Leuze electronic

the sensor people

SMART
SENSOR
BUSINESS

MLD 500, MLD 300

Multiple light beam safety devices and transceiver with integrated muting

easyhandling.

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MULTIPLE LIGHT BEAM DEVICES WITH INTEGRA COST REDUCTION POTE

Access guarding, 2-, 3- and 4-beam—you decide!

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SAFEGUARDING EASIER THAN EVER

The multiple light beam safety devices of the MLD 300 (type 2) and MLD 500 (type 4) series are active optoelectronic personnel protective devices used at access points or dangerous locations on machines and systems. The devices are available as 2-, 3- and 4-beam transmitter-receiver systems as well as cost-efficient 2- and 3-beam transceiver systems with transmitter and passive deflecting mirror. All systems also support applications with ambient temperatures down to –30°C.

SAFETY
TED
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FLEXIBLE, EFFICIENT AND HIGH-PERFORMANCE

The user can select from several function classes and device models within the MLD device family and, as a result, can determine the performance of his solution appropriately for the application and the respective requirements.

In addition to the start / restart interlock and contactor monitoring functions, various muting modes are supported. No PC is necessary for configuration, as all functions are set via the pin assignments at the connection of the devices without additional modules. Should a device need to be exchanged, it is not necessary to reconfigure the sensor.

*easy*handling.

- **Simple commissioning**
  All settings without a PC. Device exchange by means of Plug & Play via M12 connection technology.
- **Muting without additional devices**
  Muting functions configurable by means of pin assignments. Muting indicator integrated. Pre-mounted muting sensor sets for sequence- and timing-controlled muting.
- **Fast and precise laser alignment**
  Integrated laser alignment aid (option) for convenient and fast alignment, even over long distances.
- **Colored indicator**
  Clearly indicates muting status and OSSD states over long distances — an advantage for smooth operation.
- **7-segment display**
  Device status can be read at any time.
- **Range adjustment**
  To reduce interference with adjacent systems, the operating range of the devices can be switched from 70 m to 20 m.

*integrated*connectivity.

- **Device models with AS-i Safety interface**
  Direct connection to the AS-i bus without additional coupling modules.

Standards conformity	MLD 300	MLD 500
Type in accordance with IEC / EN 61496	Type 2	Type 4
SIL in accordance with IEC 61508 and IEC / EN 62061	SIL 2	SIL 3
Performance Level (PL) in accordance with EN ISO 13849-1	PL c	PL e

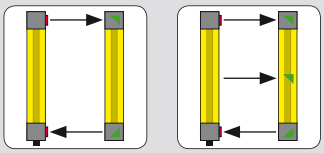
TWO PRINCIPLES— ONE PROMISE

Whether transceiver or transmitter-receiver system— the MLD advantages are always included.

TRANSCEIVER SYSTEM

This system consists of an active transceiver (transmitter / receiver in one housing) and a passive deflecting mirror without electrical connection.

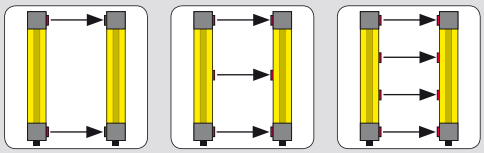
- Economical solution with low installation effort
- 2- and 3-beam systems available
- Range from 0.5 to 8 m
- M12 connection technology, with integrated AS-i Safety interface if necessary
- High robustness against interference through multiple scanning



TRANSMITTER-RECEIVER SYSTEM

This system consists of separate transmitter and receiver (and deflecting mirror columns as necessary) for applications with large operating ranges.

- 2-, 3- and 4-beam systems available
- Operating range MLD…-R /-T: 0.5 to 50 m
- Operating range MLD…-xR /-xT: 20 to 70 m
- M12 connection technology, with integrated AS-i Safety interface if necessary
- High robustness against interference through multiple scanning



Function	MLD 310 MLD 312* MLD 510**	MLD 320 MLD 520	MLD 330 MLD 530	MLD 335 MLD 535
Automatic start / restart	X	X	X	X
Start/restart interlock (RES)		X	X	X
Contactor monitoring (EDM), selectable		X	X	X
Configurable operating modes		X	X	X
2-sensor muting (parallel, sequential)			X	
4-sensor muting (sequential)				X
Laser alignment aid (optional with transmitter-receiver systems)	X	X		

* MLD 312 with test input for periodic function test; ** also with integrated AS-i interface

ALIGNMENT AND MOUNTING— CHILD'S PLAY

This series is predestined for wide-area perimeter guarding, which is realized with deflecting mirrors.

easyhandling.

LASER ALIGNMENT AID

It speeds up and simplifies alignment. A reflective element integrated in the receiver ensures clear visibility of the alignment laser spot, even over long distances. The deflecting mirror columns necessary for perimeter guarding are simply and quickly aligned, one after another.

COLORED INDICATOR

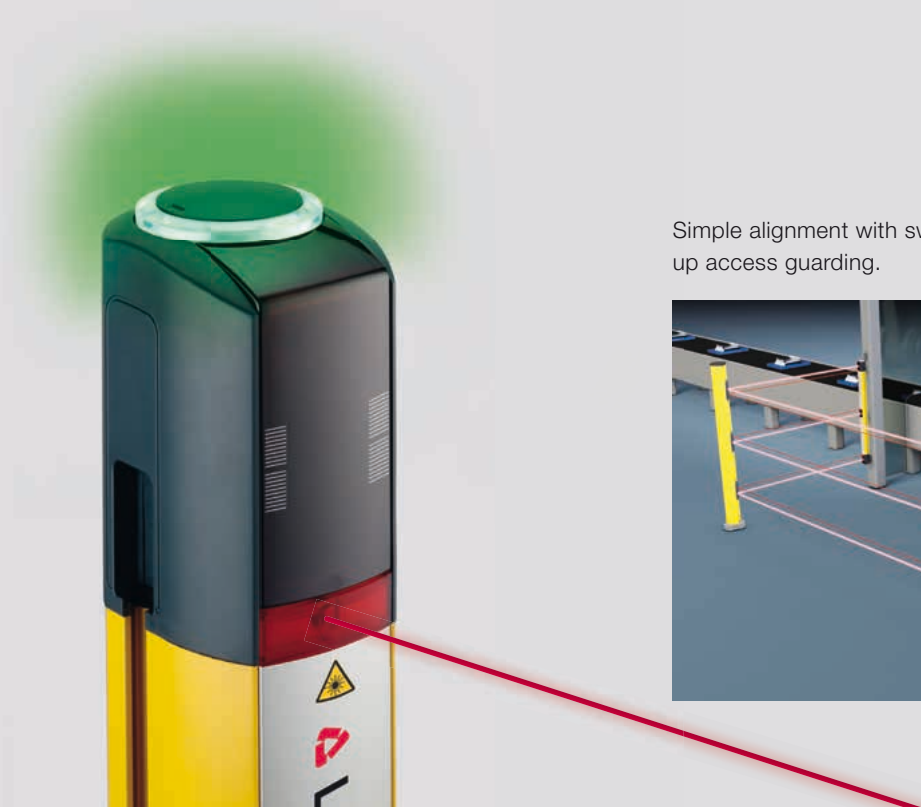
In addition to the muting status, the muting indicator also clearly indicates OSSD states over long distances — a clear advantage for smooth operation. As a result, direct and simple diagnosis is possible both visually as well as via the downstream PLC.

SWIVEL MOUNT BT-240 (OPTIONAL)

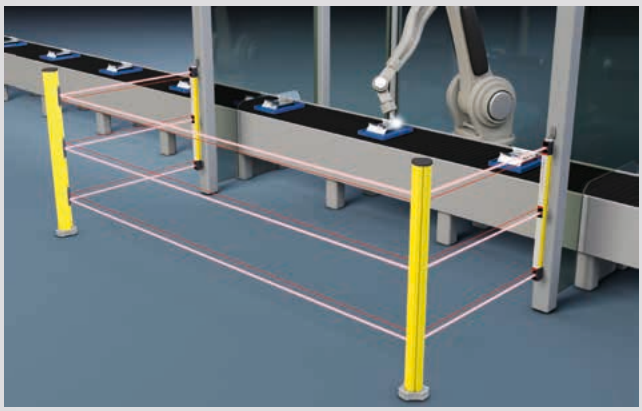
With the swivel mount, the safety sensor can be flexibly turned 240° on its own axis, easily aligned and reliably mounted — an extremely practical solution for further simplifying the use of the devices and accelerating the installation.

CLAMP BRACKET BT-P40 (OPTIONAL)

Mounted in the device column, the safety sensor can be flexibly adjusted in height and easily aligned in its vertical position by using the clamp brackets.



Simple alignment with switched-on laser beam when setting up access guarding.



EFFICIENT MUTING SOLUTIONS

With its various operating modes, the sensor is ready for a wide range of muting applications.

The operating mode is selected by means of wiring / with pin assignments on the connector and socket. Other tools, such as PC, software, etc., are no longer necessary. External muting controllers are not required. The overall installation of a muting application is thereby considerably simplified.

MUTING AT YOUR DISCRETION

In addition to 2- and 4-sensor muting (timing controlled, sequence controlled), partial muting is also possible. In this case, the lower beams can be bypassed while the upper beam remains active. This replaces additional protection as required otherwise, e.g. by means of guards or further safety light beam devices.

HELPS REDUCE CABLING

If the muting signal comes from the system control, the user can use the 8-pin connector (machine interface) directly at the sensor for this signal. This reduces cabling requirements. Furthermore, the muting enable function can be used to enable or disable the muting sequence via an external signal. This increases security against tampering.

SAFETY IN A COMPLETE PACKAGE

Our protective sensor sets are reliable complete muting systems that can be delivered pre-configured in different designs for the most common access guarding applications with muting.

- The set variants differ in the number of beams of the safety sensors and in the height of the device column.
- Depending on the model, they enable timing controlled 2-sensor muting (T-shape design) as well as sequence controlled 2-sensor muting (L-shape design).
- Within the scope of the modular system set, systems can also be created for sequence controlled 4-sensor muting.

MUTING ACCESSORIES FOR INTRALOGISTICS

Pre-mounted sets support the fast installation of powerful muting solutions.

Whether sequence or timing controlled muting — the MLD series is designed to simplify the setup of muting solutions as much as possible. For example, various sensor sets with pre-mounted sensors help to make installation fast and easy.

L-SHAPE DESIGN

Sequence controlled 2-sensor muting

This muting sensor set includes two sensors or two reflectors. The entire device is pre-mounted and pre-aligned.

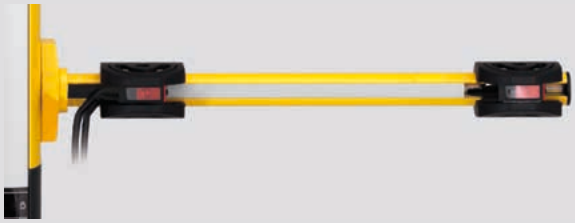
L-shape designs are used in situations where pallets exit danger zones, particularly if little space is available outside of the danger zone.

T-SHAPE DESIGN

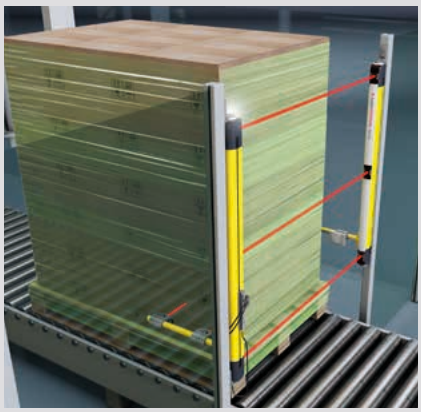
Sequence controlled 4-sensor muting and timing controlled 2-sensor muting

With these muting types, the transport material can be moved through the protective field in both directions.

Unlike timing controlled 2-sensor muting, sequence controlled 4-sensor muting is used when the muting sensor light beams should not cross due to a special application situation. With the muting sensor set, the user no longer needs to think about the correct arrangement of the sensors.



Sequence controlled 2-sensor muting



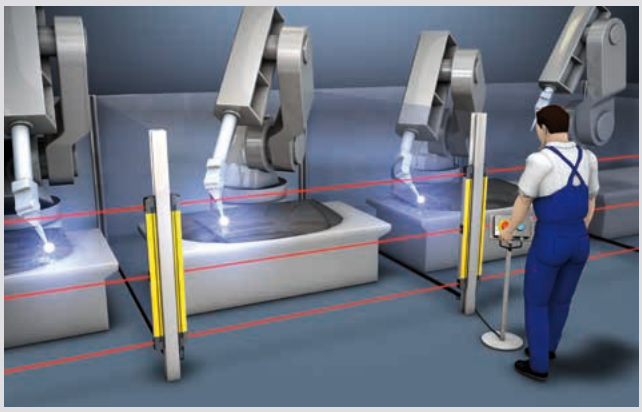
Sequence controlled 4-sensor muting

Timing controlled 2-sensor muting

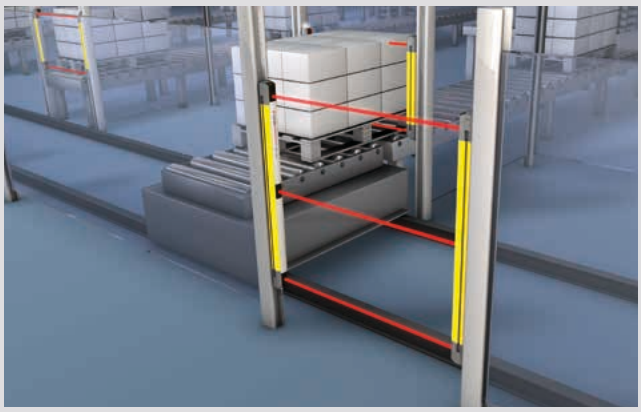
SIMPLY CONNECT — IMMEDIATELY READY TO USE

For all types of access guarding and muting applications.

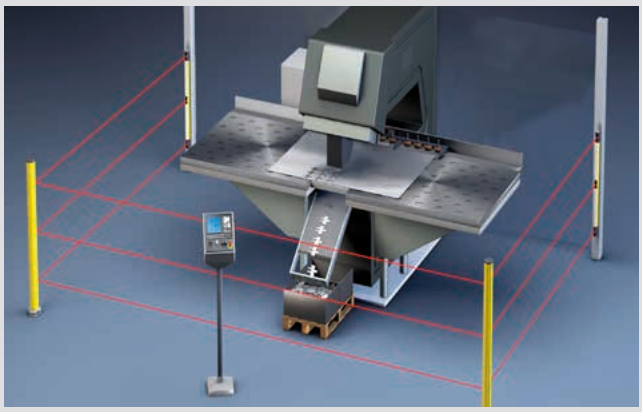
Access guarding with MLD 500 multiple light beam safety devices in a robotics application.



Access guarding with 3-beam transceiver of the MLD 300 series in conveyor and storage systems.



MLD 300 multiple light beam safety devices with deflecting mirrors for safeguarding on all sides.



MLD 500 with integrated muting indicator in an AS-i safety application with sequential muting.

HERE, THE AS-i INTERFACE IS ALREADY INSIDE

Integrate MLD multiple light beam safety devices in the AS-i network without coupling modules.

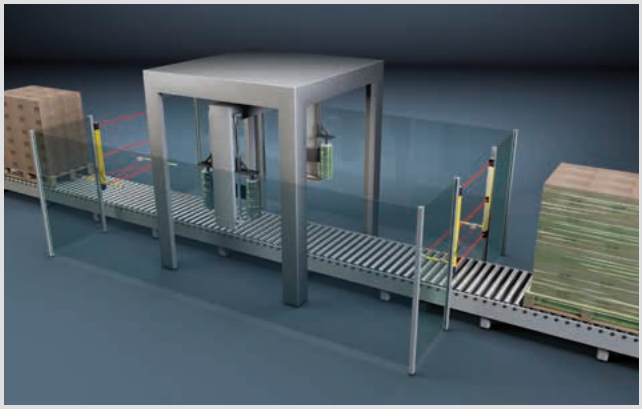
MLD AND AS-i — A GOOD TEAM

The AS-i interface device models can be directly integrated into an AS-interface network. No additional coupling modules are required. In cooperation with the Leuze electronic safety monitor ASM-m, the MLD multiple light beam safety devices permit the easy construction of access guarding based on AS-i Safety at Work.

MUTING IN THE AS-i SAFETY NETWORK

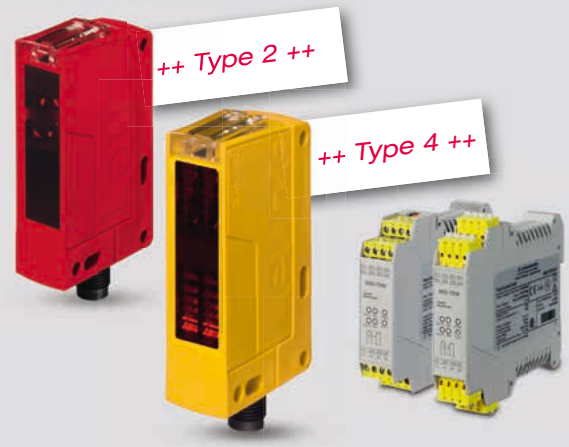
The ASM-m safety monitor controls the muting sequence, whereby the muting indicator integrated in the MLD is also controlled via the AS-interface. It is now no longer necessary to assign a separate AS-i slave address for the muting indicator. This also applies for an external muting indicator connected to the local socket of the safety sensor.

This saving allows even more AS-i slaves such as safety sensors to be connected to an AS-i network for each AS-i safety monitor.



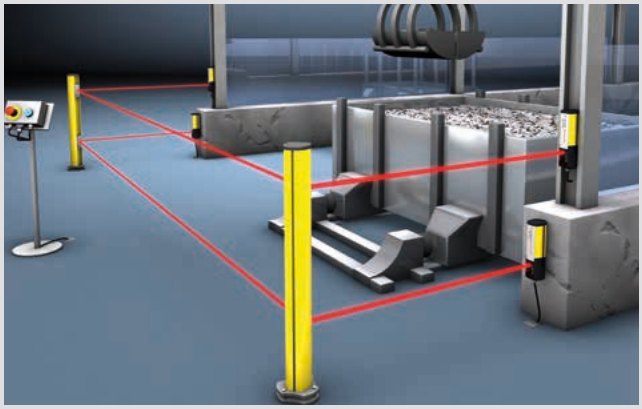
COMPACT SAFETY WITHOUT COMPRISE

Single beam safety devices for special conditions.



SINGLE BEAM SAFETY DEVICES MLD 500

These compact devices complement the MLD series and are used, e.g., if multiple light beam safety devices are not suitable due to the available mounting options.



SLS 46C SERIES WITH MSI-TRM MONITORING DEVICE

Whether type 4 or type 2 — the SLS 46C is part of a large product family for a wide range of applications in the areas of intralogistics, packaging systems, mounting and handling technology as well as in the wood-products, paper, and printing industries.

With the SLS 46C series, you can select from sensor variants with red light or infrared, as well as M12 plug or cable connection. In combination with the MSI-TRM safety relay, these photoelectric sensors become type 4 safety devices with PL e Performance Level.

- 2.5 ms response time allows for space-saving installation close to the point of operation
- Degree of protection IP 67 / IP 69K
- Temperature range from -30 through +60 °C
- Operating range up to 70 m
- Message output for diagnostic purposes

OUR PROMISE TO YOU

SMARTER **PRODUCT USABILITY**

With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. To this end, simple mounting and alignment are taken into account — just as the uncomplicated integrability of the sensors in existing field bus systems and easy configuration, e.g. via a web browser, are.

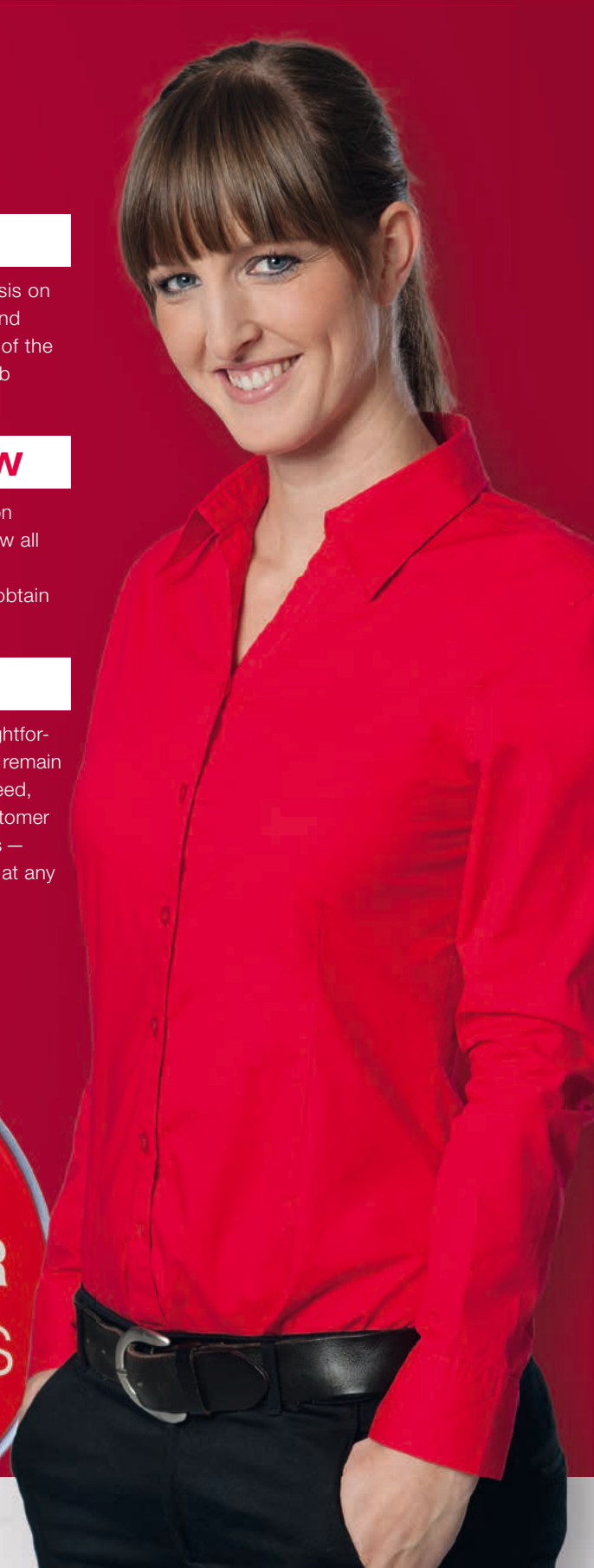
SMARTER **APPLICATION KNOW-HOW**

Whoever can do it all, can do nothing right. Which is why we concentrate on selected target sectors and applications. There, we are specialists and know all aspects inside out. For this purpose, we optimize our solutions and offer a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

SMARTER **CUSTOMER SERVICE**

The technical and personal closeness to our customers, and a skilled, straightforward handling of queries and problems, are among our strengths — and will remain so. Consequently, we will continue to expand our service offerings and, indeed, also forge ahead in new directions to persistently redefine the utmost in customer service. Whether on the phone, in the Internet or on-site with our customers — regardless of when and where the expertise of the sensor people is needed at any time.

Info at: **www.leuze.com**



Katrin Rieker,
Sales Methods, Processes, Tools

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