VITECTOR

FRABA

SENSOR SOLUTIONS FOR DOORS

1918–2018

FRABA

100 Years of FRABA Group

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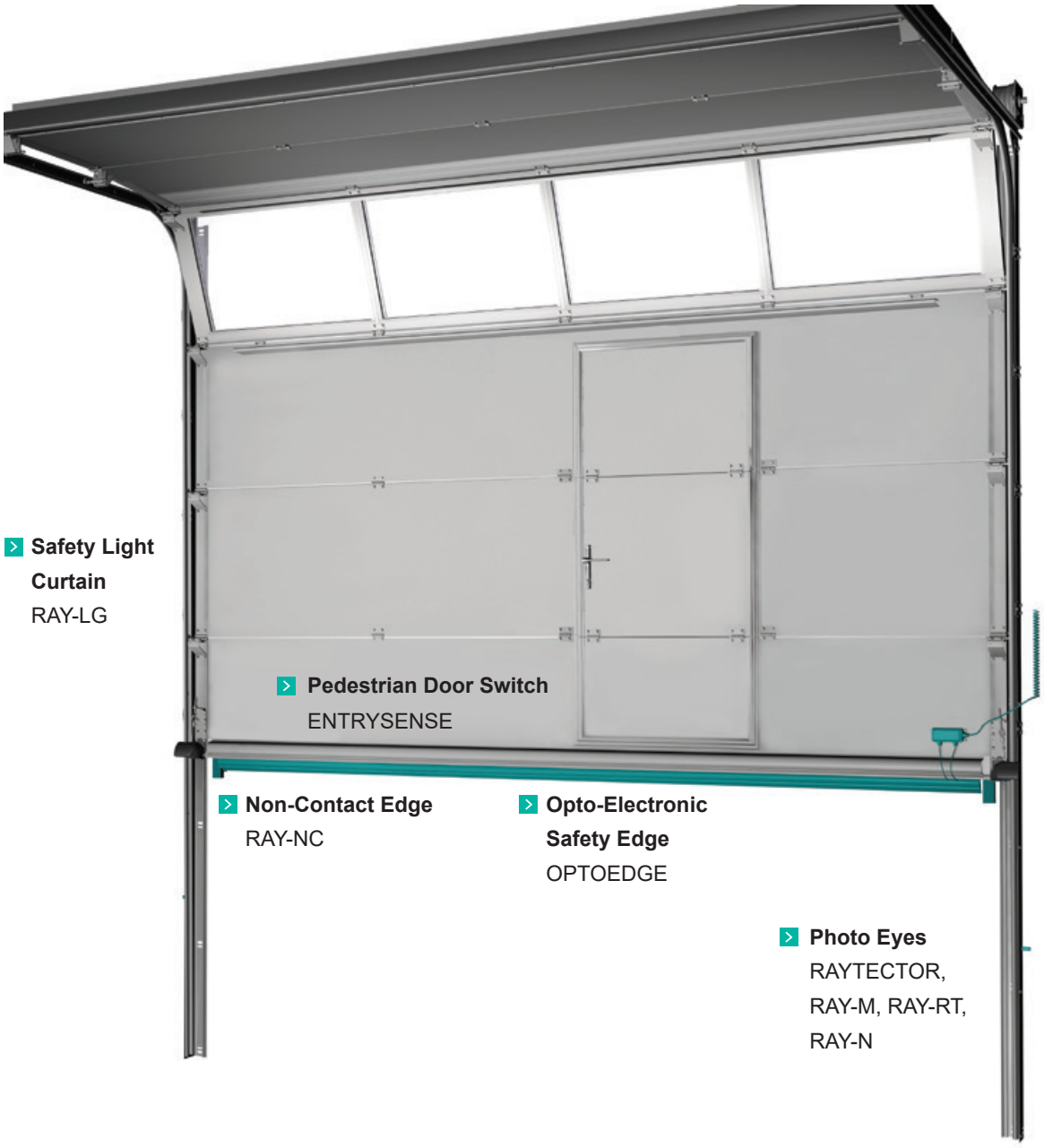
APPLICATION OVERVIEW



Safety Light Curtain
RAY-LG

Pedestrian Door Switch
ENTRYSENSE

Non-Contact Edge
RAY-NC

Opto-Electronic Safety Edge
OPTOEDGE

Photo Eyes
RAYTECTOR, RAY-M, RAY-RT, RAY-N

VITECTOR Finders – Product Selection Made Easy

- Access by all Mobile Devices, No Special App Needed
- Find the Right VITECTOR Sensor on the Go
- Product Documentation Accessible with a Few Clicks

PRODUCTS

Opto-Electronic Safety Edge – OPTOEGDE

OPTOEDGE consists of infrared sensors plugged into the circular chamber of a rubber extrusion profile. By pressing the rubber profile, the hollow chamber collapses and disrupts the light beam. The control unit then converts this signal to a safe relay output which can be directly implemented into a safety loop. To monitor a large amount of edges with only one control unit, OPTOEDGE is available as OPTOCHAIN, allowing it to connect up to four safety edges in series.

Features

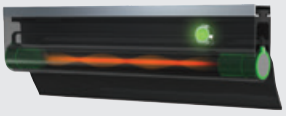
- Certified acc. to EN 12978 and EN ISO 13856-2
- Up to Cat. 4 / PI e acc. to EN ISO 13849-1
- Self-Adjusting Sensor Sensitivity
- Protection Class IP67
- High Reliability
- Assembly without Adhesives or Special Tools
- Resistant Against Environmental Influences Vibrations and Chemicals

Signal LED and DiagnOSE

The DiagnOSE from VITECTOR supports the technician during installation and maintenance of optical safety edges, showing intensity levels and operation modes.

All VITECTOR OSE Sensors run a self-test program on each start-up, whose results can be directly displayed by compatible interfaces. Alternatively, a separate diagnose unit can be used.

On demand every VITECTOR OSE Transmitter can be supplied with a circular status LED indicating actuation as well as a critical operating range.



The Easiest Way to Build YOUR Sensing Edge!

- Easy Installation, Components Can Be Exchanged Easily
- The System Can Be Installed without Difficulty on Site
- Simple Logistics, Cost-Efficient Stock Keeping

PRODUCTS

RAY-NC

RAY-NC-SD

Non-Contact Door Safety System – RAY-NC / RAY-NC-SD

RAY-NC is the next generation of Non-Contact Edges. Due to its smart, self-adjusting software RAY-NC adapts to its environment making it work independently from the door design. The sensor reliably detects every type of reflection, which allows retrofitting to any door. It is user friendly and easy to install since it is resistant against vibration and misalignment. The new system travels with the door edge and detects obstacles in the path of the moving door before any physical contact occurs. RAY-NC complies with the requirements of EN12978 and can be installed as an alternative to sensing edges, light curtains and other entrapment protection devices.

Dependent on the door type, telescopic or swivel-mounted sensor assemblies allow easy retrofitting on existing doors.

Features

- Non Contact, Means no Force Measurement
- Easy to Retrofit
- Applicable for Any Door
- Unaffected by Reflection and Sunlight
- Resistant against Vibration and Misalignment
- Easy Customization for OEM Solutions
- OSE Output
- Operating Range up to 9 m
- Fulfils Requirements of EN12978

VITECTOR Accessories

- External Control Units with Different Mounting Options
- Junction Boxes and Coil Cords from Different Material
- Bumpers and Rubber Profiles to Protect the Sensing Edge

Wireless Gateway Set – WGS

The Wireless Gateway Set consists of a stationary Gateway and up to six mobile satellites, linked via radio transmission.

The wireless data transmission system makes coil cables and energy chains obsolete. The wireless radion technology guarantees a safe and energy efficient communication between all connected components. The data transmission is encrypted using AES128.

The stationary Gateway is supplied by the door controller and supports several different output interfaces.

The satellite modules are powered by long-life lithium batteries and support the use of multiple safety edge and stop-loop sensors, while also allowing being deactivated for energy saving means. If multiple safety edges or additional stop loop interfaces are necessary, up to six satellites can operate per gateway in a radius of up to 10 m. Using a toggle switch the direction of operation can also be determined individually per satellite, while stop loop action always acts in both directions.

Features

- Wireless Communication via 2.45 Gigahertz Radio Waves
- Replaces Coil Cables or Energy Chains Between Door Panels and Door Controller
- Modes of Operation
  - Always On
  - Activation on Test Input
  - Voltage Lift
- For OSE and 8k2 Safety Edges, ENS Pedestrian Door Switch & NCC Switches
- Idividual Signals for Primary and Secundary Safety Edge
- Safety Edge Output Signal Types
  - OSE
  - 8k2
  - NCC
- Stop Loop Output NCC
- Up to Six Satellites per Gateway
- Transmission Radius up to 10 m
- Easy to Retro-fit
- EN 12453:2017 Conform

Application Areas for VITECTOR Products

- Sectional, Rolling and High Speed Doors
- Vehicle Construction
- Mechanical and Plant Engineering

PRODUCTS

Impact-Resistant Photo Eye – OPTOEYE

The OPTOEYE consists of two infrared sensors inserted into flexible rubber brackets, which are mounted next to the door opening. Installation is very easy since the LEDs indicate alignment and power. The OPTOEYE is specifically designed to withstand rough commercial and industrial environments. Its flexible design makes it highly resistant to impacts and mechanical shocks; its NEMA4X rating proves its resistance against any kind of moisture.

UL325 Recognized

The VITECTOR photo eyes have been certified as Type 4X by Underwriters Laboratory, as tested to the UL50 standard. This certification is in addition to the UL325 Recognition, which has qualified the OPTOEYE as an entrapment protection sensor on doors and gates.

Features

- UL325 Recognized Photo Eye
- NEMA4X Rated
- Optimal for Commercial & Industrial Settings
- Withstands Collisions and Impacts due to Flexible Design, Easy Installation

Monitored Photo Eye – RAY-N

RAY-N is a monitored photo eye using a 2-wire interface. When the signal between transmitter and receiver is interrupted, the sensor sends a signal to the operator to stop and reverse the door. These sensors are long range (14 m), yet designed for price-sensitive applications. Also, the versatility of the threaded design allows for flush mounting (for example, within the guide of a rolling door) or mounting to a bracket for easy installation.

Features

- 2-Wire Interface
- Various Mounting Options
- Protection Class IP40 or IP65
- Range 14 m

PRODUCT FINDER

VITECTOR Photo Eyes – Product Selection Made Easy

- Access by all Mobile Devices, No Special App Needed
- Find the Right VITECTOR Sensor on the Go
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PRODUCTS

Reflective Photo Eye – RAY-RT

With its adaptable design, RAY-RT can be installed in the most challenging locations of door and gate construction. It is designed for securing various points of the door and due to its compact size it can even be integrated in the guide rail. RAY-RT is available in 2 different output versions typical for the door and gate industry (relay and 2-wire pulsed signal). Added safety is achieved by an optional self-test input for the relay version. RAY-RT is also offered with 3 different housings:

Standard Version

- Economical and Compact Housing
- Adjustable: 360° Horizontally and ±2° Vertically

Industrial Version

- Versatile: Track-mount and Backwards-facing Mount
- Adjustable: 180° Horizontally and ± 2° Vertically

Heavy Duty Version

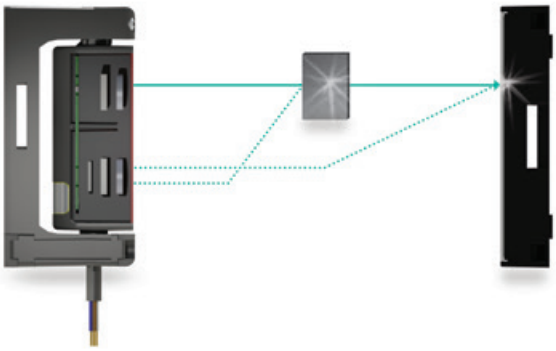
- Shield for Impact Resistance
- UL 325 Recognized Option
- Adjustable: 180° Horizontally and ± 2° Vertically

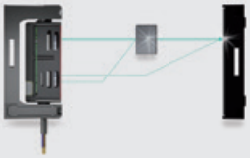
Features

- Available with Standard or Long-range Reflector
- Resistant to Ambient Light Through Red Light Technology
- Close Range Detection (See Triangulation Feature)
- Available Output Versions: Relay, Pulsed 2-wire
- IP65
- LED Indicator

RAY-RT Triangulation Technology

The RAY-RT reflective photo eye uses unique technology to recognize shiny surfaces reflecting light back to the sensor. This technology offers advantages over conventional reflective photo eyes.





RAY-RT Triangulation Technology

The RAY-RT photo eye contains two photocells and an arrangement of lenses and apertures that allow the unit to detect small variations in the angle of incidence of the light returned from the reflector.

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PRODUCTS

Threaded Photo Eye – RAY-M / RAY-M DUO

RAY-M was designed as a light barrier for a small mounting space. It generates the standard OSE signal and can be operated in combination with well known control units. The RAY-M DUO is a double beam light barrier for safeguarding of two parallel areas via one signal. Areas at two different heights, e.g. persons and trucks, can be monitored simultaneously with only one product (solution `D` acc. to EN 12453 possible).

Features

- M16 Outside Thread for Easy Mounting
- Accessories to Adjust Angles Available
- Emitting / Receiving Angle ± 10°
- Electrical Characteristics same as OSE
- Range 10 m

Pre-traveling Light Barrier – OPTOGUARD

OPTOGUARD is a pre travelling non-contact light barrier best suited for doors with wide profiles, e.g. used in sectional doors with low threshold wicket door. OPTOGUARD features two telescopic sledges, each of them carrying a pair of photocell sensors. When touching the ground, the sledge is pushed into the plastic housing tensioning a spring. Customized OEM solutions with single or double beam sensors are available at VITECTOR.

Features

- Protection Class IP65
- Range up to 7 m
- Compatible to all OSE interfaces
- Easy Monitoring of Wide Profiled Doors
- Compatible to all OSE interfaces
- For Integration into Custom Mechanics

Application Areas for VITECTOR Products

- Sectional, Rolling and High Speed Doors
- Vehicle Construction
- Mechanical and Plant Engineering

PRODUCTS

Pull-in Protection – RAYTECTOR

RAYTECTOR is used to safeguard pinch-points on automatic gates and rolling grills. A pull-in protection monitors the shearing-edge and by disrupting the light barrier, the hazardous movement is stopped.

Features

- Pull-In Protection acc. to EN 12453
- Compatible with all OSE-Interfaces
- Ideal for Retrofitting on Existing Doors
- Optimized Installation by LED-Indication and Mounting Brackets
- Resistant to Ambient Light
- Range 1,5 - 10 m

Safety Light Curtain – RAY-LG

RAY-LG is an ultra-compact safety light curtain that uses infrared beams to create a monitored field. When the infrared beams are interrupted, the system outputs a signal to the connected door controller. As soon as the detection area is clear again, the output switches to indicate that the area is “clear”.

Features

- RAY-LG x5xx: EN 12453 Type E Device Available
- RAY-LG x1xx: High Detection Capability due to Cross Beams
- Safety Cat. 2, PL d acc. to EN ISO 13849-1
- Automatic Door Recognition (“Blanking”) with Partial Door Opening
- Track-Mounting
- Designed for Door Speed up to 2.5 m/s
- Resistant to Dust, Dirt and Water
- IP67 Waterproof Housing
- Increased Immunity from Light and Strobe Interference
- OSE Output or Semiconductor Output Available

VITECTOR Accessories

- External Control Units with Different Mounting Options
- Junction Boxes and Coil Cords from Different Material
- Bumpers and Rubber Profiles to Protect the Sensing Edge

PRODUCTS

Slack Cable Switch – SCS

The SCS slack cable switch is designed to detect a slack cable on e.g. a sectional door, which is obstructed in its movement and to stop the operator in time. The EN 12453:2017 requires, that such a device shall fulfil EN ISO 13849-1 PL „c“ category 2. The new VITECTOR SCS switch combines two redundant cable tensioning springs and a positive action microswitch in a rigid housing with only Ø 40 mm diameter. The inevitable elongation of the steel cables on a new door can be easily adjusted without detaching, opening or re-adjusting the switch. The cable tension can be inspected visibly on the outside of the switch housing.

An optional resistor inside the microswitch is used to check the connection cable e.g. for an internal short-circuit in combination with an appropriate control unit e.g. GfA TS 970.

Features

- Slack-Cable Switch in accordance with EN 12453-2017
- Cat. 2 / PL “c” acc. EN ISO 13849-1
- Positive Opening NC Contact
- Optional Short-Circuit Detection by Internal Resistor
- Switch Function Testable in Installation

Pedestrian Door Switch – ENTRYSENSE

Pedestrian doors in automatic gates have to be securely latched for each door operation. The pedestrian door switch ENTRYSENSE fulfils the requirements of safety category 2 / PL c according to EN ISO 13849-1.

ENTRYSENSE is available with various available.n A closed circuit with a resistor in-line allows the detection of a short-circuit in the connection cable. The condition of the redundant reed-switches is be monitored by an adequate control unit (ENS-S 6100). Alternatively, an 8k2 interface is also available (ENS-S 8200).

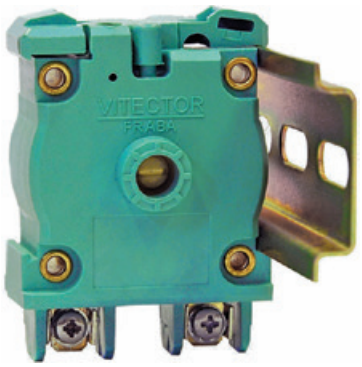
Features

- Pedestrian Door Switch Acc. to EN212453:2017
- Cat. 2 / PL c acc. to EN ISO 13849-1
- Non-Tactile Sensor – Maintenance-Free
- Easy Assembly
- Adjustable Switching Distance

ENTRYSENSE

- Non-Tactile Sensor – No Wearing
- Established 8k2 Interface for ENS-S 8200
- Simple Installation

PRODUCTS



Accessories

To have a complete safe guarding system you may also need a few more components: a control unit which processes the signal of the sensing edge and controls the dignal out put as well as durable coiled cables.

Overview

- Rubber Profiles
- Retainers
- Bumpers
- Controllers
- Coil Cords
- Junction Boxes
- Offset Brackets
- Airwave Accessories

Pneumatic Switch – DW

DW pneumatic switches are actuated by pressure waves created by any kind of pressure source. When the pneumatic edge hits an obstacle, a pressure wave is created inside of the tube and this wave is recognized by the switch.

Features

- Cost Efficient
- Works with Positive or Negative Pressure
- Normally Open & Closed Contacts Available
- Factory-Calibrated, Simple Assembly
- Adjustable Sensitivity

Airwave Accessories

- Silicone Hoses
- Angled Plugs
- Connectors

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SENSOR SOLUTIONS FOR DOORS

FRABA Group

FRABA is a group of enterprises focused on providing advanced products for the motion control and industrial automation markets. VITECTOR is a leading manufacturer and supplier of safety systems for the door and gate market in the USA, Europe, and around the world. The product portfolio of VITECTOR includes optical and pneumatic sensing edges, bumpers, and photo-eye sensors which meet international standards for safety devices. These products have applications in commercial, bus, and train doors as well as production machines. Other FRABA Group subsidiaries include POSITAL which focuses on rotary encoders, inclinometers, and linear sensors.

History

FRABA was founded by Franz Baumgartner in 1918. Until the 1960s, FRABA's main product was mechanical relays. In 1963 FRABA started selling "brush" absolute encoders and in 1973, one of the first non-contact, optical absolute rotary encoders was produced in the FRABA offices in Cologne. In 1994 the first optical safety edge was launched by VITECTOR. Today, FRABA companies specialize in innovative products that use advanced technologies to deliver exceptional performance and value.

Service

To ensure that customers get what they need, VITECTOR's development engineers in the USA, Germany, and Asia have direct responsibility for customer support. In addition, a growing global network of sales partners is providing expert guidance with knowledge about the local requirements.

Production

VITECTOR products are manufactured in advanced production facilities. The computer-guided, semi-automated production system tracks each device from order, through assembly and testing, to final delivery.

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