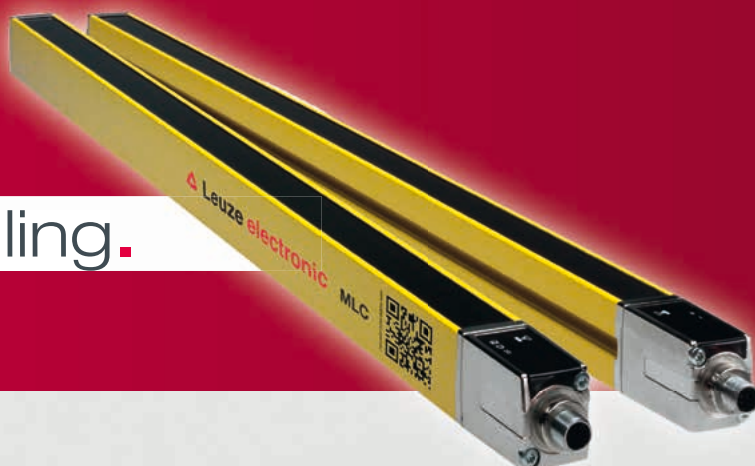


MLC 500, MLC 300

Type 4 and type 2 safety light curtains

*easy*handling.



ALWAYS ON THE SAFE SIDE

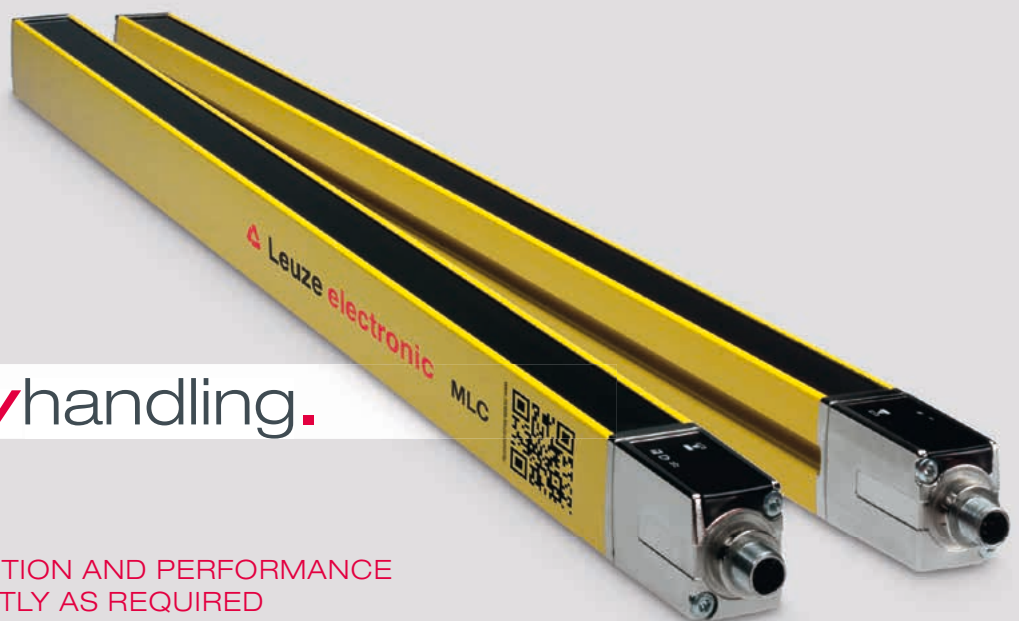
Our MLC safety light curtains offer the appropriate solution for different safety applications.

easyhandling.

FUNCTION AND PERFORMANCE EXACTLY AS REQUIRED

This comprehensive series includes both type 4 (MLC 500) and type 2 (MLC 300) safety light curtains which leave nothing to be desired in terms of resolution, protective field height and operating range. The compact devices with their slim and robust housing design, slightly set back front screen and reinforced side walls are used in access, danger zones or point of operation guarding.

Due to four function classes – basic, standard, extended and SPG – the devices reliably fulfill all requirements – from simple standard applications to controlled special safeguarding processes. Furthermore, application specific variants offer custom solutions for particular applications.





UNIVERSAL, INTELLIGENT, ROBUST

Both series already offer the most important basic functions in the basic variants for point of operation, danger zone and access guarding up to hand and finger detection. The extended variant therefore supports five different operating modes. It thereby offers an optimal base for efficient integration even with complex processes.

*easy*handling.

- **Simple configuration**
directly on the device without a PC
- **Simple mounting with swivel mounts,**
robust design and easy alignment, optionally
with vibration damping
- **LED and 7-segment display**
with integrated 3-zone alignment aid
- **Optional external alignment aid**
for even easier alignment, especially across long
distances
- **QR code on the device**
for quick access to service information
- **multiScan function**
offers different scan modes for optimal availabil-
ity in difficult environmental conditions

*think*modular.

- **Four function classes**
for optimum adaptation to each application
- **Protective field in 150 mm grid**
from 150 mm to 3,000 mm
- **Resolutions of 14 to 90 mm**
for optimized machine and system design
- **Two solutions for controlled
material transport**
 1. integrated muting functions in combination
with muting sensors
 2. Smart Process Gating (SPG, no muting
sensors necessary)

| Standards conformity | MLC 300 | MLC 500 |
|---|----------------|--------------------|
| Type in accordance with IEC/EN 61496 | type 2 | type 4 |
| Category and Performance Level in accordance with EN ISO 13849 | Cat. 2, PL c | Cat. 4, PL e |
| SIL in accordance with IEC 61508 and SILCL in accordance with EN IEC 62061 | SIL 1 | SIL 3 |
| Resolutions [mm]* | 20, 30, 40, 90 | 14, 20, 30, 40, 90 |

*) for protective field heights of 150 to 3,000 mm; 90 mm resolution for protective field heights of 450 to 3,000 mm

A GOOD BASIS FOR ANY CASE

You are well prepared with the basic variants of the safety light curtains, MLC 310 and MLC 510.

MLC 310 / 510 – THE ENTRY-LEVEL CLASS

The basic variants MLC 310 and MLC 510 already have many clever features that clearly optimize handling, guarantee high performance and simplify integration.

- **Optimal handling**
due to configuration without a PC
- **Automatic start/restart**
- **LED display**
for simple status overview
- **Prevention of mutual interference**
of the sensors by selectable transmission channels and range reduction
- **Versatile mounting options**
due to an extensive selection of accessories
- **Short delivery times**
and global availability
- **AIDA compliant pin assignment**
4-pin plug variant for use in the automotive industry (MLC 311 and MLC 511)
- **Variants with AS-i interfaces**
facilitate the direct and economical integration in an AS-Interface network



You can call up additional information directly with your mobile phone using the QR code, e.g. for diagnosing sensor messages. Data sheets and contact information for obtaining support from our experts are therefore also quickly available.

MLC 510 (basic variant) in combination with safety command device (E-Stop rope switch) in the wood industry



WE OFFER THE SPECIAL AS STANDARD

The standard variants MLC 320 and MLC 520 impress with their purposeful function extensions.

MLC 320 / 520 – THE ALL-ROUNDER

The standard variants offer further functions for easy integration into the safety circuit with the start/restart interlock (RES) and contactor monitoring. Variants for cascading the light curtain (host/guest) as well as for special areas of application (degrees of protection IP 67 / 69K, EX certification) also expand the range of applications.

■ Start/restart interlock (RES)

In addition to automatic start/restart, the standard variants have a built-in start/restart interlock that can be activated, if necessary

■ Integrated contactor monitoring (EDM)

■ Clear 7-segment display

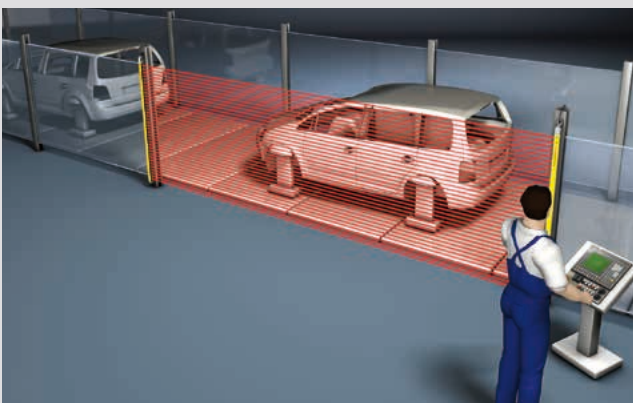
for a clear status display and with integrated 3-zone alignment aid

■ Cascadable host-guest variants

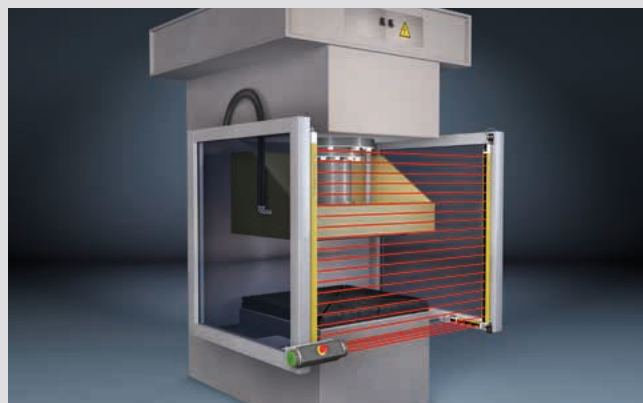
enable economical safeguarding of the front and back of a machine using only one connection cable and the installation of a “around the corners” light curtain for the implementation of stepping behind protection



Access guarding on transport conveyors provided by safety light curtain with integrated start/restart interlock



Host-guest variants enable multiple-sided safeguarding with reduced wiring work



IT USUALLY DEPENDS ON WHAT HAS BEEN ADDED

These extended and SPG* variants impress with their intelligent additional functions.

MLC 530 – FIVE DIFFERENT OPERATING MODES

Even complex applications with blanking, muting or device chaining can be solved easily without a PC as setup is done by wiring.

- **Optional fixed or floating blanking**
and reduced resolution in cases where objects must be located in the protective field for operational reasons
- **Integrated muting functions**
for timing controlled muting, e.g. for material transport through the protective field
- **Different scan modes**
for optimizing the availability. Choose between SingleScan, DoubleScan or MaxiScan to control robustness e.g. if there are shavings flying around
- **Device chaining**
for connecting additional safety devices via contact or OSSD output saves cost and effort of cabling

Efficient sheet metal bending at a press brake using floating blanking



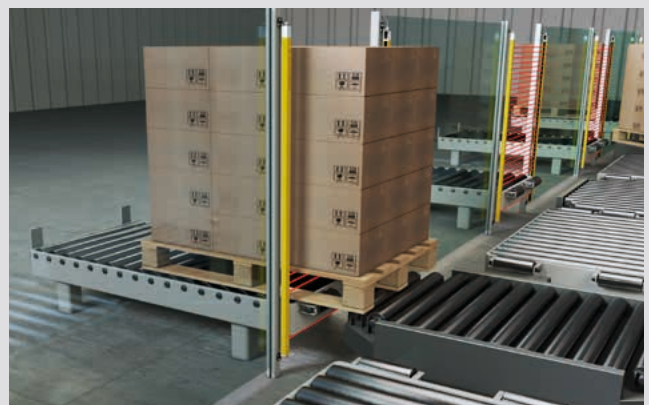
MLC 530 SPG* – EFFICIENT ACCESS GUARDING WITHOUT MUTING SENSORS

In addition to the control signal provided by PLC, this innovative concept also uses the interruption of the protective field to enable material transport. A reference beam remains active for monitoring.

- **Allows very compact system design**
and thus saves valuable space
- **High security against tampering and availability,**
as no additional sensors are necessary
- **No alignment of the sensors**
necessary when changing the transported material

*SPG = Smart Process Gating

SPG* allows a very compact system arrangement with access guarding, even in deep-freeze areas to -30 °C ❄️



THUS SAFETY BECOMES VERY SIMPLE

With the pre-mounted MLC-UDC sets, setting-up and starting-up of safeguarding are easier than ever before.

MLC-UDC – SAFETY LIGHT CURTAIN AND DEVICE COLUMN IN ONE SET

Pre-mounted safety light curtains in robust and flexible UDC device columns – you will get this if you decide on MLC-UDC. You do not need to put together individual components yourself and get a robust and optimally matched complete system.

The pre-mounted MLC-UDC sets
for quick and easy installations



WIDE RANGE OF MUTING ACCESSORIES

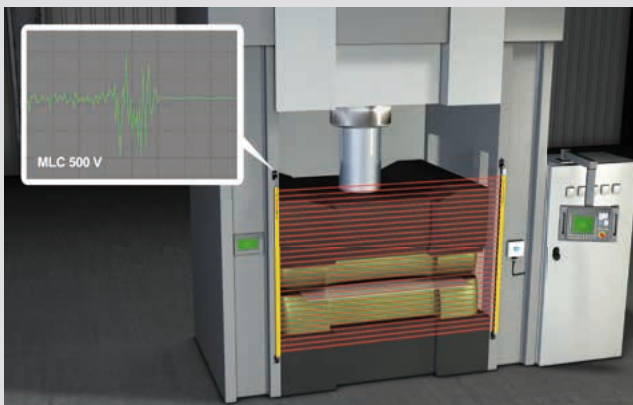
Our extensive selection of accessories and pre-mounted muting sensor sets make installation of muting applications easy

- Device columns
- Pre-mounted muting sensor sets
- Muting indicator
- Display and control units
- Terminal boxes
- Cables



ALWAYS ENOUGH, NEVER TOO MUCH

MLC safety light curtains offer the right solution also for special safeguarding tasks.



TAILORED SOLUTIONS FOR SPECIAL APPLICATION CASES

■ Increased resistance to vibration

Due to their optimized design the V-versions of the MLC series are extra resistant to shock and vibrations. This makes them ideally suited for use on machines where particularly strong accelerations or vibrations occur, such as mechanical presses

■ Protection classes IP 67 / IP 69K

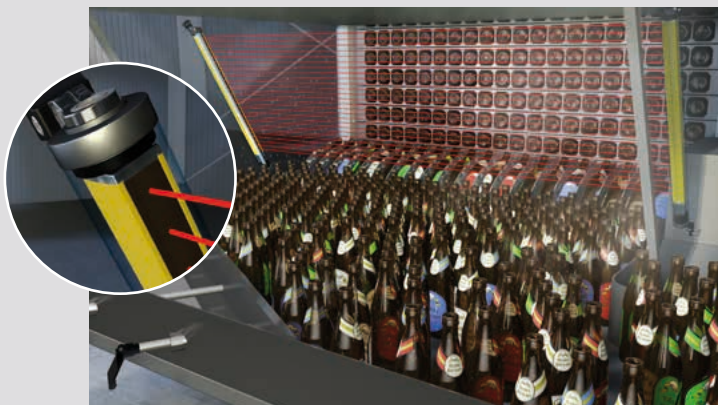
For this solution, MLC safety light curtains are pre-mounted in a transparent and encapsulated tube. Thus, these safety light curtain solutions achieve the highest degree of protection IP 67 / IP 69K and are suitable e.g. for use in the food industry

■ Ex-marking in accordance with EN 60079 Ex

These MLC variants are designed for use in potentially explosive areas and fulfill the ATEX directives for device group II, category 3, zone 2 (gas) and zone 22 (dust)

■ Operating temperatures down to -30°C ❄️

These variants are suitable for use in cold stores e.g. in the food industry



Encapsulated MLC with protection classes IP 67 / IP 69K (left) and MLC with Ex-marking (right)

WHEN SOMETHING MORE IS CALLED FOR

The MLC series offers a wide spectrum of useful accessories in addition to powerful safety sensors.

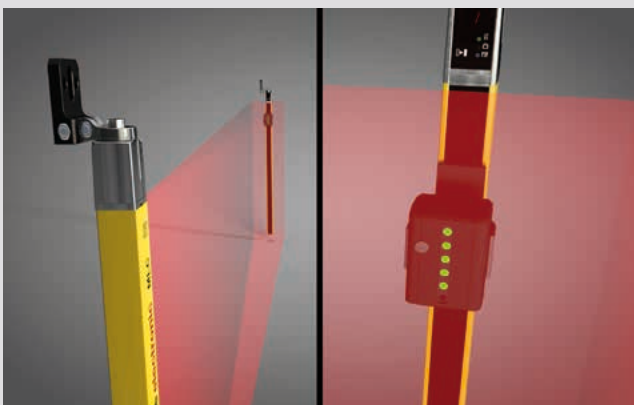
EXTERNAL ALIGNMENT AID

■ Easy adjustment even over long distances

The transmitter can be aligned quickly and reliably in the best possible way using the handy alignment aid. Used at the receiving end, it visually displays the strength of the optical signal level received via 5 LEDs. The transmitter is optimally aligned at maximum level displayed.

The mounting bracket supplied enables easy mounting on the front of the MLC receiver.

The external MLC alignment aid is a practical tool allowing to set up large protective fields more quickly



EXTENSIVE SELECTION OF MOUNTING ACCESSORIES

■ Sliding blocks

The sliding blocks enable direct mounting of the MLC safety light curtains on the machine or system to be safeguarded using the lateral groove. The sliding blocks are provided with any MLC.

■ Swivel mounts

Swivel mounts offer more flexibility for mounting. They make alignment of the safety light curtain simple by using rotation.

■ Swiveling mounting bracket, for lateral attachment

The swiveling mounting brackets can be moved to adjust the height and can also be swiveled by approximately +/- 5 degrees for alignment purposes. Furthermore, it above all offers additional stability, above all for MLCs with large protective field lengths.

■ Vibration dampening designs

Additional dampening elements reduce the transfer of shocks or vibrations onto the safety light curtain. Both the swivel mounts and swiveling mounting brackets are available as a vibration damping variant.



ALL TECHNICAL DATA AT A GLANCE

| Function class | MLC 310 MLC 510 "Basic" | MLC 320 MLC 520 "Standard" | MLC 530 "Extended" | MLC 530 SPG |
|---|-------------------------------|----------------------------------|-----------------------|----------------|
| Range reduction on the transmitter | X | X | X | X |
| Transmission channel, selectable | X | X | X | X |
| LED indicators | X | X | X | X |
| 7-segment display | – | X | X | X |
| Automatic start/restart | X | X | X | – |
| Start/restart interlock (RES) | – | X | X | X |
| Contactors monitoring (EDM) | – | X | – | – |
| Beam blanking, fixed or flexible | – | – | X | X |
| Muting function, integrated | – | – | X | X |
| Device chaining (safety switch or OSSDs) | – | – | X | – |
| Scan modes (DoubleScan, MaxiScan) | – | – | X | – |
| Designs for special applications | | | | |
| AIDA compliant pin assignment | X ^{1, 2, 4} | – | – | – |
| AS-i Safety interface | X ^{1, 4} | – | – | – |
| ⚠ marking in accordance with EN 60079 (group II, cat 3D and 3G) | – | X ^{1, 3, 4} | – | – |
| Protection classes IP 67/IP 69K (mounted in tube) | X ^{1, 2, 4} | – | – | – |
| Low temperature operation down to -30 °C (optional) | X ¹ | X ¹ | X | X |
| Extra shock/vibration resistant | X ^{1, 2, 4} | X ^{1, 2, 4} | X ^{2, 4} | – |
| Cascadable (host/guest 1/guest 2) | – | X ^{1, 4} | – | – |

| General characteristics | |
|--------------------------------------|---|
| Type in accordance with IEC/EN 61469 | MLC 300: type 2 MLC 500: type 4 |
| Resolution [mm] | 14 ¹ , 20, 30, 40, 90 ⁴ |
| Protective field height | 150–3,000 mm |
| Response time | 3–64 ms |
| Operating range [m] | 6–20 m |
| Connection type | M12 |

¹ Only for MLC 500 series

² Resolutions 14 mm and 30 mm

³ Resolutions 20 mm and 30 mm

⁴ Selected protective field lengths