NORSTAT INC. & REER

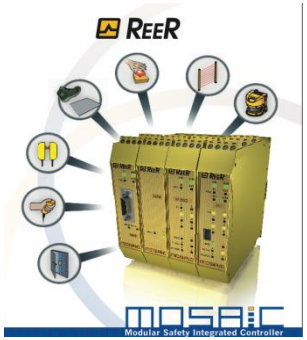
Safety Light Curtains, Muting Light Curtains, Safety Controller, Measuring Light Curtains

Product Line Presentation

NORSTAT *Safety & Automation Program*

Safety Switches, Limit Switches

Safety Controller

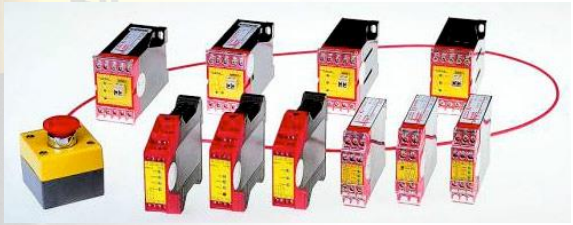


Safety Light Curtains and Barriers

Connection Technology

Signaling Technology

Non Contact Safety Switches



Safety Relays

REER

NORSTAT INC.

EOS

THE NEW GENERATION OF SAFETY LIGHT CURTAINS

TYPE 4
TYPE 2

REER

EOS4/EOS2

Type 4 and Type 2 Safety Light Curtains

Innovative Features

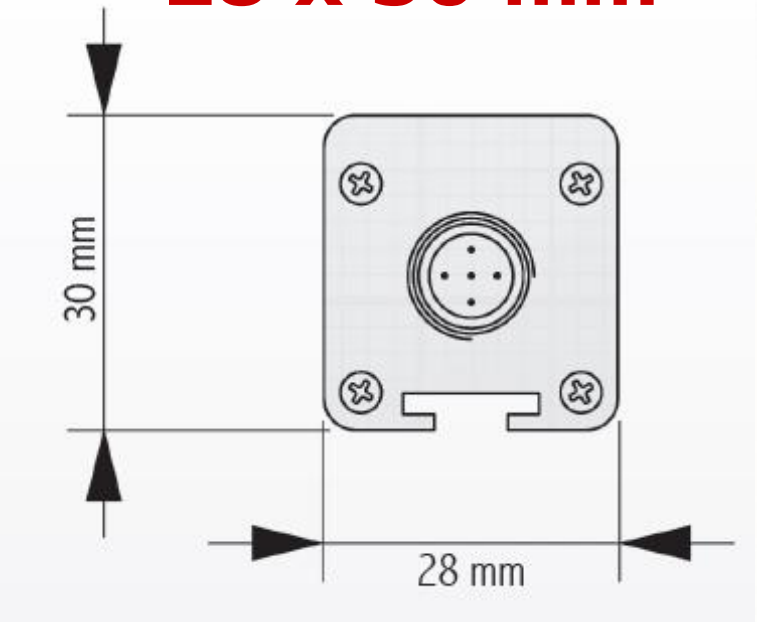
- Minimal cross section 28 x 30 mm
- No Dead Zone area on one side
- Minimal Dead Zone area on connector side
- Operating temperature range -10 to 55 °C
- Protection rate IP 65 and IP 67
- Start-up time ≤ 2 sec
- Models Master/Slave for cascade connection of two or three curtains

NORSTAT INC.

Type 4 and Type 2 Safety Light Curtains

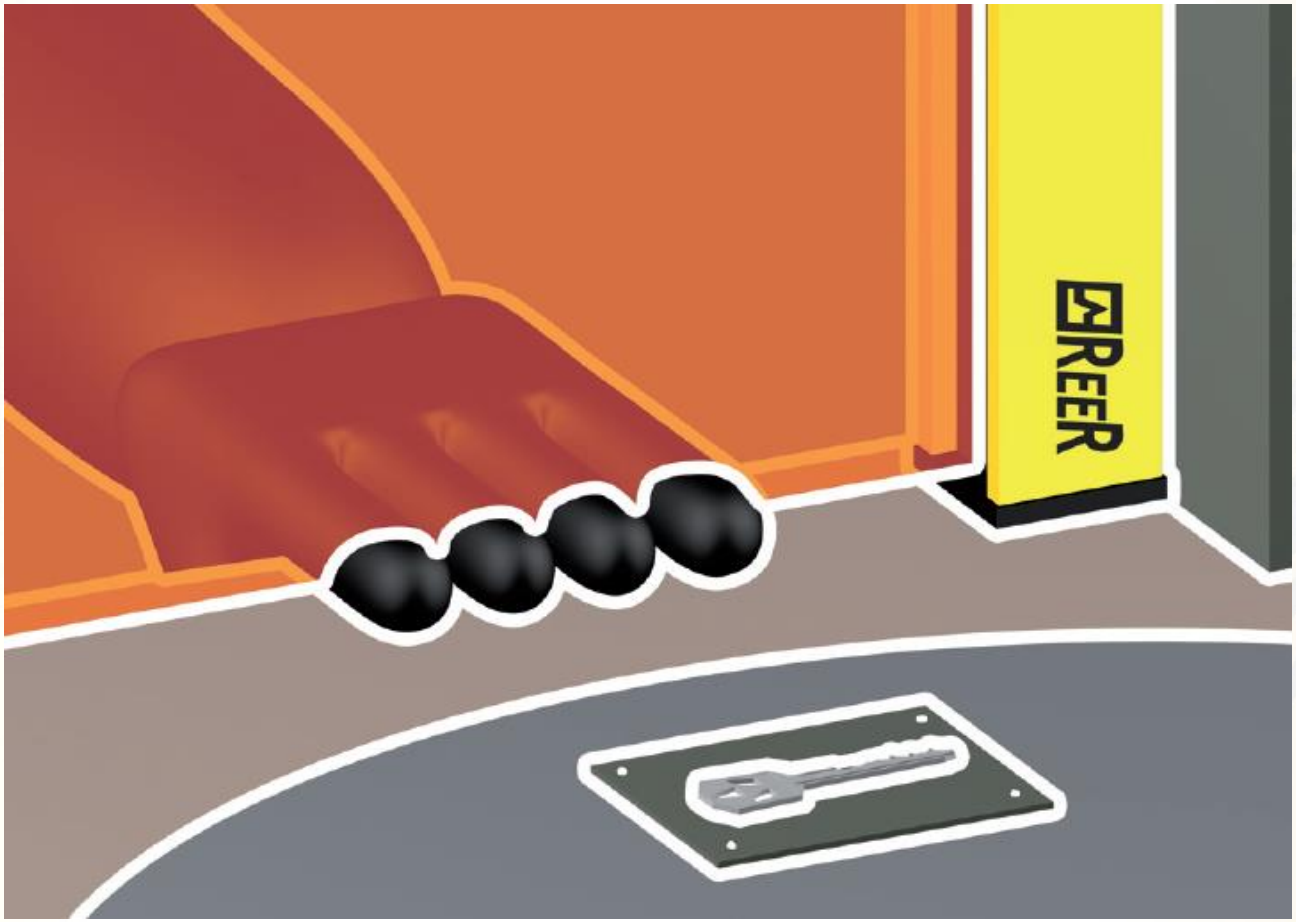
Minimal cross section

28 x 30 mm



EOS is one of the smallest light curtains on the market
(with all integrated safety functions)

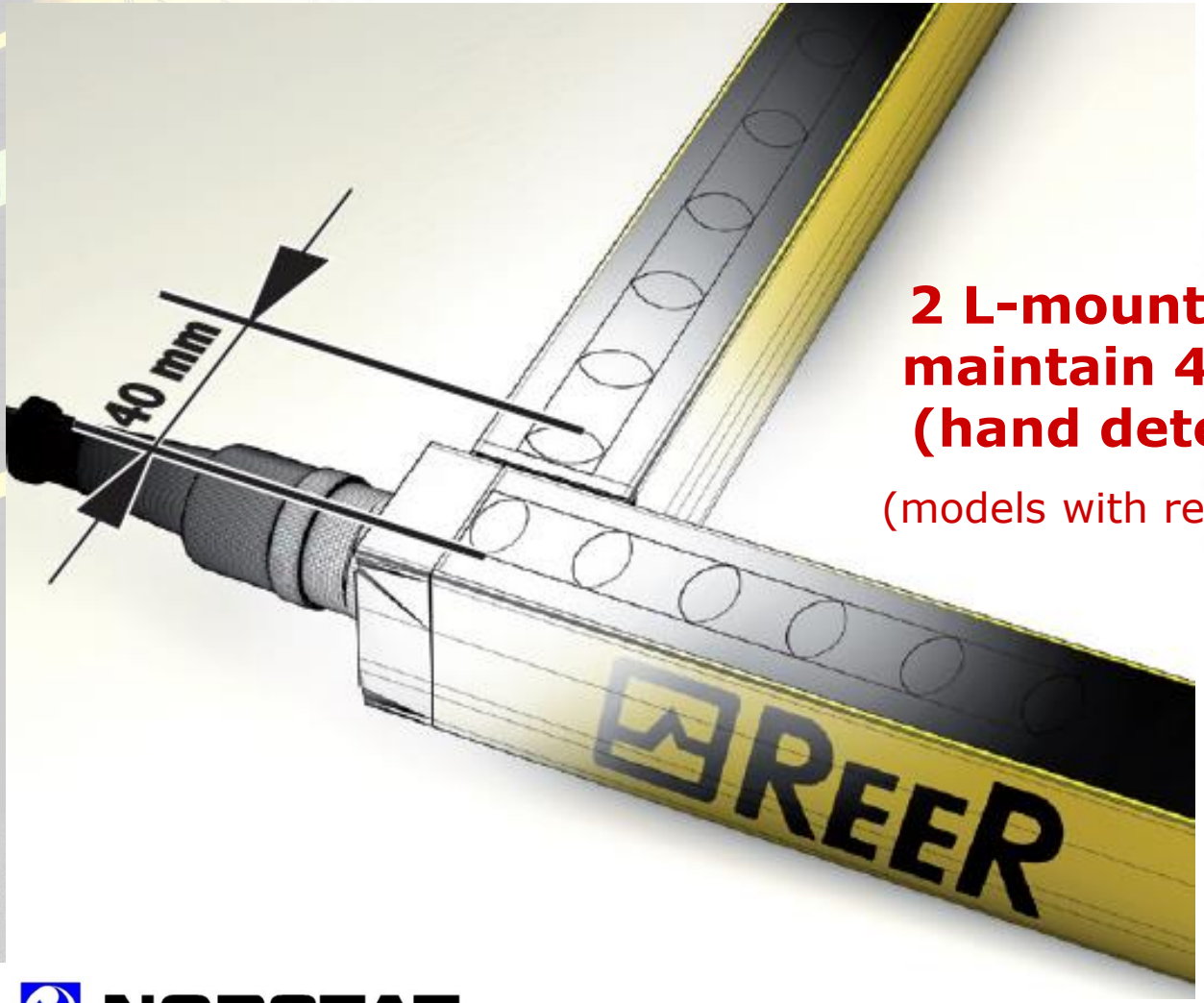
Type 4 and Type 2 Safety Light Curtains



No Dead Zone area

The light curtain is applied on a work surface
The nominal resolution is always maintained
Fingers and hands are always detected and protected

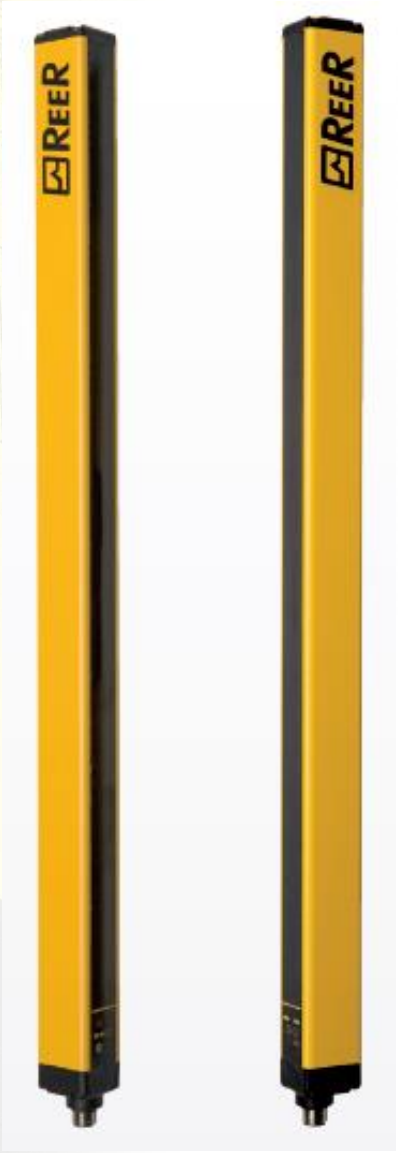
Type 4 and Type 2 Safety Light Curtains



2 L-mounted light curtains maintain 40 mm resolution (hand detection) in corner

(models with resolution 30 and 40 mm)

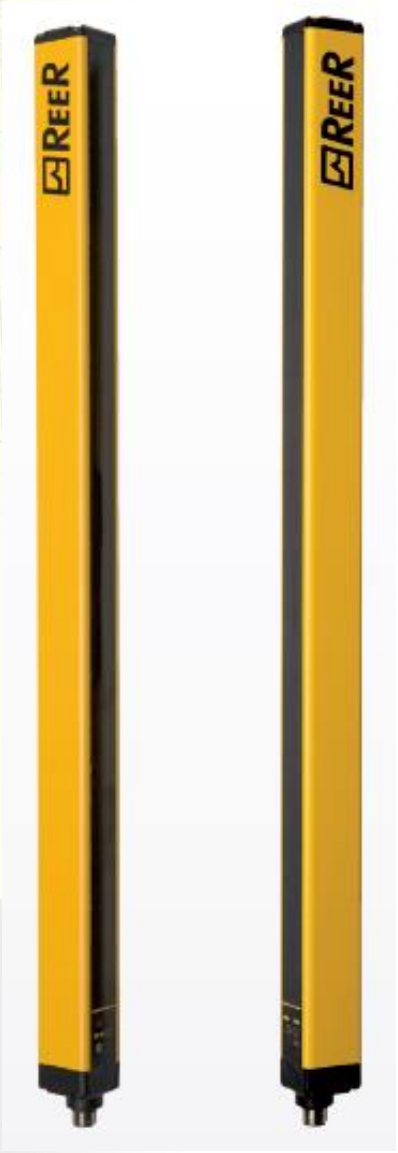
Type 4 and Type 2 Safety Light Curtains



OPERATING TEMPERATURE RANGE

-10° ÷ 55°

Type 4 and Type 2 Safety Light Curtains



PROTECTION RATE

IP 65 and IP 67

High resistance to infiltration of dust and liquids in a highly compact light curtain

The great majority of competitor's light curtains are only IP65

Please note that IP65 and IP67 are not in hierarchical order

Type 4 and Type 2 Safety Light Curtains

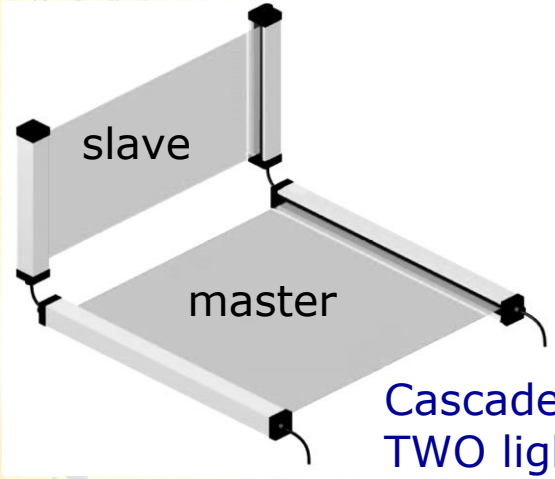
START-UP TIME

≤ 2 sec

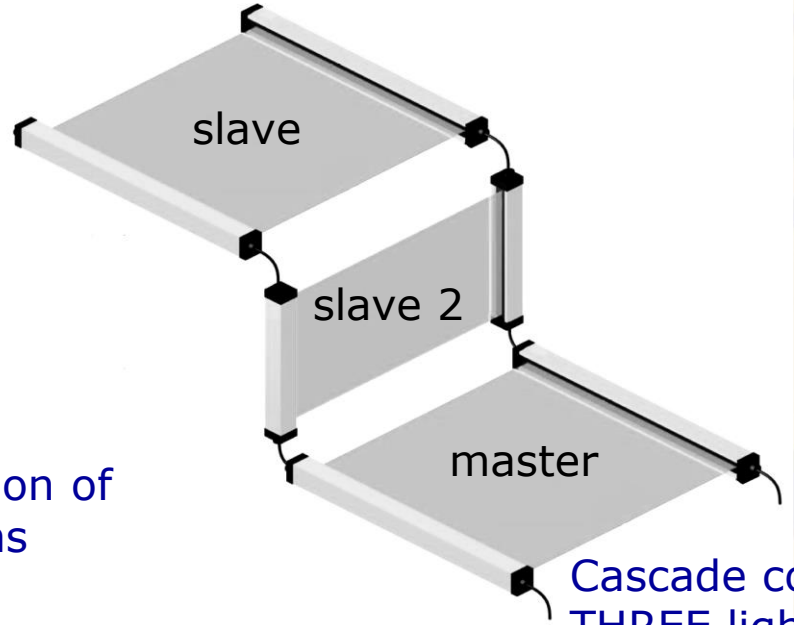
All functions quickly available

MASTER / SLAVE

Cascade connection of two or three light curtains



Cascade connection of
TWO light curtains

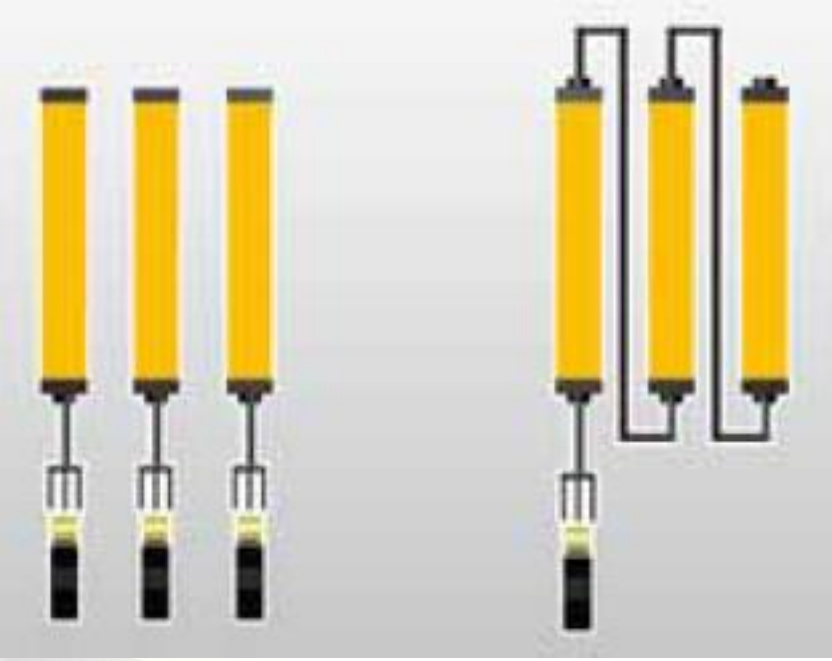


Cascade connection of
THREE light curtains

- Possibility of combining different resolutions and protected heights
- Connection cable between Master and Slave up to 50 m long
- No optical interferences between the light curtains

Type 4 and Type 2 Safety Light Curtains

MASTER / SLAVE



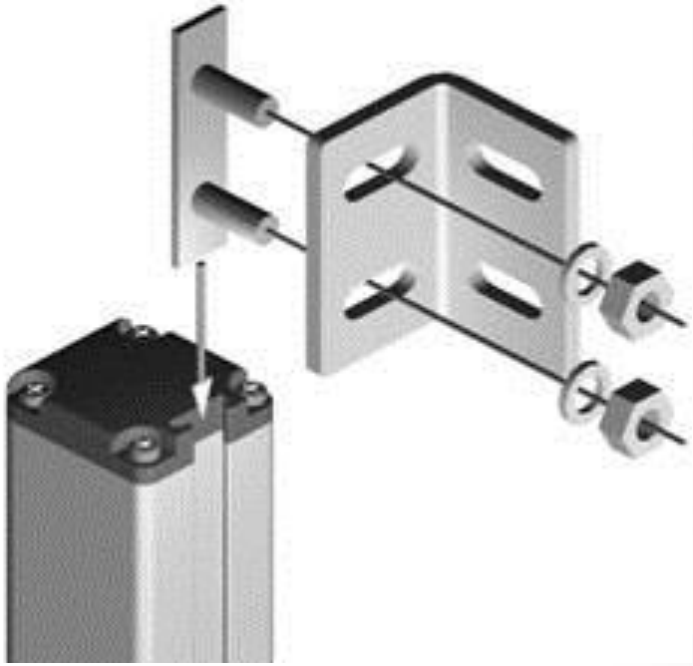
With three standard curtains it will be necessary to use and wire up 3 safety modules or 6 contactors.

Benefit:
with the master/slave solution with 3 series curtains it will be necessary to use and wire up only 1 safety module or 2 contactors.

Type 4 and Type 2 Safety Light Curtains

BACK T-SLOT FOR FASTENING

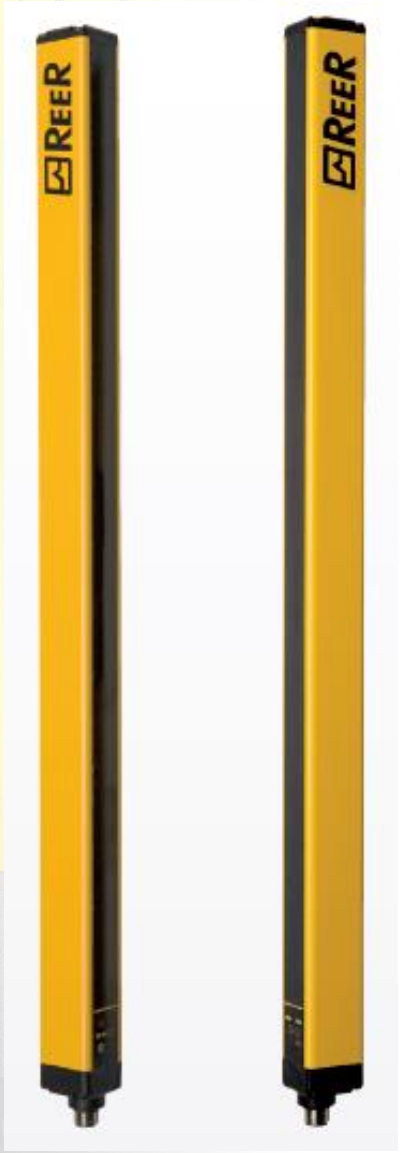
Robust and simple



REER

EOS 4

Type 4 Safety Light Curtains



SAFETY LEVEL

- Type 4 - IEC 61496-1-2
- Category 4 - ISO/EN 13849-1
- PL e - ISO/EN 13849-1
- SIL 3 - IEC 61508
- SIL CL 3 - EN 62061

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Safety level:
TYPE 4
SIL 3 – SILCL 3
PL e – Cat. 4

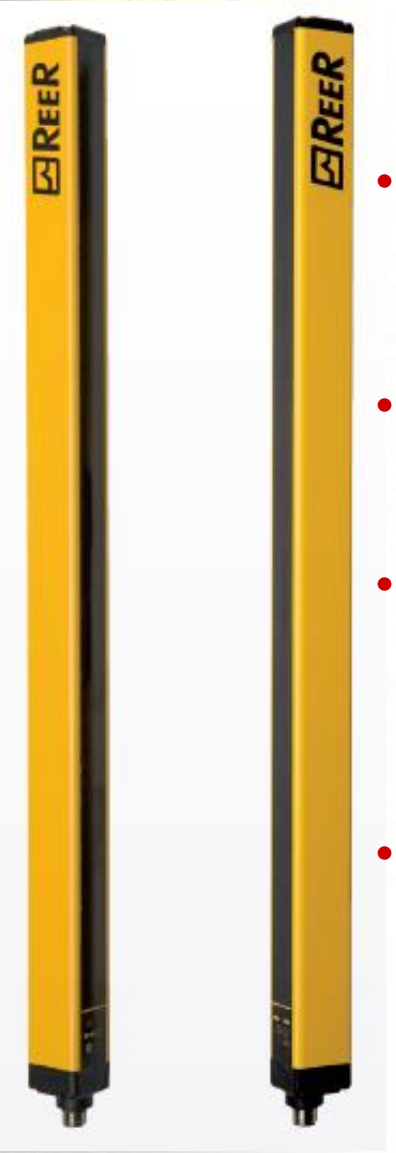
EOS 4

Type 4 Safety Light Curtains

- 7 types of detection:
  - Resolution 14 for finger detection
  - Resolution 20, 30, 40 mm for hand detection
  - Resolution 50, 90 mm for detection of the body in a dangerous area
  - 2-3-4 beams for body detection
- Protected height range 160 to 1510 mm
- Max range 6 m for EOS 14 mm A and X models
- Max range 12 m for EOS 20,30,40,50,90 and 2,3,4 beams A and X models
- Max range 20 m for EOS 20,30,40,50,90 and 2,3,4 beams AH and XH models
- Integrated selectable manual or automatic Start/Restart
- Feedback input for external relay monitoring (EDM)
- M12 5/8 poles connectors and unshielded cables up to 100 m

EOS 4

Type 4 Safety Light Curtains



MODELS

- **EOS4...A** Automatic Start/Restart
  2 x M12 -5 poles connectors
  6 m max range for 14 mm
  12 m max range for 20,30,40,50,90 mm and 2-3-4 beams

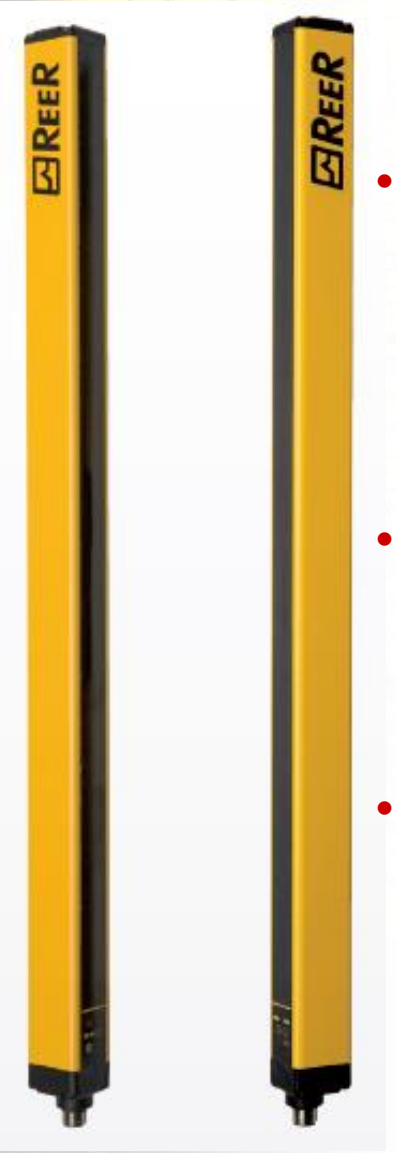
- **EOS4...AH** Automatic Start/Restart
  2 x M12 -5 poles connectors
  20 m max range for 20,30,40,50,90 mm and 2-3-4 beams

- **EOS4...X** Manual/automatic Start/Restart
  Feedback input - EDM
  2 x M12 connectors (1x5 poles + 1x8 poles)
  6 m max range for 14 mm
  12 m max range for 20,30,40,50,90 mm and 2-3-4 beams

- **EOS4...XH** Manual/automatic Start/Restart
  Feedback input - EDM
  2 x M12 connectors (1x5 poles + 1x8 poles)
  20 m max range for 20,30,40,50,90 mm and 2-3-4 beams

EOS 4

Type 4 Safety Light Curtains



MODELS

- **EOS4…XM** **Master Models**
  Manual/automatic Start/Restart
  Feedback input - EDM
  2 x M12 connectors (3x5 poles + 1x8 poles)
  Manual/automatic Start/Restart
  6 m max range for 14 mm
  12 m max range for 20,30,40,50,90 mm and 2-3-4 beams

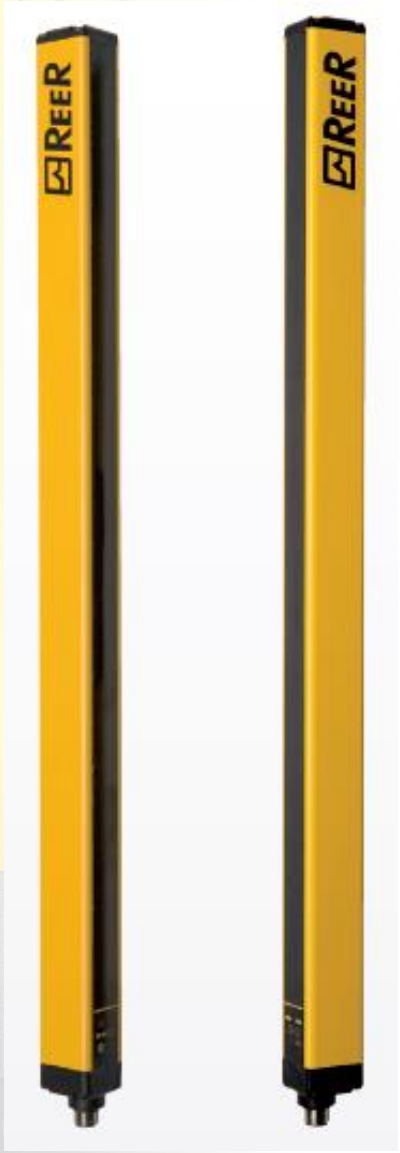
- **EOS4…XS** **Slave Models**
  2 x M12 -5 poles connectors
  (to be connected to Master models)
  6 m max range for 14 mm
  12 m max range for 20,30,40,50,90 mm and 2-3-4 beams

- **EOS4…XS2** **Slave2 Models**
  2 x M12 -5 poles connectors
  (to be connected between Master and Slave models)
  6 m max range for 14 mm
  12 m max range for 20,30,40,50,90 mm and 2-3-4 beams

REER

EOS 2

Type 2 Safety Light Curtains



SAFETY LEVEL

- Type 2 - IEC 61496-1-2
- Category 2 - ISO/EN 13849-1
- PL d - ISO/EN 13849-1
- SIL 2 - IEC 61508
- SIL CL 2 - EN 62061

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Safety level:

TYPE 2

SIL 2 – SILCL 2
PL d – Cat. 2

REER

EOS 2

Type 2 Safety Light Curtains

Features

- **5 types of detection:**
  - **Resolution 30 - 40 mm for hand detection**
  - **Resolution 50 - 90 mm for detection of the body in a dangerous area**
  - **2-3-4 beams for body detection**
- **Protected height range 160 to 1510 mm**
- **Max range 12 m**
- **Integrated selectable manual or automatic Start/Restart**
- **Feedback input for external relay monitoring (EDM)**
- **M12 5/8 poles connectors**
- **Use of unshielded cables up to 100 m**

EOS 2

Type 2 Safety Light Curtains

MODELS

- **EOS2...A** — Automatic Start/Restart
  2 x M12 -5 poles connectors
- **EOS2...X** — Manual/automatic Start/Restart
  Feedback input - EDM
  2 x M12 connectors (1x5 poles + 1x8 poles)
- **EOS2...XM** — Master Models
  Manual/automatic Start/Restart
  Feedback input - EDM
  2 x M12 connectors (3x5 poles + 1x8 poles
- **EOS2...XS** — Slave Models
  2 x M12 -5 poles connectors
  (to be connected to Master models)
- **EOS2...XS2** — Slave2 Models
  2 x M12 -5 poles connectors
  (to be connected between Master and Slave models)

SAFETY RELAYS

New Product line

In addition to the existing line of safety modules for light curtains and safety photocells, ReeR is adding a NEW range of safety modules for two hand control, e-stops and safety switches.

MOSAIC

NORSTAT INC.

REER

EMERGENCY STOP AND SAFETY GATE MONITORING RELAY

TWO HAND CONTROL RELAY

SAFETY RELAY
for safety sensors with EDM

	AD SRE3	AD SRE3C	AD SRE4	AD SRE4C	AD SRT	AD SR0	AD SR0A
Safety level	PL a – d, Cat. 2 - 3 according to ISO 13849-1		PL e, Cat. 4 according to ISO 13849-1			–	
Safety relay outputs	2 NO – 6 A 240 Vac		3 NO + 1 NC – 5 A 240 Vac		2 NO + 1 NC 6 A 240 Vac	2 NO + 1 NC	2 NO
						2 A 250 Vac	
Min. switching current at 24 Vdc (mA)	6					20	
Response time (ms)	≤ 50		≤ 30		≤ 30	≤ 20	
Start/Restart	Automatic/ Manual	Manual	Automatic/ Manual	Manual	–	–	
Monitored Restart	No	Yes	No	Yes	–	–	
Signalling	LED indicators for status and supply diagnostic: power, channel 1 and channel 2					–	
Power supply (Vdc)	24 (-15 +10%)		24 (± 10%)		24 (-15 +10%)	24 (± 20%)	
Simultaneity (s)	–				Simultaneous: ≤ 0,5	–	
Electrical connection	On terminal block						
Operating temperature (°C)	-25 to +55					0 to +55	
Protection rating	IP 40 for housing - IP 2X for terminal block					IP 20 for housing IP 2X for terminal block	
Fastening	Rail fastening according to EN 50022-35 standard						
Dimensions h x w x d (mm)	99 x 22,5 x 114					101 x 35 x 120	
Approvals	CE					CE	

Model	Ordering Code	Description
AD SRE3	1330911	Safety relay for E-Stop and gates Cat. 2 - 3
AD SRE3C	1330912	Safety relay for E-Stop and gates Cat. 2 - 3 – Monitored Restart
AD SRE4	1330913	Safety relay for E-Stop and gates Cat. 4
AD SRE4C	1330914	Safety relay for E-Stop and gates Cat. 4 – Monitored Restart
AD SRT	1330915	Safety relay Cat. 4 – Two hand control
AD SR0	1330902	Safety relay for safety sensors with EDM, 2 NO+1 NC
AD SR0A	1330903	Safety relay for safety sensors with EDM, 2 NO
AD SR1	1330900	Safety interface Type 4 with EDM and Start/Restart interlock for safety light curtain
AD SRM	1330904	Muting safety interface Type 4 with EDM and Start/Restart interlock for safety light curtain
AU SX	1201710	Safety interface Type 2 with EDM and Start/Restart interlock for Ilion and Ulisse
AU SXM	1201711	Muting safety interface Type 2 with EDM and Start/Restart interlock for Ilion and Ulisse

SAFETY INTERFACE FOR SAFETY LIGHT CURTAINS

CONTROL UNIT FOR ILION AND ULISSE SAFETY PHOTOCELLS

	AD SR1	AD SRM	AU SX	AU SXM
Safety level	Type 4 according to IEC/TS 61496-2 SIL 3, SILCL 3 according to IEC 61508 - IEC 62061 PL e, Cat. 4 according to ISO 13849-1		Type 2 according to IEC/TS 61496-2 SIL 2, SILCL 2 according to IEC 61508 - IEC 62061 PL d, Cat. 2 according to ISO 13849-1	
Two-channel inputs for safety light curtains	1		–	
Number of photocells	–		1 – 4	
Inputs for Muting sensors	–	2 dark-on; 24 Vdc; PNP or relay	–	2 dark-on; 24 Vdc; PNP or relay
Muting enable input	–	24 Vdc; PNP or relay	–	24 Vdc; PNP or relay
Safety relay outputs	2 NO – 2 A 250 Vac			
Min. switching current at 24 Vdc (mA)	20			
Safety system status indicator output	–	PNP – 100 mA at 24 Vdc		
Muting lamp output	–	24 Vdc; 0.5 - 5 W	–	24 Vdc; 0.5 - 5 W
Muting timeout (selectable)	–	30 sec. or infinite	–	30 sec. or infinite
Override (selectable)	–	- manual action with hold to run - automatic with pulse command	–	- manual action with hold to run - automatic with pulse command
Override timeout (min)	–	15	–	15
Response time (ms)	≤ 20		≤ 30	
Start/Restart	Manual or automatic Start/Restart selectable on terminal block (Safe Start/Restart command according to IEC 61496-1)			
External Device Monitoring	External relay control feedback input, selectable			
Signalling	LED indications of input/output status, Diagnosis and Muting sensor inputs (for AD SRM and AU SXM)			
Power supply (Vdc)	24 (± 20%)			
Electrical connection	On terminal block			
Operating temperature (° C)	0 to +55			
Protection rating	IP 20 for housing – IP 2X for terminal block			
Fastening	Rail fastening according to EN 50022-35 standard			
Dimensions h x w x d (mm)	99 x 22,5 x 114	99 x 35 x 114	99 x 22,5 x 114	99 x 35 x 114
Approvals	CE			

REER

MOSAIC

MOSAIC

MOdular SAfety Integrated Controller

NORSTAT INC.

Modular Safety Controller

MOSAIC is a hub able to manage all the safety function of a machinery or a plant.

Modular Safety Controller

MOSAIC can manage safety sensors and signals such as light curtains, safety photo-eyes, e-stops, safety mats, two-hand controls, magnetic or mechanical switches, encoders, speed control.

REER

MOSAIC

Modular Safety Controller

Safety level

- **SIL 3** - IEC 61508
- **SIL CL 3** - EN 62061
- **PL e** - ISO/EN 13849-1
- **Category 4** - ISO/EN 13849-1

CE

TÜV SÜD

Safety level:
Cat. 4
SIL 3 – SILCL 3 PL e – Cat. 4

NORSTAT INC.

Modular Safety Controller

MAIN FEATURES

- Compact design:
single module dimensions 22.5 x 99 x 114.5 mm

- Max 14 expansion units in addition to Master M1

- Max 128 inputs and 16 OSSD pairs, 16 feedback restart
  Interlock inputs and 32 status outputs

- Easy and intuitive graphic configuration software (MSD
- Mosaic Safety Designer)

- Communication between units via proprietary
  high speed bus (MSC - Mosaic Safety Communication)

- Memory card configuration storage (MCM
- Mosaic Configuration Memory)

- Simple diagnostics via led signaling and configuration
software

NORSTAT INC.

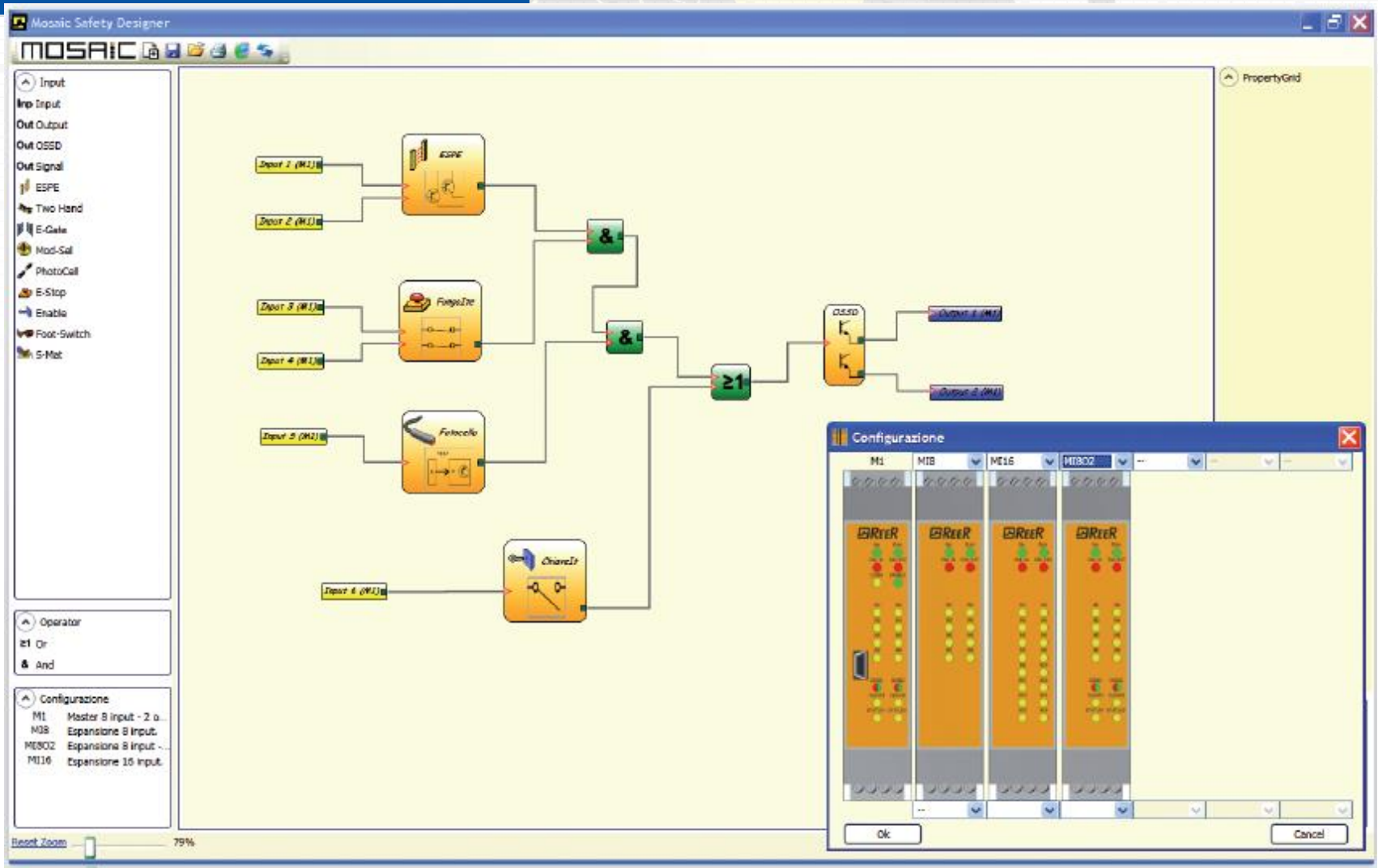
REER

MOSAIC

MSD

Mosaic Safety Designer

Modular Safety Controller



Modular Safety Controller

MOSAIC M1

- Stand alone and Main Unit
- Programmable via USB line.
- 8 digital input
- 2 OSSD (2 pairs)
- 4 test output (for sensors to be monitored)
- 2 digital signaling outputs
- 2 inputs for Restart / EDM
- MCM configuration memory
- 24 connectors x 22.5 mm

USB UNIVERSAL SERIAL BUS

ADMIRAL

TYPE 4

SAFETY LIGHT CURTAINS

ADMIRAL MODELS COMPARISON

REER

MODEL FEATURES	AD	AX	AX BK
RESOLUTIONS / BEAMS	14-20-30-40-50-90 2-3-4 beams	14-20-30-40-50-90 2-3-4 beams	14-20-40-90
PROTECTED HEIGHTS mm	160 ÷1810	160 ÷1810	160 ÷1810 (610 ÷1810 res. 90)
MAX SCANNING RANGE metres	6/18 selec. (2/5 res. 14mm)	6/18 selec. (2/5 res. 14mm)	6/18 selec. (2/5 res. 14mm)
RESTART	automatic	manual / automatic	automatic
FEEDBACK INPUT (EDM)	no	yes	no
MASTER SLAVE	no	res. 14-20-30-50 heights 310 ÷1510 2-3- beams	res. 14-20-40 heights 310 ÷1510
BLANKING	no	no	yes
INTERFACE	AD SR1-AD SRM commercial safety relays o PLC	AD SR0-AD SR0A (AD SRM) commercial safety relays o PLC	AD SR1-AD SRM commercial safety relays o PLC
NOTES			blanking function on master only

VISION

TYPE 2

SAFETY LIGHT CURTAINS

NORSTAT INC.

VISION MODELS COMPARISON

REER

MODEL FEATURES	V	VX	VXL
RESOLUTIONS / BEAMS	20-30-40-50-90 2-3-4 beams	20-30-40-50-90 2-3-4 beams	30-40 2-3-4 beams
PROTECTED HEIGHTS mm	160 ÷1810	160 ÷1810	160 ÷1210
MAX SCANNING RANGE metres	6 V...L models 16 V...H models	6/18 selec.	8
RESTART	automatic	manual / automatic	manual / automatic
FEEDBACK INPUT (EDM)	no	yes	yes
MASTER SLAVE	no	res. 14-20-30-50 heights 310 ÷1510 2-3- beams	no
BLANKING	no	no	no
INTERFACE	AD SR1-AD SRM commercial safety relays o PLC	AD SR0-AD SR0A (AD SRM) commercial safety relays o PLC	AD SR0-AD SR0A (AD SRM) commercial safety relays o PLC
NOTES			

REER

ADMIRAL VISION

Long Range

SAFETY LIGHT GRIDS

TYPE 2 and 4

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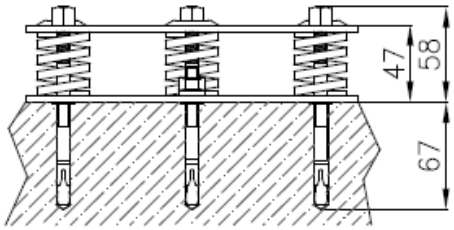
ADMIRAL and VISION LONG RANGE

- Maximum range 30 – 60 meters
- 2 – 3 - 4 beams for body detection

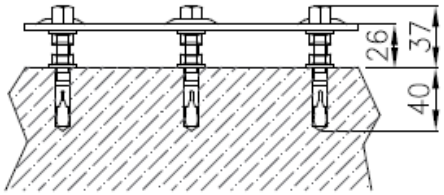
Low cost solution for perimeter protection.

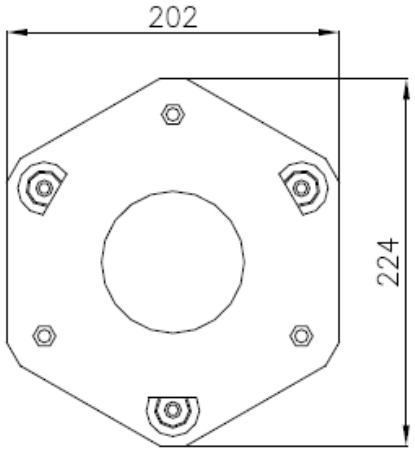
FMC FLOOR MOUNTING COLUMN and MIRRORS

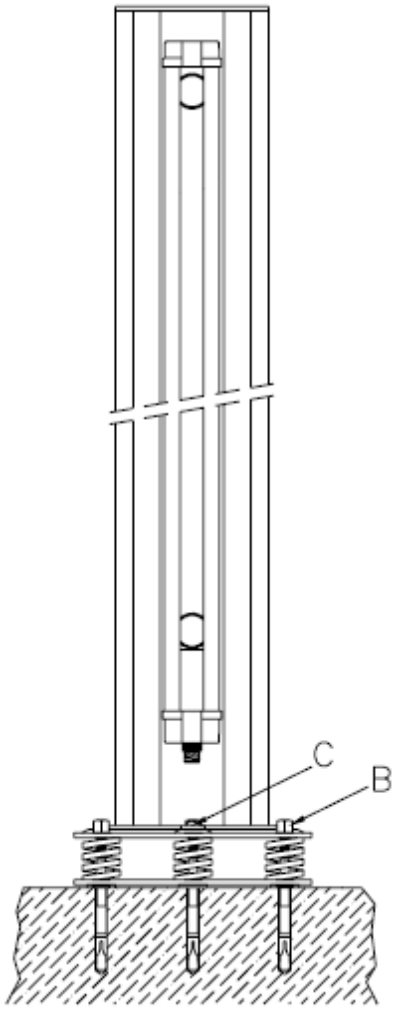
FMC-CB



FMC-CBL







JANUS

TYPE 4

SAFETY LIGHT CURTAINS

http://muting.reer.it

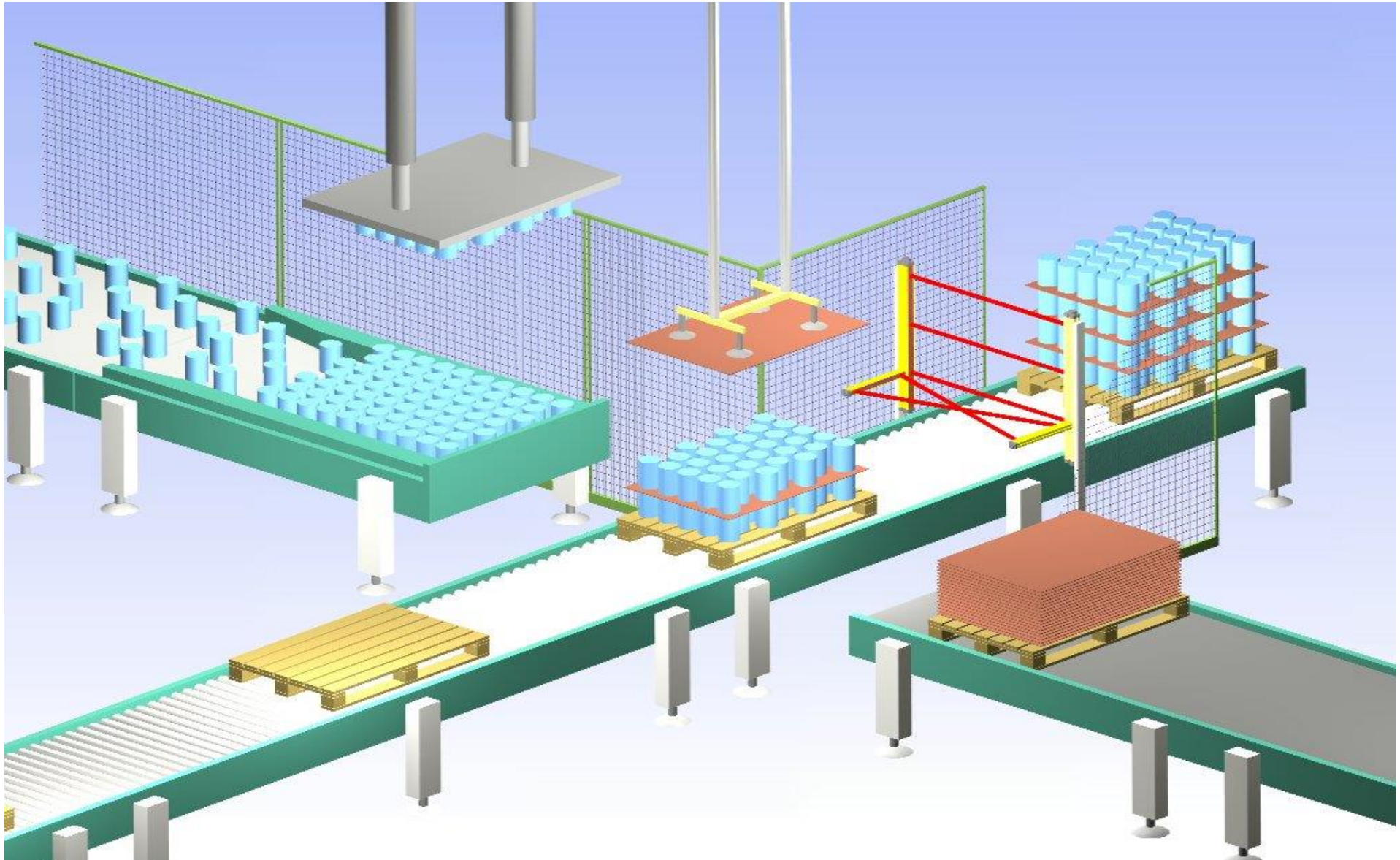
JANUS applications

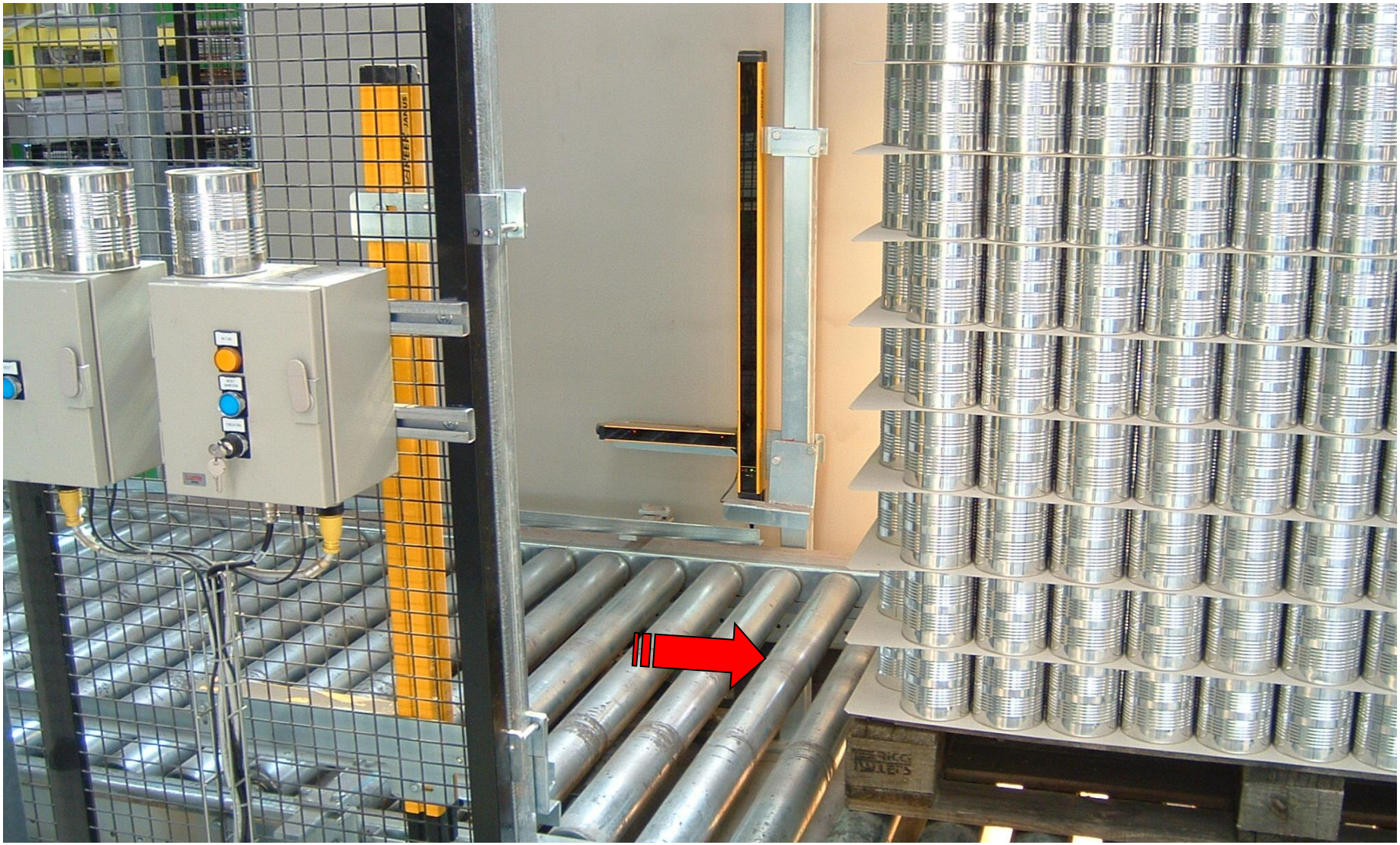
- ***Automatic palletizing / de palletizing systems***
- ***Material handling and storage systems***
- ***Wrapping, Packing and packaging machines***
- ***Assembly lines in automotive industry***
- ***Industrial automatic warehouses***
- ***AGV transit gates***

muting function

2 -To permit access of the material and prevent access by persons.

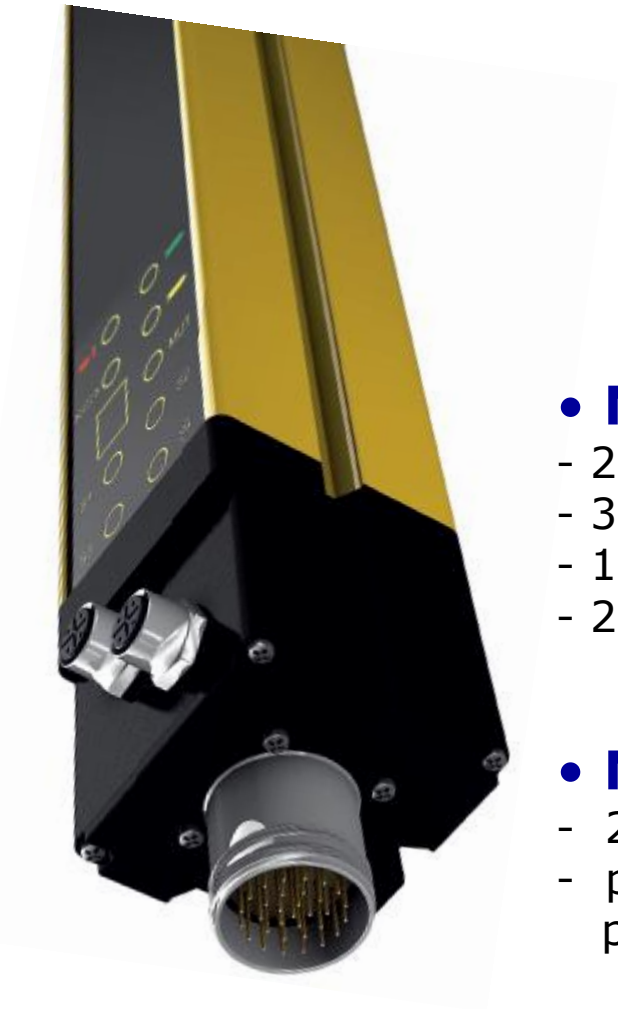
Example of application : Pallet exit to/from the hazardous area.





Protection of a palletizer system
• Detail of JANUS ML 3B protecting the A zone (pallet exit zone with filled cans)

Protection of a de-pallettizer system
• JANUS MT 3B protecting the entry zones for pallets with empty cans to be de-palletised and to be draw toward the filling machine



JANUS M

With Muting function

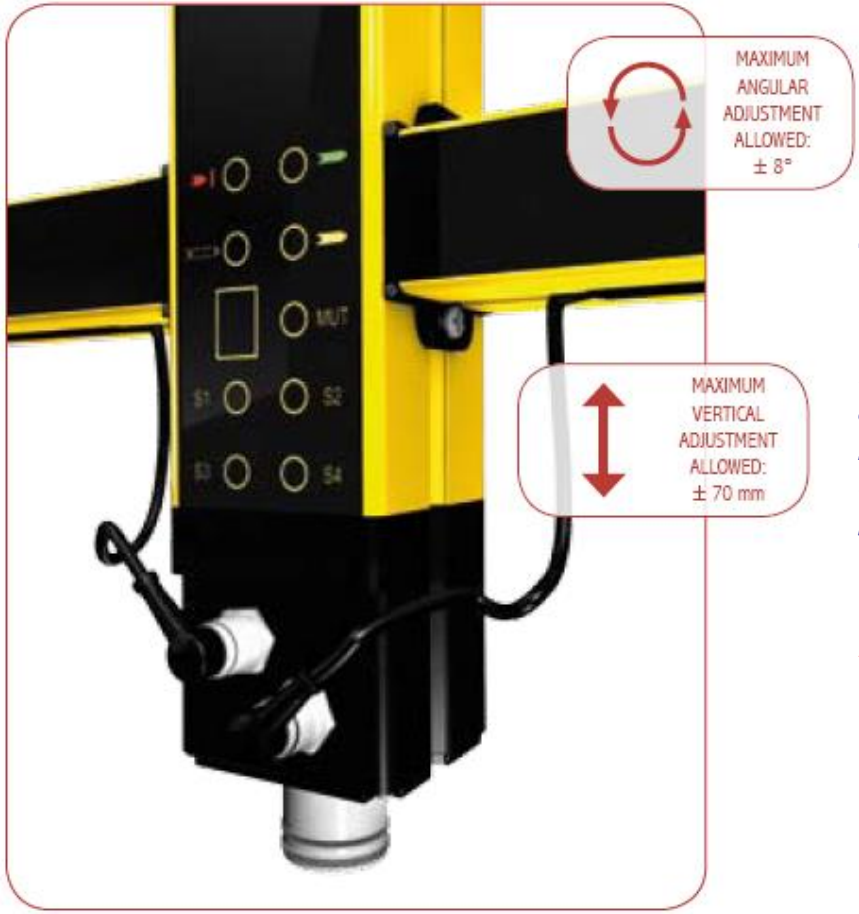
- **MI models**

- 2 – 3 - 4 beams
- 30-40-90 mm resolution
- 16 / 60 meters max. scanning range
- 2 or 4 external sensors can be connected

- **ML and MT models**

- 2 – 3 beams
- pre-assembled, pre-wired, pre-aligned built-in photoelectric muting sensors

JANUS MT-ML



Integrated Muting Sensors

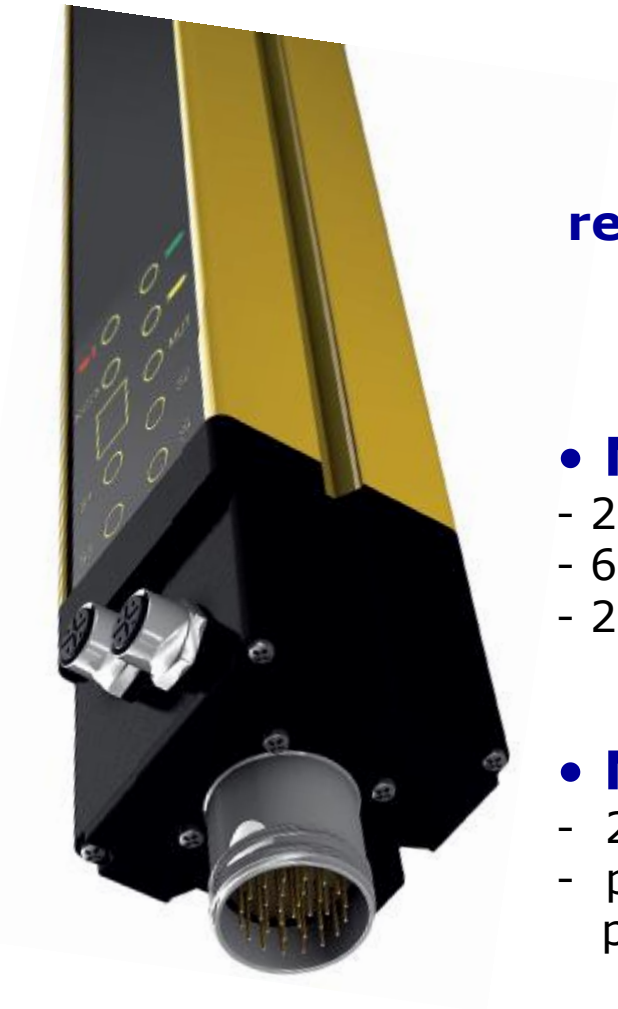
ADJUSTMENT OF SENSOR ELEMENTS

The system is equipped with a VERTICAL and ANGULAR adjustment of the sensor elements.

For normal installations the ML and MT models are pre-aligned and do not require further adjustments.
In case of need a scale printed on the side of the light curtain helps to repeat the same adjustment on the 2 side.

Automatically complying with the standard

IEC TS 62046 regarding the geometry of muting sensors placement.



JANUS M TRX

With Muting function and passive, retro-reflector elements which need no power supply nor any other wiring

- **MI TRX and MI TRXL models**

- 2 – 3 - 4 beams
- 6 meters max. scanning range
- 2 or 4 external sensors can be connected

- **ML TRX and MT TRX models**

- 2 – 3 beams
- pre-assembled, pre-wired, pre-aligned built-in photoelectric muting sensors

JANUS M

Muting

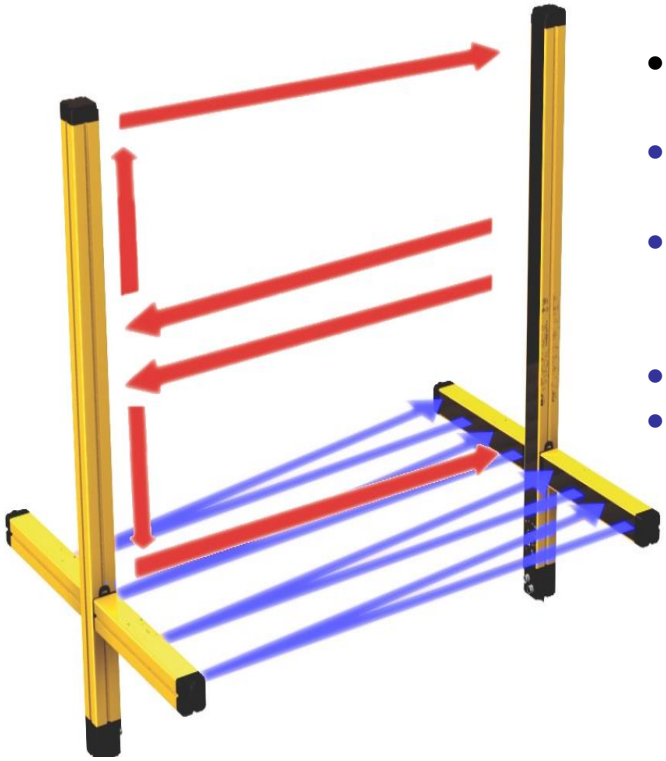
REER

MAIN FEATURES

- **Built-in Muting function**
- Built-in user selectable manual or automatic restart
- Built-in feedback input for External Device Monitoring
- 2 PNP safe static outputs with short circuit protection
- 1 PNP output to indicate light curtain status
- Light curtain status, muting sensors and configurations indicator LEDs
- 7 segments Display for auto-diagnostics of malfunctioning or faults
- User selectable maximum Muting time-out function
- **Built-in Override function, with 2 different selectable modes:**
  - manual with hold to run action
  - automatic with impulse command
- *Special EX models intended for use in potentially explosive atmosphere complying the 94/9/EEC "ATEX Directive" – Dust Zone 22 –Gas Zone 2*

JANUS MT TRX

WITH PASSIVE RETRO-REFLECTOR ELEMENTS



- **Wiring on one side only**
- **Built-in pre-wired and pre-aligned Start / End optical Muting sensors (integrated in the horizontal Sensor Elements)**
- 2 – 3 beams for body detection
- **4 parallel muting beams (polarized reflex photocells)**
- Suitable for a reliable detection of transparent objects (i.e. glass, plastic, etc.)
- **1 PNP static output for Muting status** **New**
- **1 Muting enable input** **New**

Muting enable input allows the start of a muting sequence only when needed by the machine cycle, ex.: muting enabled only if the conveyor is moving. That means more safety.

JANUS MT TRX

WITH PASSIVE RETRO-REFLECTOR ELEMENTS

JANUS

J

TYPE 4

SAFETY LIGHT CURTAINS

without muting

JANUS J

Janus J series light curtains have the same dimensional and electric features and the same connectors of the Janus M series, but they do not have the Muting function.

Janus J series offers:

- **J LR** series, Long Range light curtains with a maximum scanning range of **60 meters**, having models with **2, 3, 4 beams or 40 mm resolution**
- **J TRX and J TRXL** models with 2-3-4 beams and **passive retro -reflector** system
- **J 2, 3, 4 beams** models with a maximum scanning range of 16 meters, the ideal solution to put together with the M series in manual in-feed areas of pallettizer, materials handling and storage system applications.
- Special models complying the 94/9/EEC "ATEX Directive" - Dust Zone 22 available

JANUS

ACCESSORIES

JANUS MJB
Interconnection Boxes

MJB 1 - MJB 3

MJB 2 - MJB 4

TECHNICAL FEATURES

MODELS	MJB 1	MJB 2	MJB 3	MJB 4
Restart button	yes	yes	yes	yes
Override command	yes	no	yes	no
Built-in Muting lamp	yes	no	yes	no
Safety relay output	2 NO 2A 250 Vac	2 NO 2A 250 Vac	2 NO + 1 NC* 2A 250 Vac	2 NO + 1 NC* 2A 250 Vac
Connectors	M12 - 5 poles for emitter / light curtain connection M23 - 19 poles for receiver / light curtain connection			
Dimensions - h x w x d - mm	110 x 180 x 110			

* in MJB 3 and MJB 4 boxes each NO safety output line is interrupted twice by the two relays

JANUS SL / S2L
Integrated muting sensors for Janus MI

Additional arms with integrated photoelectric muting sensors pre connected and pre aligned to be used with any Janus Mi model.
They permit to realize a L shape barrier with:

- **Resolution 30, 40, 90 mm**
- **Protected height from 310 to 1810 mm**

2 different models:

- **SL 2 crossed beams**
- **S2L 2 parallel beams**

JANUS ML / MT

THE REASONS OF A SUCCESS

Quick installation

Thanks to:

- Integration of all necessary functions like Muting, fail-safe static outputs, user-selectable automatic or manual restart, feedback input for External Devices Monitoring, diagnostics LEDs clearly indicating any possible error of use or internal fault, two modes override.

- Built-in pre-wired and pre-aligned Start / End optical Muting sensors integrated in the horizontal Sensor Elements.

- Dedicated accessories, such as pre-wired cables, interconnection boxes MXJB, complete of restart and override commands, Muting lamp and integrated relays, which allow a simple, rapid and safe interface with the controlled machine.

Reduced installation time and costs.

JANUS ML / MT

THE REASONS OF A SUCCESS

Safety and Responsibility

With the ML / ML TRX and MT / MT TRX models compliance with the regulatory requirements -IEC TS 62046- regarding the geometry of the muting sensors and all the other safety parameters is automatically guaranteed.

VISION

MXL

TYPE 2 PHOTOELECTRIC

SAFETY LIGHT CURTAINS

with MUTING

VISION MXL muting the system

- **MXL series**
  2 – 3 - 4 beams
  30-40 mm resolution, 8 meters scanning range
  2 external sensors can be connected

- **MXL-L and MXL-T series**
  2 – 3 beams, pre-assembled, pre-wired, pre-aligned built-in photoelectric muting sensors

VISION

MXL

accessories

WT / WTH

WTF / WTFH

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS

REER

WT / WTH

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS

Allows light curtains and grids to be used in severe environments with exposure to water and steam

- **Models for light curtains with 2-3-4 beams and 160 - 1810 mm protected height**
- **IP 67 protection rate**
- **Valve to drain humidity and avoid condensate**
- **Tightness to 40 bar water jet pressure**
- **Electrical connections by 10 m pre-wired cable**
- **Polycarbonate transparent housing**
- **PVC end caps**

NORSTAT INC.

REER

WT / WTH

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS

WT MODELS

operating temperature 0 ÷ 55°C

WTH MODELS

operating temperature -20 ÷ 50°C

WTH MODELS

- thermostatically-controlled heating system for applications down to – 20 °C
- Ideal for use in refrigerated warehouses
- 24 Vdc power supply

NORSTAT INC.

WTF / WTFH

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS SPECIAL FOR FOOD INDUSTRY

Allows light curtains and grids to be used in severe environments with exposure to water and steam

- **Models for light curtains with 2-3-4 beams and 160 - 1810 mm protected height**
- **IP 69K protection rate**
- **Valve to drain humidity and avoid condensate**
- **Tightness to 40 bar water jet pressure**
- **Electrical connections by 10 m PVC pre-wired cable**
- **PMMA transparent housing**
- **POM C (DELRIN) end caps with silicon gaskets**
- **Stainless steel cable gland and brackets**

REER

WTF / WTFH

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS IP 67

WTF MODELS

operating temperature 0 ÷ 55°C

WTFH MODELS

operating temperature -20 ÷ 50°C

NORSTAT INC.

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS

STANDARD MODELS

ADMIRAL AX WT/WTH / WTF/WTFH **Type 4**
- 30 mm resolution 160÷1810 mm protected height
- 2-3-4 beams
  max 15 m range

ADMIRAL AX LR WT/WTH **Type 4**
- 2-3-4 beams Long Range
  max 50 m range

VISION VX WT/WTH / WTF/WTFH **Type 2**
- 30 mm resolution 160÷1810 mm protected height
- 2-3-4 beams
  max 15 m range

VISION VX LR WT/WTH **Type 2**
- 2-3-4 beams Long Range
  max 50 m range

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS

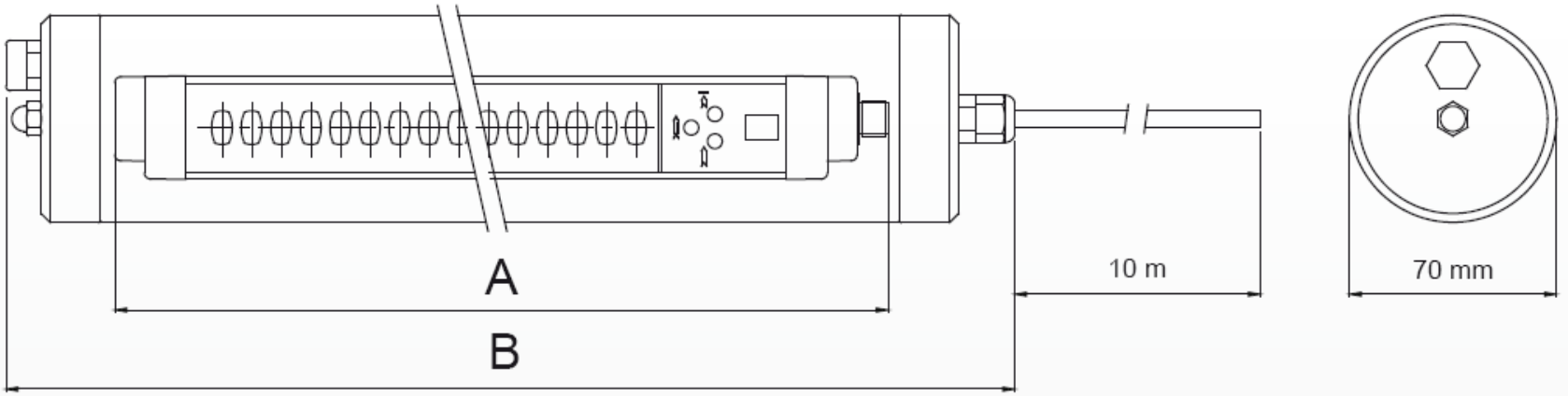
STANDARD MODELS

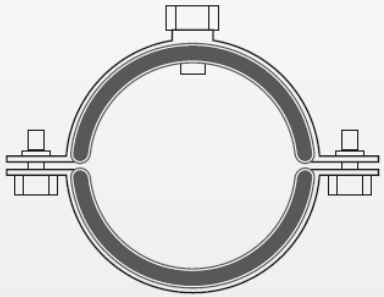
VISION MXL and MXL U WT/WTH
- 40 mm resolution 160÷1810 mm protected height
- 2-3-4 beams
  max 6 m range

METRON
on demand

WATERTIGHT ENCLOSURES FOR LIGHT CURTAINS IP 67

dimensions





WFB Fixing bracket

A = light curtain length

B = light curtain length +130 mm

REER

METRON

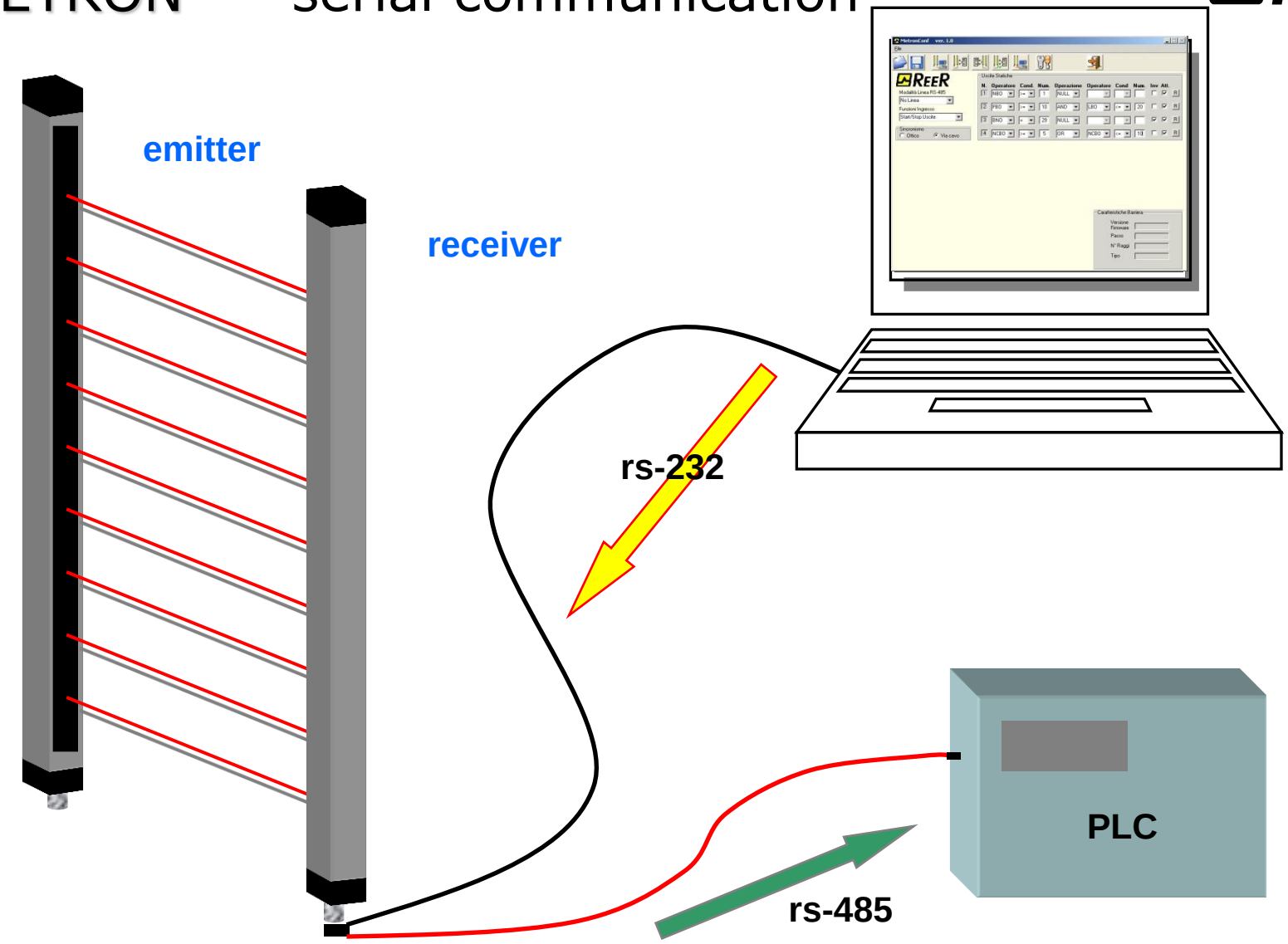
LIGHT CURTAINS FOR
MEASUREMENT
AUTOMATION AND
CONTROL

CE

METRON light curtains for measurement automation and control

- **Detect the presence or absence of objects**
- **Perform a count**
- **Detect a position**
- **Detect a shape or a profile**
- **Measure dimensions**

METRON serial communication



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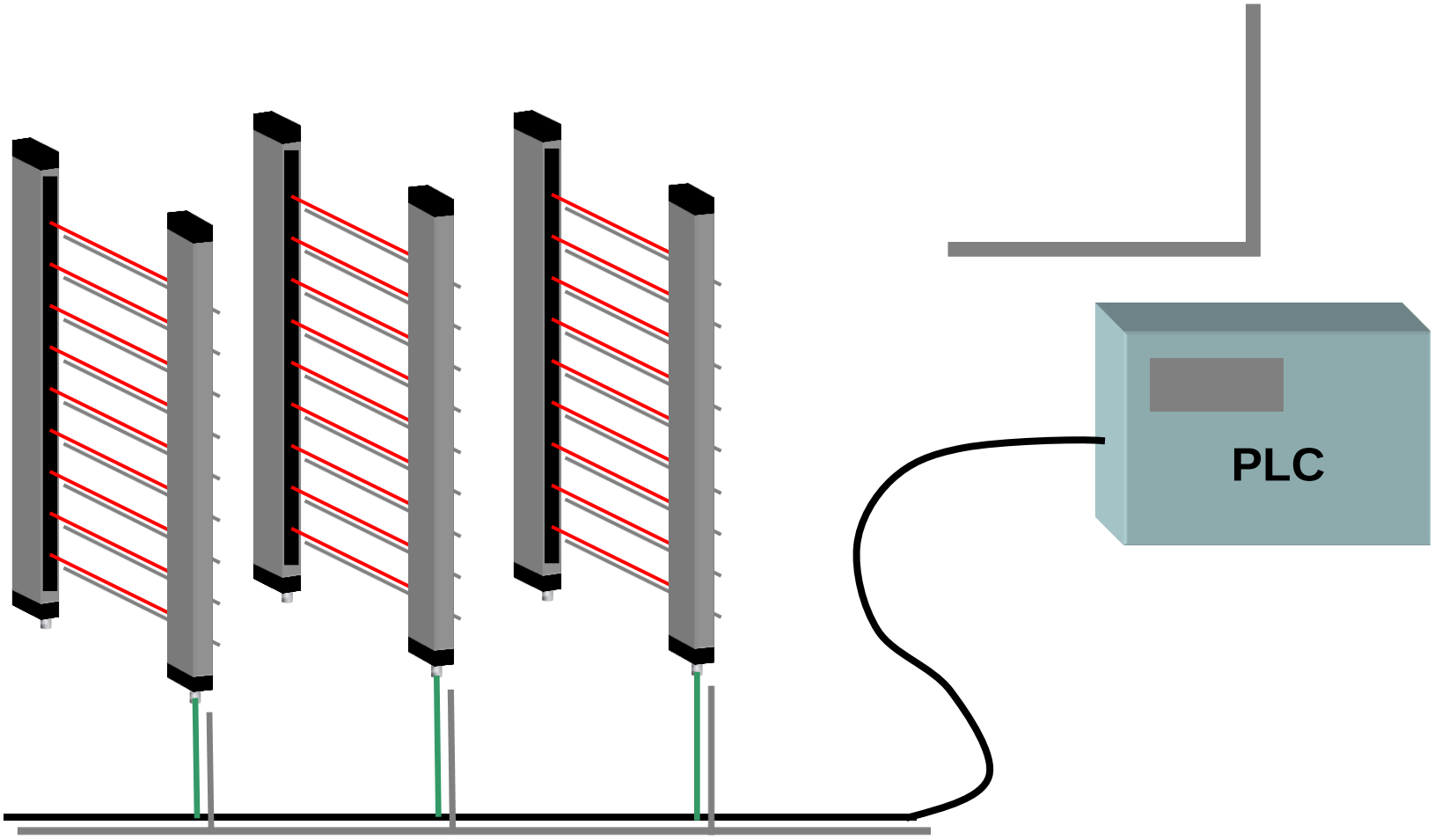
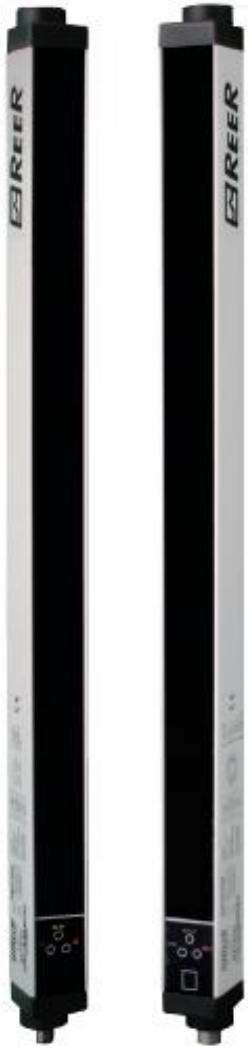
METRON serial communication



RS 485 protocol (up to 8 light curtains)

METRON light curtains for measurement automation and control



METRON RANGE

- **METRON A**
  - 4 solid state outputs 0/24V with programmable functions

Solution providing simple on/off information related to the occurrence of the programmed conditions.
• Ideal for object recognition, quality control, detection of dimensional limits.

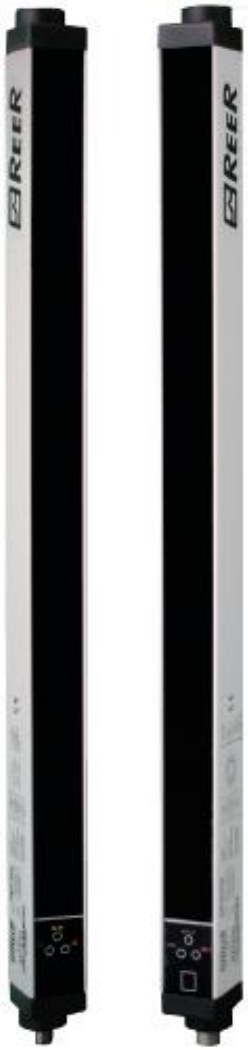
- **METRON B**
  - RS-485 serial line + two solid state outputs 0/24V with programmable functions

Solution providing complete and detailed information on the status of each beam via the RS 485 serial line and, by means of the two solid state.
outputs, further on/off information related to the occurrence of the programmed conditions.
• Ideal for dimensional measurement, detection of object profile and position.

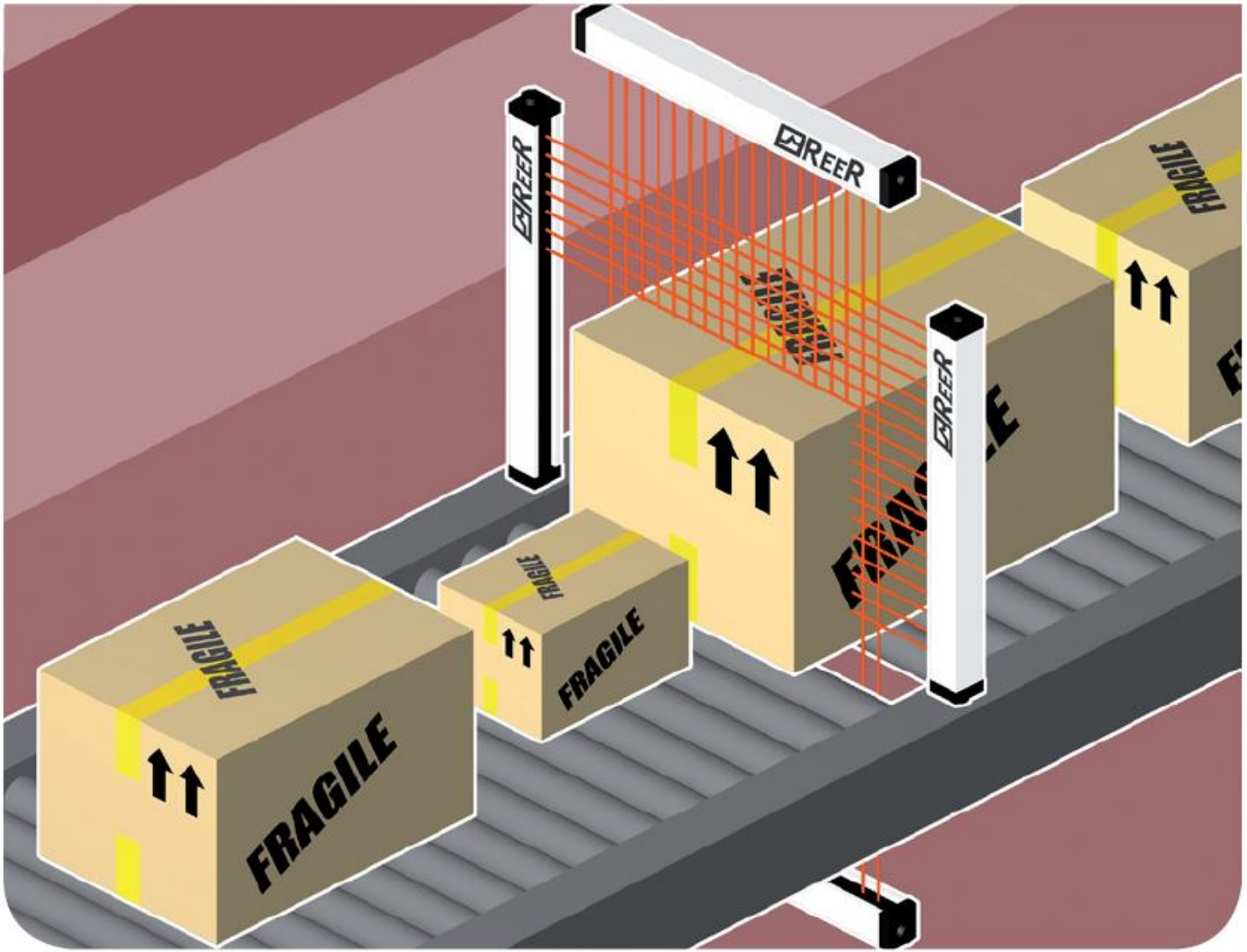
- **METRON C**
  - Two solid state antivalent outputs 0/24V without the need for programming

Solution providing simple on/off information related to the status of the controlled area.
• Ideal for piece counting and detection of object presence/absence in the controlled field.

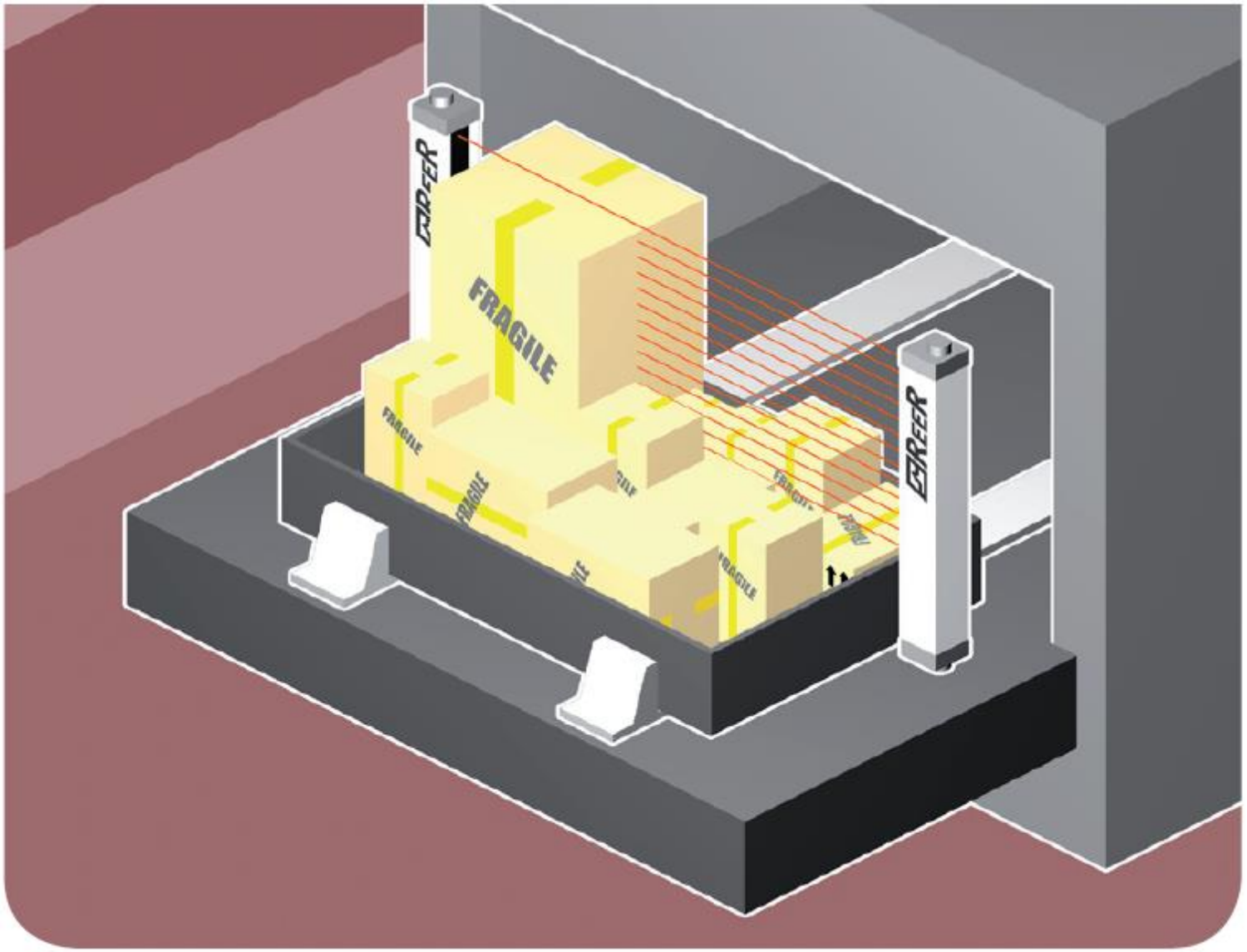
METRON light curtains for measurement automation and control



- Controlled height from 140 mm to 2525 mm
- Beam spacing 5 – 10 – 25 – 30 – 50 – 75 mm
- Max Scanning range
  - 2 meters 5 mm beam spacing models
  - 6 meters 25 – 50 – 75 mm beam spacing models
  - 16 meters 10 – 30 mm beam spacing models
- Possibility for on-line display on PC screen during operation (via RS 232)
- Status of each individual beam and solid state outputs
- Metron A and B programming via Metronconf configuration software



Two-dimensional detection of objects in transit on conveyor systems with use of 2 light curtains



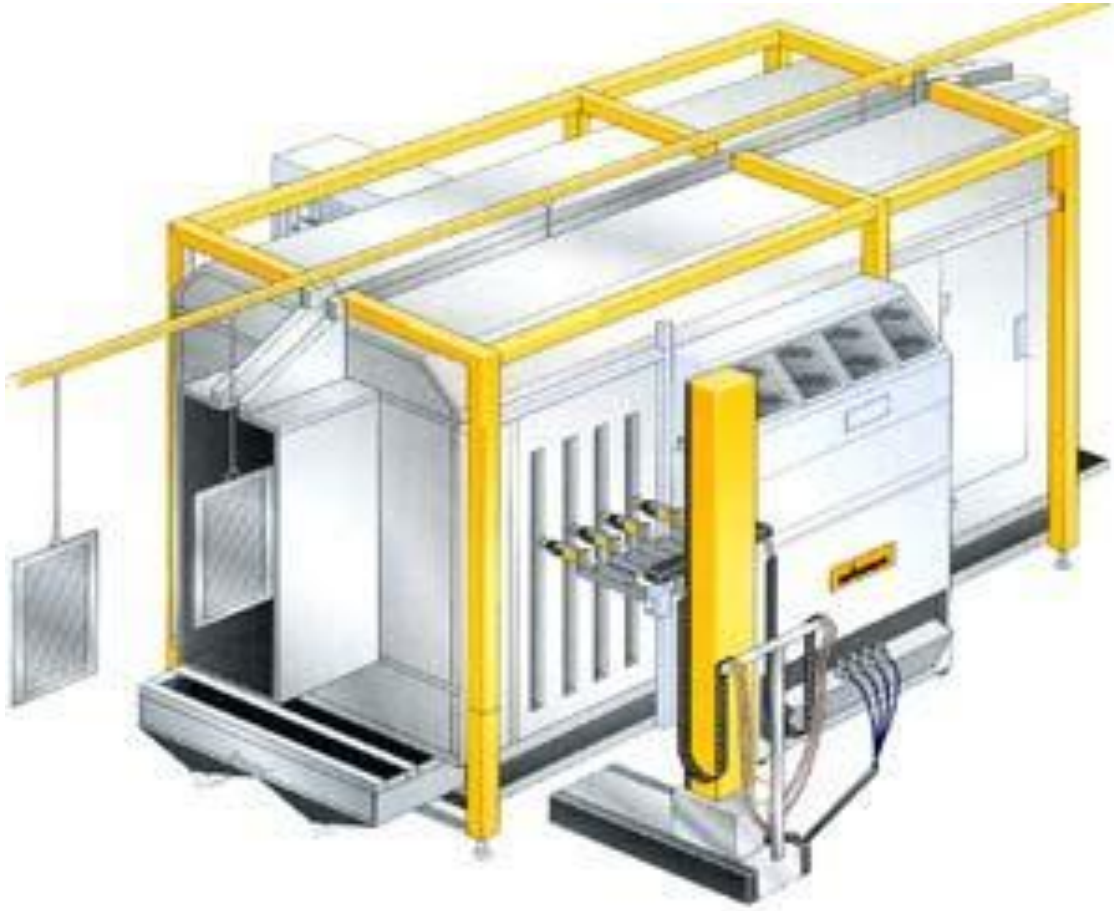
Automatic warehouses: detection of maximum height of the objects present in the boxes for efficient management of the machine's capacity

Automatic warehouses: detection of maximum height of the objects present in the boxes for efficient management of the machine’s capacity
You can see the light beams slots

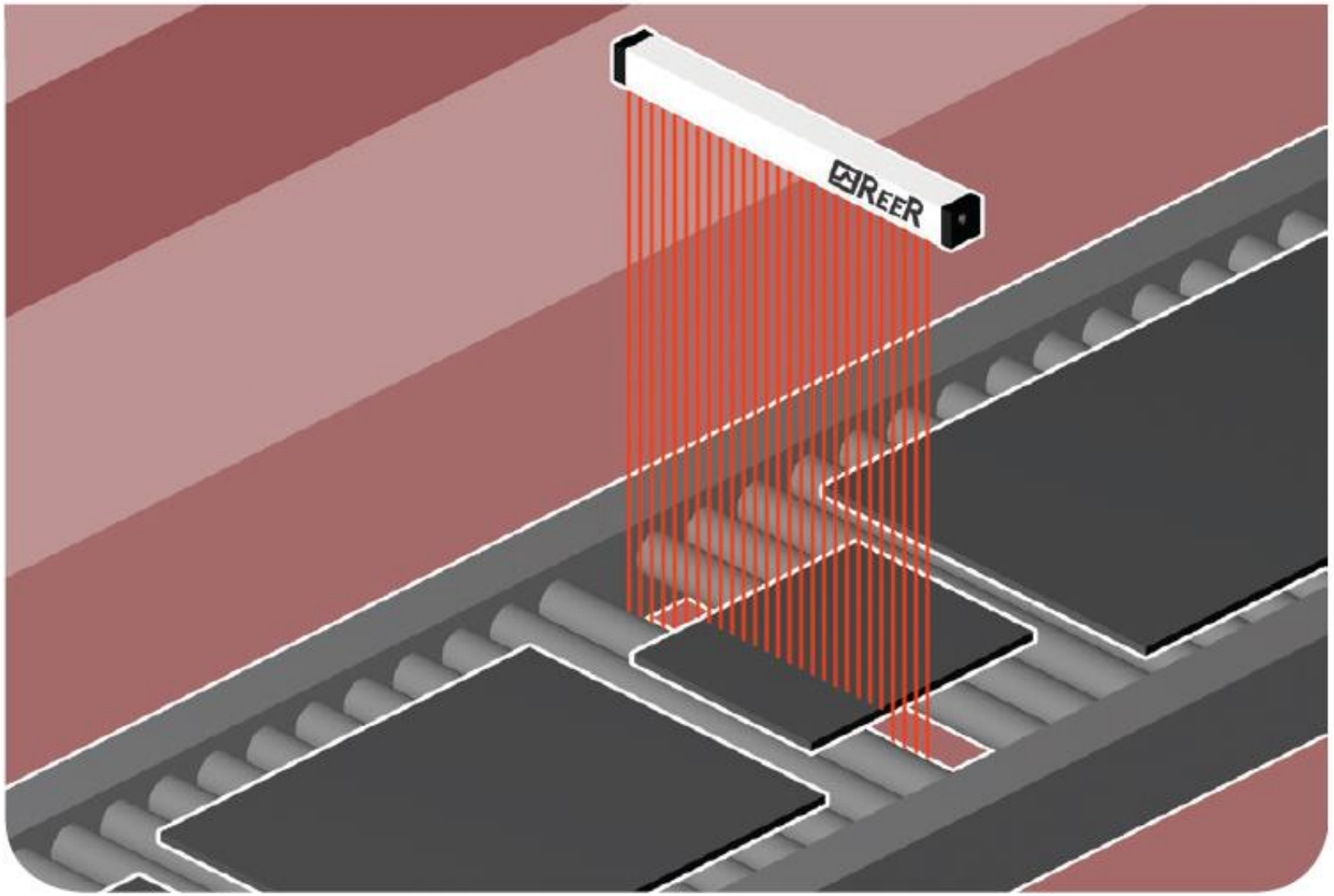
Detection of position and profile of pieces in automatic painting systems

Robotized painting plants

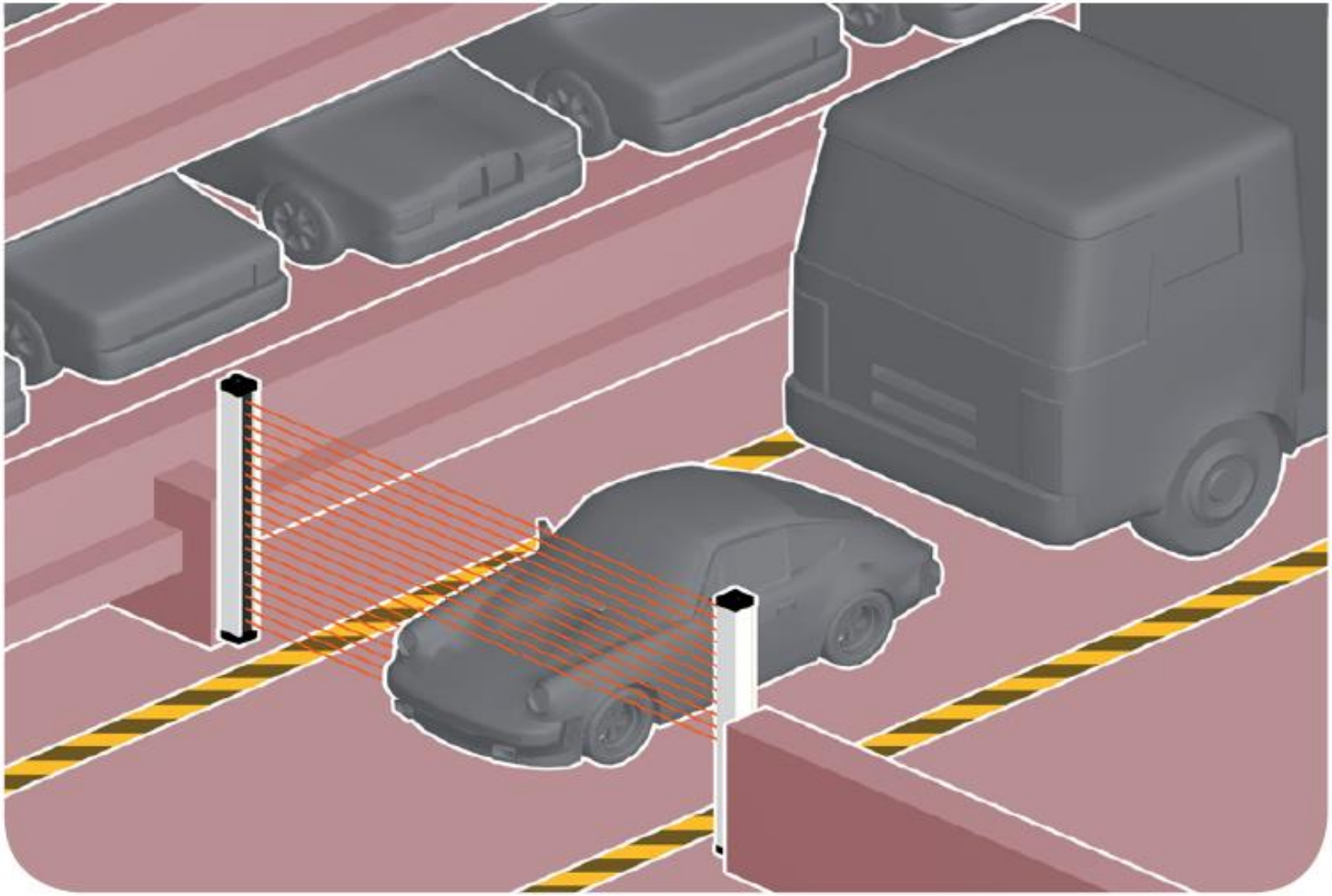
Repeater painting Robot
The information about dimension, position and profile of the material to be painted is sent to the Robot control. The robot is driven in way to spray when and where is necessary.
The curtain is placed vertically at painting job cabin entry.



METRON light curtains for automation-measurement-control



Measurement of length / dimensions / position of panels or plate on conveyor belts



Measurement of dimensional shape limit for vehicles to be handld in automating parking systems

Automatic parking systems

Internal view. It is necessary to detect the maximum dimension keeping into account any external accessory (baggage-rack, aerial …)

Same necessity in automatic CAR WASH

REER

&

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Thank You For Your Interest in our State of the Art Safety Light Barriers and Safety Controls