-Link Master by adding the option for safe communication for functional safety.

**Safe communication up to field level**
The IO-Link Safety Master is the decentralised interface to the higher-level safety controller and enables point-to-point connections right down to field level. The module also offers configurable ports, through which it is possible to process safe input and output signals.

With its robust IP67 or IP69 degree of protection, it can be installed directly on the machine. This saves space in the control cabinet and enables modular plant concepts. Thanks to the integration into a dirt and water-repellent IP67 housing, PDP67 reliably ensures safety even in rugged industrial environments.

## Benefits at a Glance

- **Maximum flexibility thanks to suitable connection options for IO-Link, IO-Link Safety, safe input and output signals, standard signals and OSSD**
- **Universally configurable safe inputs and outputs**
- **Decentralised installation of safety-related digital devices in the field**
- **Installation almost anywhere thanks to compact, robust housings**
- **Suitable for use with degrees of protection up to IP67/IP69K**
- **Less wiring thanks to plug-and-play with standardised M12 plug-in connections**
- **Simple configuration using proven Pilz tools**
- **Integrated web server for rapid fault diagnostics**



# First TÜV-Certified IO-Link Safety Master Enables Safe Point-to-Point Communication

| Type | Technical features | Order number |
|---|---|---|
| **PDP67 PN 8FDIO 4IOLS** | • 4 × IO-Link Safety ports (Class A)<br>• 4 ports, each with two configurable, safe digital inputs or outputs<br>• PROFINET/PROFIsafe device<br>• Interface: M12, 5-pin ports<br>• Protection class: IP67/IP69K<br>• Housing: Die cast zinc metal<br>• Ambient temperature: –30 °C ... +70 °C<br>• Functional safety: PL e/SIL 3<br>• Application in heights up to 5 000 m | 4R000004 |
| **Accessories** | µSD memory card 512 MB M12A | 4R000002 |
| | IP67 labels | C1000033 |
| | Caps for L-coded connections | 380328 |
| | Caps for IP67 modules | 380324 |



PDP67 PN 8FDIO 4IOLS



µSD memory card 512 MB M12A



IP67 labels

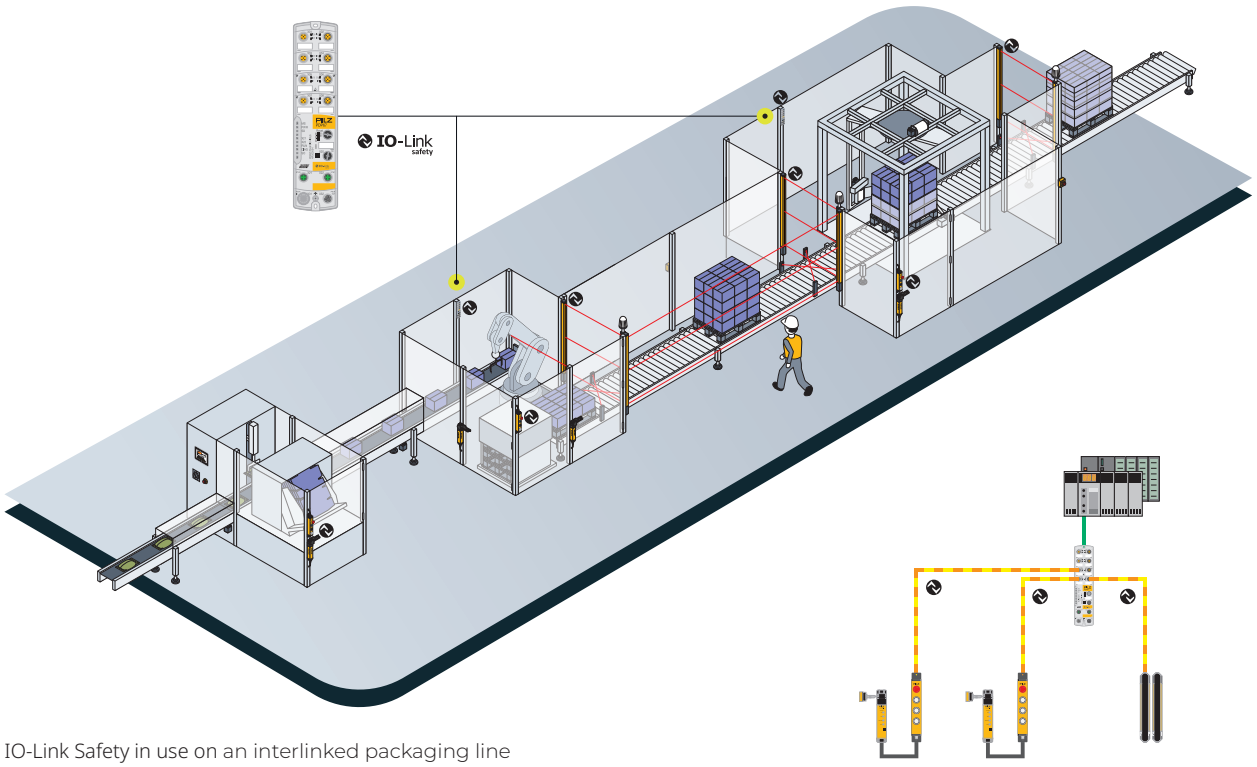


Caps for L-coded connections



Caps for IP67 modules

In addition to the IO-Link Safety Master, Pilz offers a complete IO-Link Safety system comprising the Master, field devices such as safety sensors, and suitable cables and configuration tools. This complete package simplifies the integration of IO-Link Safety technology into plant and machinery. So Pilz supplies a complete one-stop system that's safe and reliable.




IO-Link Safety in use on an interlinked packaging line

**Find out more:**
pilz.com/pdp67

# IO-Link Safety Light Curtain **PSENopt II Advanced**



With the new PSENopt II Advanced IO-Link Safety light curtains, you benefit from maximum safety and machine availability, combined with greater flexibility.

**IO-Link Safety – directly integrated**
IO-Link Safety technology not only simplifies integration and installation, but also offers new diagnostic options. Available live data from each light beam helps you check correct alignment, for example, while single-beam evaluation enables safe object measurement.

You can choose between two operating modes: IO-Link Safety or conventional OSSDe mode. This saves storage costs and reduces the number of variants required.

**More possibilities for your application**
The new PSENopt II Advanced also offers numerous additional features, such as muting (L, T, X, external) and blanking (fixed, floating). Reduced resolution ensures reliable protection and smooth operation, even in harsh environments.

Both Type 3 light curtains for applications up to PL d and Type 4 light curtains for applications up to PL e are available. This means you can always find the right safety light curtain for applications requiring body, hand or finger protection. The robust design, with shock resistance of up to 50 g, makes the light curtain particularly resilient, reducing failures and increasing plant availability.

## Benefits at a Glance

- **Live data from every light beam simplifies commissioning and maintenance**
- **Transmission of individual beam data enables various applications, such as safe object measurement**
- **Predictive maintenance using available data such as signal quality**
- **Rapid product replacement through automatic identification and parameterisation**
- **Intelligent diagnostics simplify installation, assembly and maintenance**



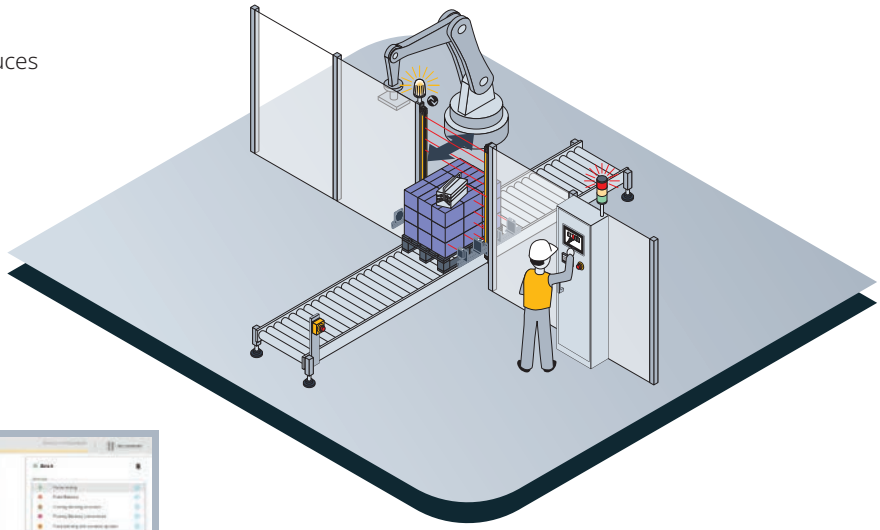
# More Safety, More Flexibility, More Efficiency

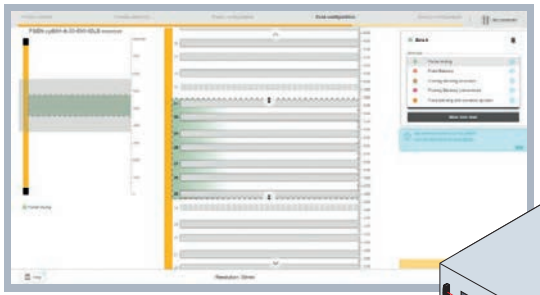
| Type | Technical features | Order number |
|---|---|---|
| **PSENopt II Advanced** | • Finger, hand and body protection in accordance with EN/IEC 61496-1/-2:<br>- Type 3 for applications up to PL d/SIL 3<br>- Type 4 for applications up to PL e/SIL 3<br>• Muting: L, T, X and external muting<br>• Blanking: fixed, floating (monitored, unmonitored)<br>• Reduced resolution<br>• Single beam evaluation<br>• No dead zones (except with a protected field height of 150 mm)<br>• Protected field height: 300 to 1 800 mm (150 mm increments)<br>• Transmitter connection: M12, 5-pin<br>• Receiver connection: M12, 12-pin<br>• Operating mode: IO-Link Safety or OSSDe mode | 6C000001 ... 6C000056 |

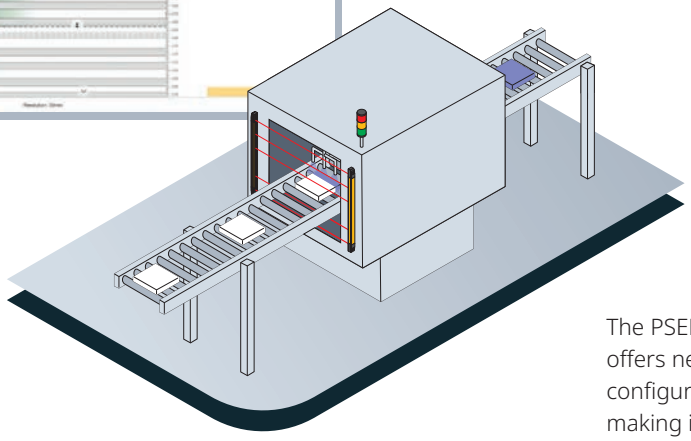


PSEN opII3F-A-14-060-IOLS

The integrated muting function reduces downtimes and thereby increases plant availability.



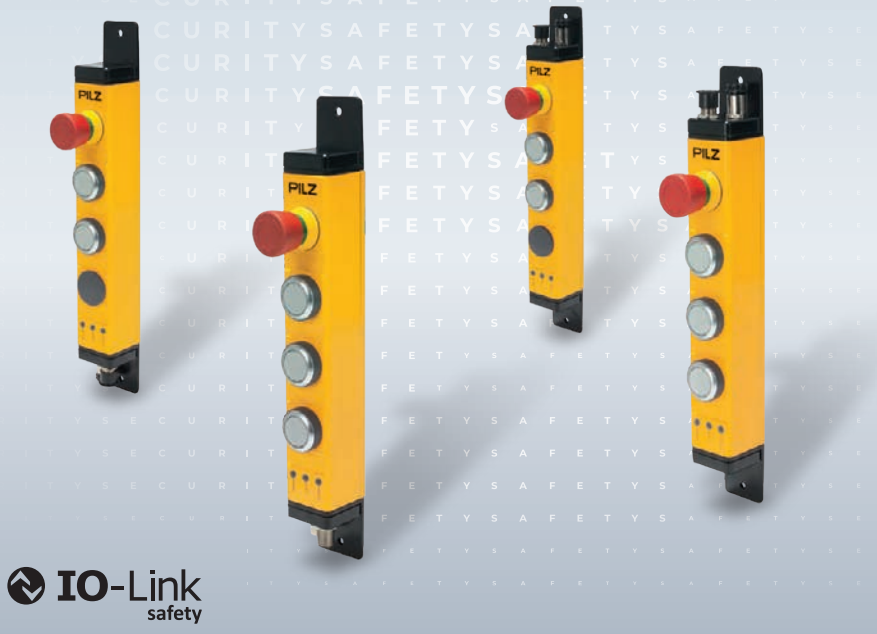




The PSENopt II Advanced Configurator offers new functions for product selection, configuration and commissioning, making integration easier and saving considerable time.

**Find out more:** pilz.com/IOLSLichtgitter

# IO-Link Safety Control Unit **PITgatebox**




The PITgatebox control unit combines pushbuttons, key switches and an E-STOP pushbutton in a compact control unit, which can be individually configured for your application. Its slim design makes the robust control unit quick and easy to install on standard profile systems. In particular, when combined with the safety locking devices PSENmlock and PSENslock 2, the PITgatebox provides a modular, one-stop safety gate solution tailored to your needs.

**Greater productivity through intelligent diagnostic data**
New: Pushbutton unit PITgatebox with IO-Link Safety – for maximum transparency and productivity. With IO-Link Safety, you receive live data on the door status and operating status directly in your system. This not only makes commissioning and maintenance easier, but also enables predictive maintenance, increasing availability and reducing downtimes.

The PITgatebox IOLS can be operated as a stand-alone device or also in conjunction with other safety switches, with and without guard locking. The preconfigured variants with different cable exits, pushbuttons and E-STOP pushbuttons offer maximum flexibility for individual applications.

## Benefits at a Glance

- **Highest level of safety: up to PL e, Category 4 (ISO 13849-1) and SIL 3 (IEC 61508)**
- **Complies with Port Class A in accordance with the IO-Link Safety specification**
- **Rapid installation thanks to 4-pin M12 connection**
- **Scalability: connection of more sensors per IO-Link Safety port**
- **Transparent status monitoring: digitalisation of status data with IO-Link Safety**
- **Efficient commissioning and maintenance**



# Greater Productivity Through Intelligent Diagnostic Data

| Type | Technical features | Order number |
|---|---|---|
| **Common features** | • With 1 E-STOP pushbutton and 2 or 3 illuminated pushbuttons<br>• 8-pin M12 female connector and 4-pin M12 male connector<br>• PL e, Cat. 4 (EN ISO 13849-1)<br>• SIL 3 (IEC 61508)<br>• Robust die cast zinc housing<br>• Installation: Rotatable mounting bracket (metal)<br>• Protection type: IP65 | |
| **PIT gb LLLE down IOLS** | • Pushbutton unit PITgatebox IO-Link Safety<br>• With 1 E-STOP pushbutton and 3 illuminated pushbuttons<br>• Connector at bottom<br>• Incl. coloured cap set | G1000023 |
| **PIT gb CLLE down IOLS** | • Pushbutton unit PITgatebox IO-Link Safety<br>• With 1 E-STOP pushbutton and 2 illuminated pushbuttons<br>• Connector at bottom<br>• Incl. coloured cap set | G1000025 |

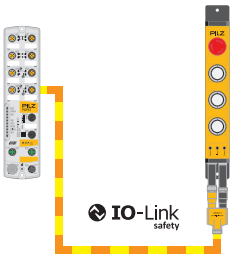


PIT gb LLLE down IOLS

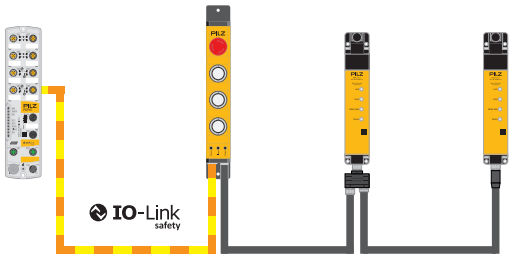


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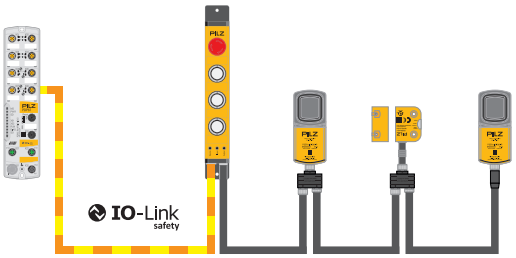
**Application examples:**
Additional safety sensors and control units, such as PSENmlock, PSENslock 2, PSENcs and further PITgatebox IOLS units, can be connected individually or in series.



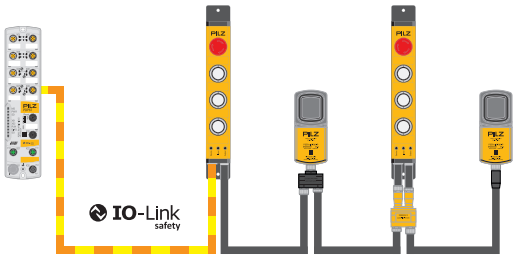

PITgatebox IOLS stand-alone (with adapter)




PITgatebox IOLS with PSENmlock




PITgatebox IOLS with PSENslock 2 and PSENcs




PITgatebox IOLS with an additional PITgatebox IOLS and PSENslock 2

**Find out more:**
pilz.com/pitgatebox

# Support

**Technical support is available from Pilz round the clock.**

**Reporting security vulnerabilities or security incidents**
If you would like to report a security vulnerability or a security incident in connection with a Pilz product, please contact our
**Pilz Product Security Incident Response Team (PSIRT).**
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