



Reer Light Curtains for use in Material Handling Applications

Muting in Palletizers, Wrapping Machines, Robotic Stacking etc....

For many years Reer has been the leader in the production of Safety light curtains specific to material handling applications where the safe movement of material must be processed. Muting as it is called is accomplished by the Innovative Reer **Janus** Light Curtain System which is inclusive of the muting photocells (built in) pre assembled and aligned in the correct geometric position in compliance to all related safety standards and technical specifications.

Thanks to a range of accessory components, the Reer Janus System is a “plug and play” system reducing installation time and labor cost, and specifically the responsibility of placing the muting sensors correctly, enabling compliance to the safety standards in a reliable system.

This offers tremendous upside to material handling but there is much more.

Machinery such as Palletizers and Wrappers have similar protection applications; Both of them can be approached using the Reer Janus Muting light curtains. Wrappers often need a more accurate analysis because of the nature of the machine.

While the Palletizer application is a relatively repeatable machine (meaning the goods to be palletized are constant in their size/shape), wrappers are a more difficult application due to varying sizes/shapes. Any type material can pass through a wrapper, even in the same plant.

In any case there is a general application note; These types of systems are normally placed at END OF THE PRODUCTION LINES. Goods (pallets) can enter and exit from the machinery but very often (at least in 50% of the case) the goods are exiting from the machinery in a definitive way, for example loaded onto a truck or to be stocked.

In all these cases of END OF THE LINE palletizing, Reer is able to apply a **revolutionary concept**.



The Reer concept we define as “L” logic

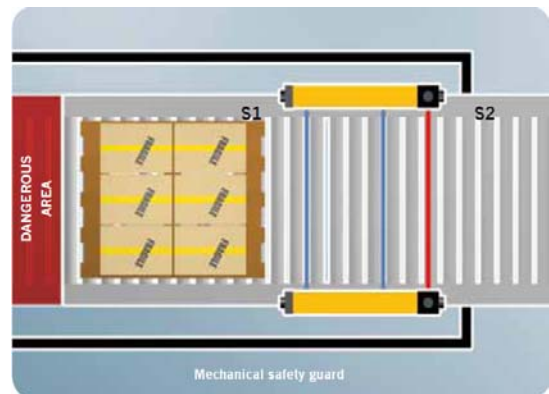
In this case the pallets pass in front of the gate protected by the light curtain in the same direction. **From “inside” the machinery to “outside”**.

In this case the safety necessary is to avoid ANYTHING (Personnel) entering the machinery and permit EVERYTHING to exit. Reer solved this very common application with the **JANUS L Logic**.

In this case the light curtain is composed of a light curtain body plus a single arm that includes 2 muting photoelectric sensors. The muting sensors (arm) are placed ONLY in the INSIDE side of the machinery. **IT IS AN “EXIT ONLY” Muting Application**

In this way you have the MAXIMUM safety condition. There is NO WAY a worker can enter the dangerous zone activating the muting function. Personnel will always be detected by the light curtain first and be safe.

At the same time all goods moving from the INSIDE part of the machinery will be able to EXIT without ANY issues concerning pallet dimensions, shape, speed, or alignment in the conveyor.



How does it work?

The pallet coming from inside out, will occupy the first 2 muting sensors, then the light curtain. Occupying the 2 muting sensors initiates the muting function start allowing the goods to pass through the safety light curtain. This interrupts the light curtain activation until the goods are **completely OUT** from the light curtain area. At the correct moment the muting function will terminate and the light curtain will be active again protecting personnel.

Muting timeout: It is possible to set the maximum time the muting function will last from 30 seconds or 90 minutes selectable.

Safety muting timeout: In any case after the goods leave the last muting sensor a safety muting timeout of 4 second starts. Within this time the pallet has to move out of the light curtain protected area.

When this occurs the muting function ends and also the timeout is closed.

The pallet in this period travels approx. 60mm. IN DISTANCE

This results in a minimum speed of 15mm/sec. Very slow pallet!!

What about alignment?

The light curtain is very simple to align and the display indication helps the operator.

Sensors are automatically aligned with the light curtain. If you move them up and down you can set the two arms at the same height using the available scale on the side of the light curtain body.



If the two arms are placed at different heights, it is always possible to rotate each of them 8 degrees. This will be more than enough, because the acceptance angle is very wide.

Examples: irregular loads, pallets piled high on pallets, pallets containing transparent bottles with paper layers.

What are the advantages of L logic?

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|--------------------|---|
| 1. Simplicity | Everything goes out, Nothing goes in. |
| 2. Space occupied | NO sensors are Outside the dangerous areas |
| 3. Reliability | Everything goes out without problems. Min. pallet dimensions are 300mm length!!! |
| 4. Integration | A distance of a minimum of 300 mm is necessary between 2 consecutive |
| 5. Safety | The Light curtain is IMMEDIATELY active after the goods leave the protected area. |
| 6. Responsibility | The light curtain SYSTEM complies with all relevant safety standards. |
| 7. Flexibility | Fast or slow pallet speeds will work. |
| 8. Cost | Avoiding the 2 extra sensors and related mounting, costs less. |
| 9. Standardization | L logic and L shape is applicable for all exit gates.
T logic and T shape is applicable for all entry or by entry/exit (bidirectional) applications. |

There are many options for the **L logic JANUS light curtains** from Reer.

How do we choose between them?

Resolution or beam spacing only depends on the application and the related safety distance.

Cost is based on the number of optical axis (beams), the more beams the more expensive the curtain.

We recommend the following for EXIT ONLY applications, if there exists no specific application choices:

1. ML The simplest model.
Distance between 2 pallets must be < 100 mm or >300mm.
2. ML S2 Green light parallel Muting beams detect transparent material.
Distance between 2 pallets must be >300mm.
3. ML TRX Connection on only one side. The other side is completely passive (no cable).
It has all the advantages of ML S2 with transparent material.
Distance between 2 pallets must be >300mm.

Note 1: 2 beams in the TRX are realized with 1 beam reflected; 3 beam AND 4 beam types are realized with 2 beams reflected.

Note 2: Glass detection can be better solved placing the emitter and receiver muting arms under and over one of the carton foils (on an angle) normally placed in between layers of bottles. This can be done easily with ML or ML S2. More limited with ML TRX

Note 3 TRX models (ALL) have MUTING ENABLE inputs. It disables the muting function ALSO if it is already started. This means you can stop muting function at any moment or let it start when necessary. Example, Muting is possible only when conveyor is running.

Here some active customers and application examples:

OCME -Parma

<http://www.ocme.it/>

Application example

Iceni Waters (Duxford, Cambridge - UK)

Complete bottling line for mineral water. Have a look at the end of the video!!

<http://www.ocme.it/website/news.aspx?id=572&pkey=168&fl=>

ATLANTA STRETCH - Rimini

<http://www.atlantastretch.com/eng/revolution.php>

High performance rotating arm machine for stretch film pallet wrapping.

Here's an application example, of a wrapper with an L shape light curtain at exit and a T shape at entry.

