

SAFETY SENSORS & ACCESSORIES for Doors and Gates

Sold only to industrial specialist companies

02/15



WITT[®]
Sensoric

optoelectronic systems

Operating Gates Safely

Witt Sensoric GmbH Specialist for Safety Sensors on Door and Gate Systems



Our expertise

Since the launch of Witt Sensoric GmbH Berlin in 1993, we have specialized in the development and production of safety sensors and accessories for the industrial door and gate industry.

Thanks to our efficiency in optoelectronic development, mechanical construction and manufacturing we are able to serve small as well as large volume orders. Virtually all large European door and gate manufacturers are now being supplied directly thru us.

Our long time experience is reflected in our extensive and standard-compliant product-portfolio of safety sensors and accessories.

Our numerous trade marks in the form of patents and registered designs attest to our engagement and establishment of new technical standards.

“Our achievements in the past in the door and gate industry back our confidence looking to future prospects.”



Jörg Brech
General Manager

Memberships

Our focus on the door and gate industry is reflected through our membership in both major door and gate organizations. Thru these memberships we are actively involved with industry relevant developments, such as standardization, information about legal regulations and with recommendations by the organizations.



www.bast-online.de



www.bvt-tore.de

Made in Germany

Witt Sensoric GmbH is closely linked to our capital city. We develop, construct and manufacture our products in Berlin. Indeed, all of our important subcontractors have their manufacturing sites in the vicinity of our company headquarters. This gives us direct access to all relevant fabrication steps.

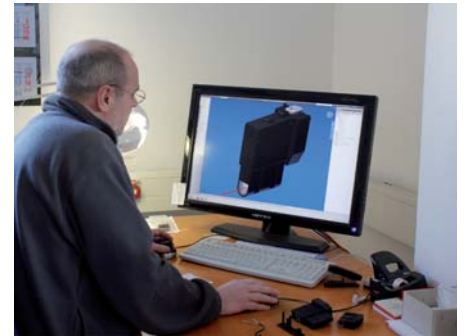
“Made in Germany”, guarantees high quality to you, for us it’s a company philosophy.



Electronic and software development; our own EMC-lab and climate exposure test cabinet



Test device development for the QA of our products



3D constructions for the mechanical assemblies and injection molds



One of our five state-of-the-art assembly lines with integrated optical camera inspection and testing



Quality Assurance QA-visual inspection of the circuit boards



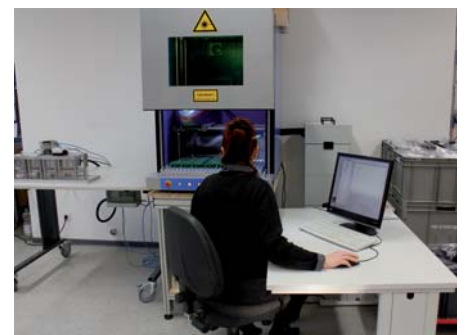
Cable assembly and plug production



Sensor assembly with QA-function-test



Automated filling of 2K-epoxy resin at the moulding station



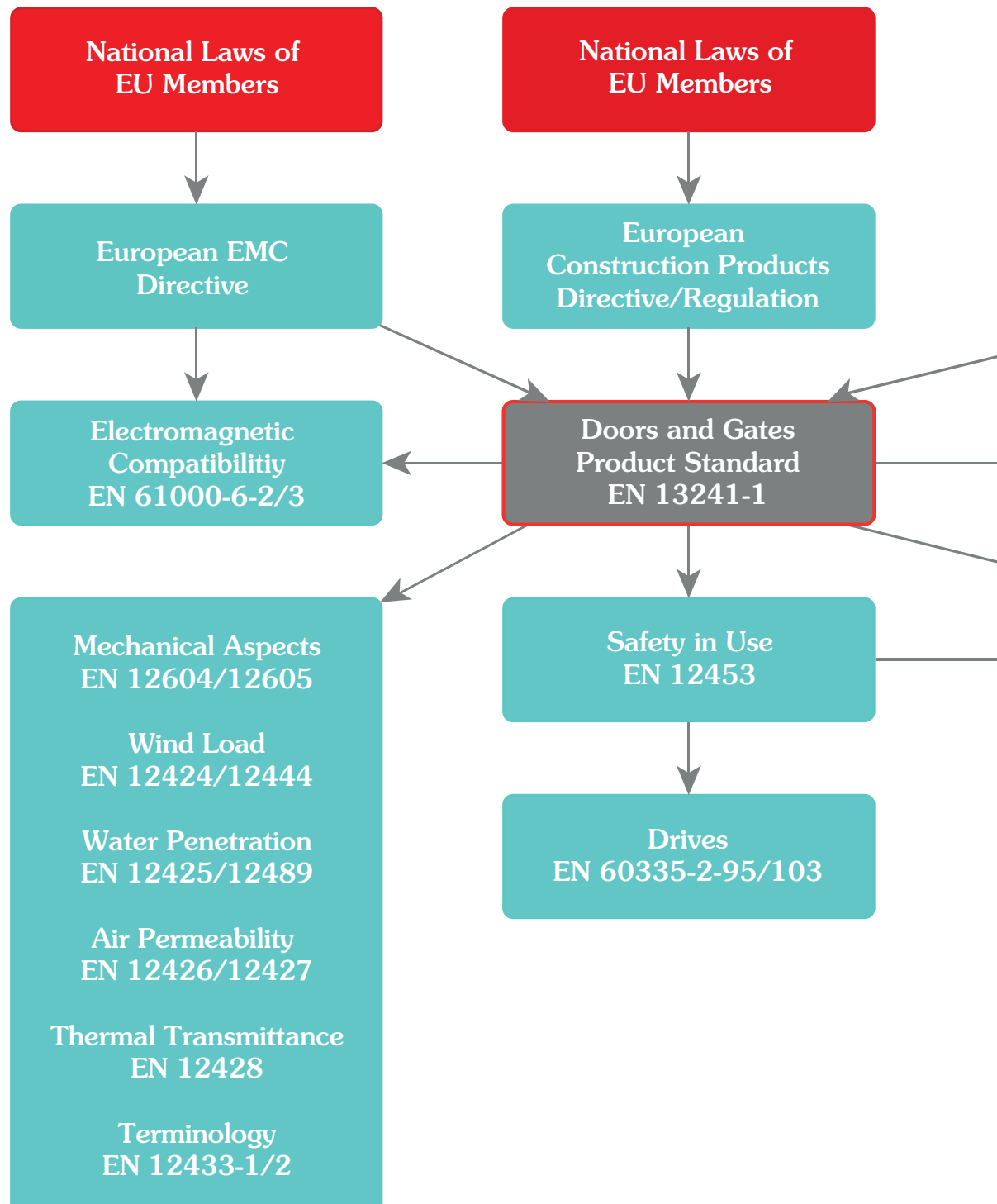
Product identification with modern laser inscription

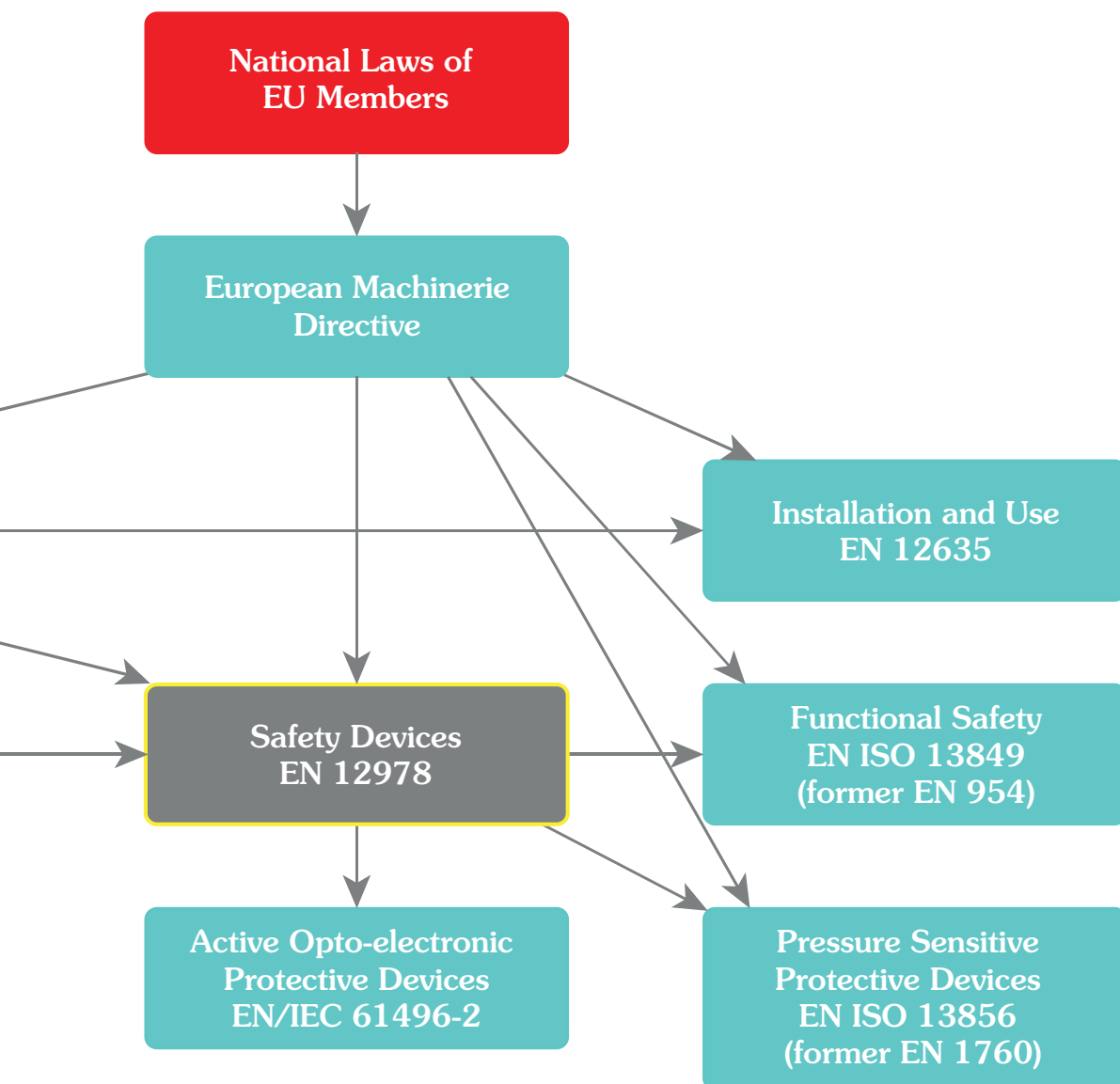
The most important door and gate standards

Door and gate systems must be compliant with standard EN 13241. Not only the manufacturers but also the installation and maintenance companies are required to comply with these standards.

Our products, which are used as safety units in door and gate systems, for example as optoelectronic safety edges, pull-in protections safety units, safety light curtains or non-contact optoelectronic safety edges must all conform to EN 12978.

Below, a graphic illustrates the interconnections and dependencies on laws, guidelines, regulations and standards.





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Explanation to pictograms



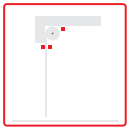
Optoelectronic safety edge



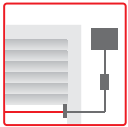
Non-contact safety edge



Pull-in protection



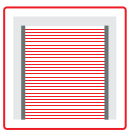
Pull protection
Recommendation for assembly



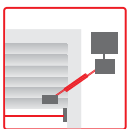
FOCUS-processing unit for
FOCUS sensors



FOCUS-processing unit for
FOCUS sensors



Safety light curtain



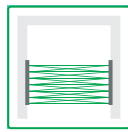
Safety processing unit for
optoelectronic safety edges



Reflective photo-electric switch



Through-beam photo switch



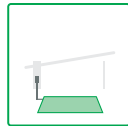
Drawbar detection



Headlight flash controller



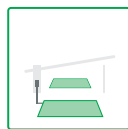
Loop detector
for one loop



Loop detector
for one loop



Loop detector
for two loops



Loop detector
for two loops



Accessories

Safety sensors

Optoelectronic safety edges page 08

Pull-in protections page 10

Non-contact safety edges page 13

Safety light curtains page 14

Safety processing units page 16

Comfort sensors

Comfort photoelectric switches page 18

Drawbar detection page 20

Headlight flash controller page 21

Loop detectors page 22

Accessories

Rain covers, reflectors, anti-condensation covers and mounting brackets page 24

Power supply unit page 26

Cable junction boxes page 26

Spiral cables page 30

Rubber profiles, aluminum-C-profiles and tools page 31

Approach stoppers page 34

APPLICATION

The LOW-POWER-SIGNAL is a 3rd generation optoelectronic safety edge. Our many years of experience with optoelectronic safety edges and modern market-requirements have been innovatively merged in this product.

Diagnostic display

The components are always checked after connection to the supply voltage. These include the quality of the rubber compound, sensing distances, deflection, contamination, etc. The result of the test reading is displayed in the form of a blink-code with a range of 1 to 3 impulses.



1 LED-flash = ideal conditions



2 LED-flashes = good conditions



3 LED-flashes = operational limit reached

When there are three flashes the operational limit has been reached. The rubber profile should be checked for damages and the light channel should be checked for contaminants. To repeat the diagnosis, briefly disconnect the optoelectronic safety edge from the supply voltage.

Switching status

After diagnosis, the LOW-POWER-SIGNAL mode comes into operation. When the light-path is disrupted the yellow LED will illuminate.

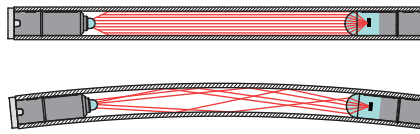


Easy service

Thanks to the diagnostic display, the assembler can judge the operational safety of the optoelectronic safety edge and the rubber profile. The switching status display can, when necessary, help identify any faults.

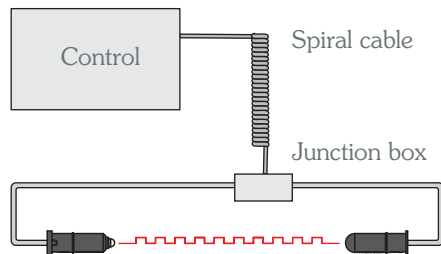
Optical system

The new optical system allows for a larger sensing distance and a better switch performance with transverse deflections.

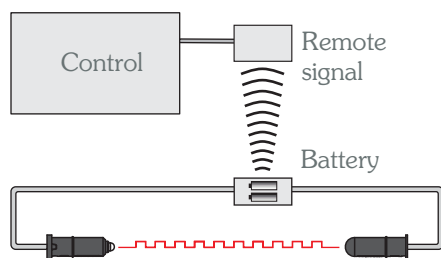


Universally usable

The LOW-POWER-SIGNAL adjusts itself with the help of its patented "duo-switch" detection method to the spiral cable or the battery power. This happens automatically while the connected operating voltage is being registered. It results in optimal conditions for the respective operating situation.



When the LOW-POWER-SIGNAL is attached directly to the control via a spiral cable, it will work like a standard optoelectronic safety edge. It can be directly connected to any modern control with an OSE-input.

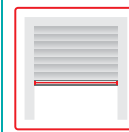


With battery powered control units, the LOW-POWER-SIGNAL will set itself up automatically. The power consumption is significantly reduced to maximize battery life.

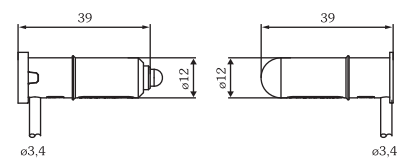
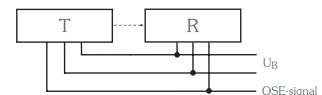
LOW-POWER-SIGNAL



- universal optoelectronic safety edge
- suitable for remote modules/spiral cables
- diagnostic display
- easy installation
- OSE-output
- high degree of protection IP67



Thanks to its patented detection method, the LOW-POWER-SIGNAL will automatically adjust to being operated either by a radio system module or by spiral cable. With its innovative optics, even large door widths can be reached and it sets new standards with its lack of sensitivity to sagging e.g. through wind load.



Technical data

operating voltage	3...27 VDC
door width	1...12m
output	OSE-signal
display	yellow LED-transmitter
connection	3x0.14mm ²
degree of protection	IP67, filled with epoxy resin

Relevant accessories

safety processing unit	page 16
junction box	page 26
rubber profile	page 31
approach stopper	page 34

LOW-POWER-SIGNAL | Item number
see price list 1.01

216397

set consists of:
Transmitter 1m fixed cable with Molex plug.
Receiver 10.5m fixed cable with Molex plug.

APPLICATION

The non-contact safety edge NOCON-ROLL and NOCON-SEC are both easy to install and upgrade. The light-beam is emitted in front of the rubber profile and detects any obstructions before making contact. This leaves the door with a longer traverse path and the resulting closing force can be significantly reduced.



NOCON-ROLL



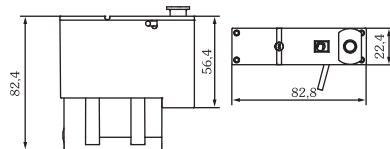
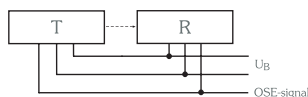
- non-contact safety edge
- for roller shutters
- reduces closing forces
- easy to upgrade
- OSE-output
- high degree of protection IP67



The NOCON-ROLL is a complete functional unit. It consists of a casing with a slim approach stopper for roll-up doors, a retractable sensor element and LED-indicators showing the switching status.

It is easy to install on the existing C-rail. The leading light-beam allows obstructions to be registered much earlier and the closing forces are reduced significantly.

The NOCON-ROLL can be connected directly to any current controls with an OSE-input.



Technical data

operating voltage	10...16 VDC
door width	1...8m
output	OSE-signal
display	green/red LED-transmitter green LED-receiver
connection	3x0.14mm ²
degree of protection	IP67, filled with epoxy resin

Relevant accessories

safety processing unit	page 16
junction box	page 26
rubber profile	page 31

Set NOCON-ROLL | Item number
see price list 1.02

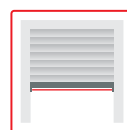
216398

set consists of:
Transmitter 1m fixed cable with Molex plug,
Receiver 10.5m fixed cable with Molex plug

NOCON-SEC



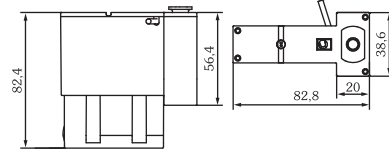
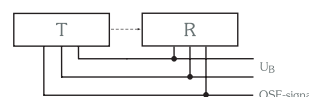
- non-contact safety edge
- for sectional doors
- reduces closing forces
- easy to upgrade
- OSE-output
- high degree of protection IP67



The NOCON-SEC is a complete functional unit. It consists of a casing with a slim approach stopper for sectional doors, a retractable sensor element and an LED-indicators showing the switching status.

It is easy to install on the existing C-rail. The leading light-beam allows obstructions to be registered much earlier and the closing forces are reduced significantly.

The NOCON-SEC can be connected directly to any current controls with an OSE-input.



Technical data

operating voltage	10...16 VDC
door width	1...8m
output	OSE-signal
display	green/red LED-transmitter green LED-receiver
connection	3x0.14mm ²
degree of protection	IP67, filled with epoxy resin

Relevant accessories

safety processing unit	page 16
junction box	page 26
rubber profile	page 31

Set NOCON-SEC | Item number
see price list 1.03

216399

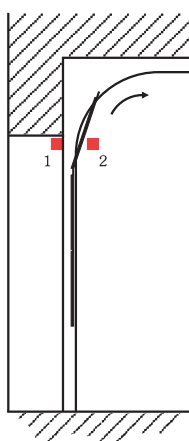
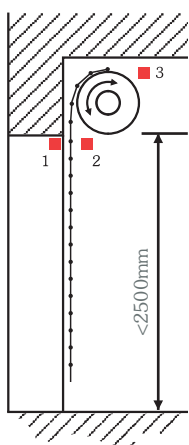
set consists of:
Transmitter 1m fixed cable with Molex plug,
Receiver 10.5m fixed cable with Molex plug

APPLICATION

Photo cells for safety units on roller shutter systems must comply with EN 12978.

Door systems e.g. roller shutters with a design that leaves open the possibility of a "hazardous retraction" during operation or sensing distances heights under 2.5m that can possibly cause a "catch" in the wrapping mechanism of the drive, must be secured.

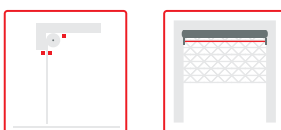
The safety mechanism is tested with a rod of max 50mm.



TWIN-SAFE

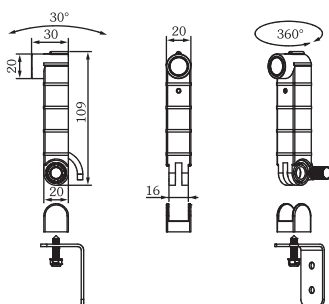
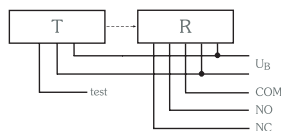


- potential-free relay-output
- test-input
- simple alignment with the pivoted joint
- front-facing LED alignment indicator
- insensitive against ambient light
- high degree of protection IP67



The TWIN-SAFE has a unique design as a pull-in protection, with its overhead optical unit, capability of alignment in all directions and with only a central mounting fixture.

The TWIN-SAFE has a potential-free changeover contact with a test-input and can be connected directly to any current controls that have a test-input.



Technical data

operating voltage	10...30 VDC
door width	1...20m
output	relay/test-input
display	green LED-transmitter green/red LED-receiver
connection	transmitter: 3x0.25mm ² receiver: 5x0.25mm ²
degree of protection	IP67, filled with epoxy resin

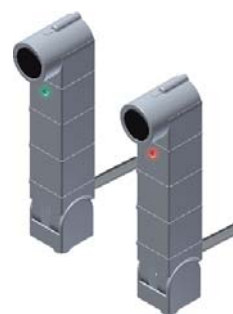
Set TWIN-SAFE
see price list 2.01

Item number

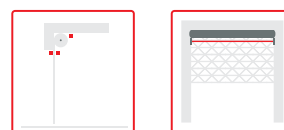
214933

set consists of:
transmitter and receiver each with a 13m fixed cable, two mounting brackets V2A

TWIN-PRO

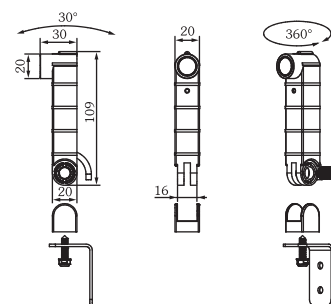
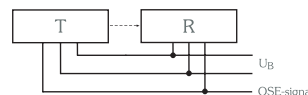


- OSE transmitter-output
- simple alignment with the pivoted joint
- front-facing LED alignment indicator
- insensitive against ambient light
- high degree of protection IP67



The TWIN-PRO has a unique design as a pull-in protection, with its overhead optical unit, capability of alignment in all directions and with only a central mounting fixture.

The TWIN-PRO can be connected directly to any current controls with an OSE-input.



Technical data

operating voltage	10...15 VDC
door width	1...20m
output	OSE-signal
display	green LED-transmitter green/red LED-receiver
connection	3x0.14mm ²
degree of protection	IP67, filled with epoxy resin

Set TWIN-PRO
see price list 2.02

Item number

216401

set consists of:
transmitter and receiver each with a 13m fixed cable, two mounting brackets V2A

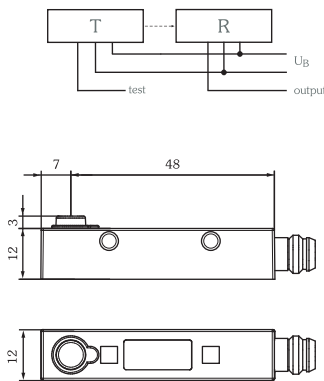
INNO-SAFE



- semiconductor-output
- test-input
- LED-display in the optical window
- high-quality plug
- insensitive against ambient light
- high degree of protection IP67



The INNO-SAFE has a very compact design that allows it to be easily installed in extrusions or in panels. The operating status is displayed by colored LEDs. The high-quality plugs and the complete embedding guarantee environmental stability. The short-circuit-proof semiconductor-output with a test-input allows direct operation from most door controls.



Technical data

operating voltage	10...30 VDC
door width	1...10m
output	PNP-signal/test-input light-on
display	green LED-transmitter red LED-receiver
connection	pluggable, M8 4-pin
degree of protection	IP67, filled with epoxy resin

Set INNO-SAFE | Item number
see price list 2.03 | **216402**

set consists of:
transmitter and receiver. Connection cable S34G/5m and S34G/15m included

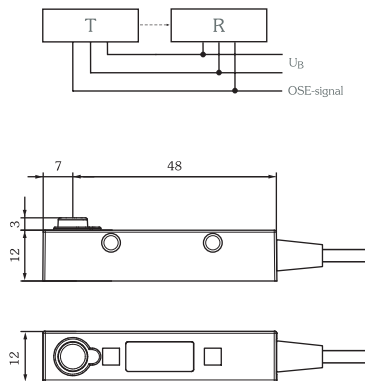
INNO-PRO



- OSE signal-output
- LED-display in the optical window
- insensitive against ambient light
- high degree of protection IP67



The INNO-PRO has a very compact design that allows it to be easily installed in extrusions or in panels. The LED-indicators are visible through the optical window. The high-quality plugs and the complete embedding guarantee environmental stability. The INNO-PRO can be connected directly to any current controls with an OSE-input.



Technical data

operating voltage	10...30 VDC
door width	1...10m
output	OSE-signal
display	green LED-transmitter red LED-receiver
connection	3x0.14mm ²
degree of protection	IP67, filled with epoxy resin

Set INNO-PRO | Item number
see price list 2.04 | **216403**

set consists of:
transmitter and receiver each with a 13m fixed cable



APPLICATION

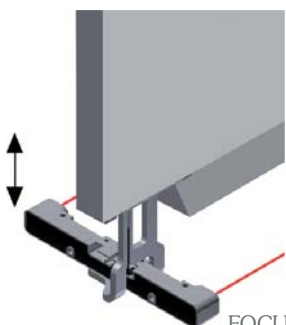
The FOCUS-series consists of miniature sensors that are connected to the safety processing unit FOCUS-CONTROL. This system can be used as a pull-in protection, optoelectronic safety edge or a non-contact safety edge. Up to two pairs of sensors can be connected to one safety processing unit. Thanks to a special evaluation process, none of the sensors can influence the others. Complicated wiring is minimized thanks to the modular plug-in system. Appropriate tools are needed to crimp the plugs correctly.



FOCUS 100



FOCUS 110



FOCUS 200

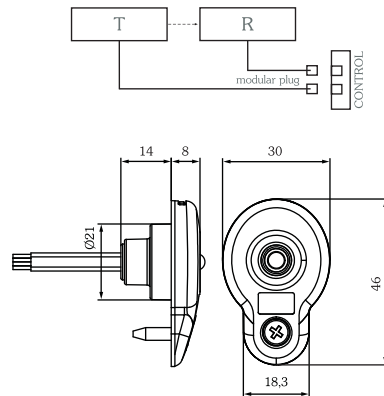
FOCUS 100



- adjustable front-assembly
- 2-channel-operation possible
- no cross-interference
- modular plug-in system
- insensitive against ambient light
- high degree of protection IP67



The Focus 100 is a spherical-head sensor and can be installed directly into the doors paneling with only one screw. Alignment of the sensor in any direction is still possible even after it has been fully installed. The switching status is displayed via the LED on the front. Operation is only possible using the FOCUS-CONTROL. Output versions for all current door controls are available.



Technical data

function	operates only with FOCUS-CONTROL
door width	0.2...8m
display	red LED-transmitter
connection	fixed cable with a modular plug
degree of protection	IP67, filled with epoxy resin

Set FOCUS 100
see price list 3.01

Item number

216213

set consists of:
transmitter 13m fixed cable with a modular plug, receiver 13m fixed cable with a modular plug, adjustment tool and drilling template.

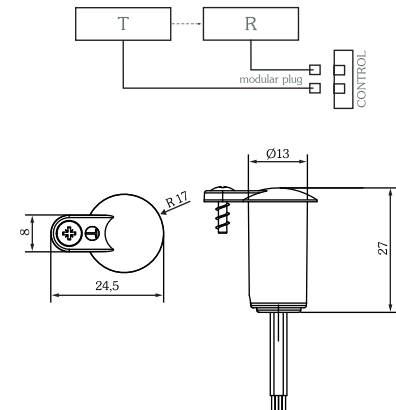
FOCUS 110



- simple front-assembly
- 2-channel-operation possible
- ideal installation in door systems
- modular plug-in system
- insensitive against ambient light
- high degree of protection IP67



Thanks to the design of its casing the FOCUS 110 can be used as a pull-in protection or optoelectronic safety edge. Due to the front installation it is easy to mount. The switching status is displayed by the LED on the front. Operating is only possible with the FOCUS-CONTROL. Output versions for all current door controls are available.



Technical data

function	operates only with FOCUS-CONTROL
door width	0.2...8m
display	red LED-transmitter
connection	fixed cable with a modular plug
degree of protection	IP67, filled with epoxy resin

Set FOCUS 110
see price list 3.02

Item number

216404

set consists of:
transmitter 13m fixed cable with a modular plug, receiver 13m fixed cable with a modular plug

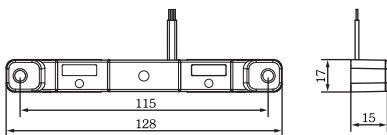
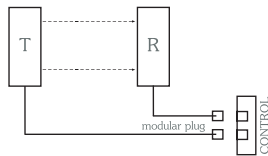
FOCUS 200



- non-contact safety edge
- 2-beam coverage of a wide door edge
- modular plug-in system
- insensitive against ambient light
- high degree of protection IP67



The FOCUS 200 was specifically designed for low-threshold-doors with a pass door. Because the doors threshold construction is wide, the inner and outer edges need to be secured separately. This can be achieved in a very compact way using the FOCUS 200. It is highly insensitive against ambient light and is remarkably immune to interference.



Technical data

function	operates only with FOCUS-CONTROL
door width	0.2...8m
connection	fixed cable with a modular plug
degree of protection	IP67, filled with epoxy resin

Set FOCUS 200
see price list 3.03

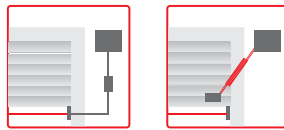
Item number
216405

set consists of:
transmitter 13m fixed cable with a modular plug, receiver 13m fixed cable with a modular plug

FOCUS-CONTROL

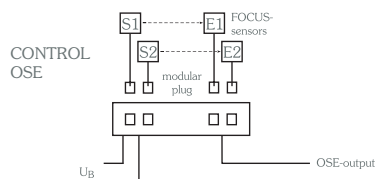
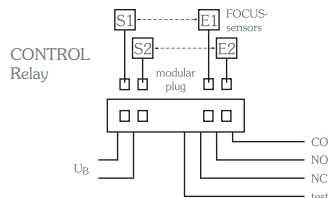


- up to 2 pairs of safety sensors can be connected
- universal output variations
- LED-indicators for each channel
- modular plug-in system
- LAD 4 casing, IP66



Sensors from the FOCUS-series must be connected to the FOCUS-CONTROL. Thanks to the special multiplex-process, up to two pairs of sensors can be operated at the same time without interference. The OSE- or the relay-output can be used to connect easily to virtually all door controls.

The casing measurements can be found on page 29 under LAD 4.



Technical data

operating voltage	10...30 VDC
output	relay/test-input or OSE-signal
display	LED rot/grün, gelb
degree of protection	IP66

FOCUS-CONTROL
see price list 3.04

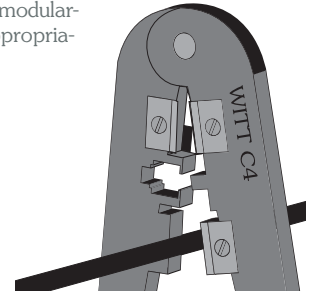
Item number
216269

set consists of:
processing unit for the light barrier series FOCUS, two-channel design with a modular socket for the relay-output Lid cable plug 90°

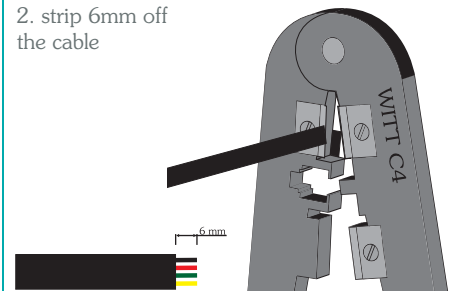
INSTRUCTION

The modular connection is an established, inexpensive plug-in system that allows easy installation and activation of the light barrier.

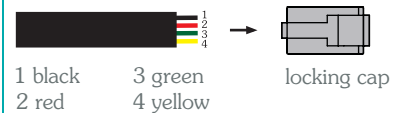
1. shorten the modular-cable to the appropriate length



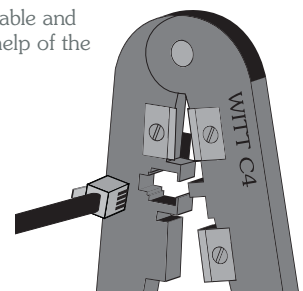
2. strip 6mm off the cable



3. Arrange the cable in the color sequence shown and insert into the correctly positioned plug



4. Crimp the cable and plug with the help of the C4. Done!



Modular-plug C4
see price list 3.06

Item number
216474

Crimp-tool WITT-C4
see price list 3.07

Item number
216469

APPLICATION

The LIGI passed the EC type test conducted by TÜV Nord according to the following standards:

- EN 12978
- EN ISO 13849, Cat. 2, PLd
- IEC 61496-2
- EN 12445 Chap. 7
- EN 12453 Chap. 5.5.1

C+D and E device without reservation and has been certified accordingly.

Aperture angle according to standards

The LIGI complies with all the requirements of EN 12978, also including the maximum $\pm 5^\circ$ transmitter and receiver apertures angles specified in section 4.3.3.

Enhanced requirements

The TÜV testing organisation set out a hazard scenario which was to be safely detected by the light curtain. The gate is stopped at a residual opening of slightly over 50mm. If the test body B (\varnothing 50mm) then intrudes into the remaining protection field in that position, the light curtain must detect it as an obstacle.

Moreover, the Automatic Door and Gate Systems Forum "EK TuT" which met on 29 October 2013 in Nuremberg set out a further safety proposal for light curtains acting as a safety device on door systems, namely that the standard range for detection of the test body B (\varnothing 50mm) should be increased from 300mm above the ground to 500mm.

The LIGI complies with these enhanced requirements

Intelligent functions - easy installation

The specified $\pm 5^\circ$ safety aperture angles poses no problem when it comes to installing the LIGI. Mechanical alignment clamps are provided for the purpose, together with a software programmable alignment mode. In this mode the strength of reception of the optical signal is indicated by changes in the flashing frequency of an LED. The best signal reception - meaning that the transmitter and receiver are perfectly aligned - is attained when the LED flashing frequency is the highest. At that point simply tighten the clamp and the adjustment procedure is complete.

Maximum operational reliability

The mechanical construction of the LIGI, an aluminium profile fully filled with epoxy resin and high-grade connector, is extremely robust in line with the tough environmental demands imposed on gate systems.

The LIGI is highly insensitive against ambient light, even direct sunlight does not impair its functionality. The LIGI is also resistant to electromagnetic interference such as can occur in door drives that use low-frequency inverters.

Retrofitting older door systems

The safety light curtain is ideal for upgrading or retrofitting door systems which cannot comply with the specified maximum closing forces.

Special design for low doors

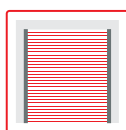
For doors where the LIGI cannot be fully installed, such as in underground parking garages (monitoring also in the header area), Witt Sensoric GmbH offers a version with separated electronics.

Even if the height is less than 2500mm, this enables the full height of the door to be monitored without any gaps in the protection field.

LIGI-OSE-A

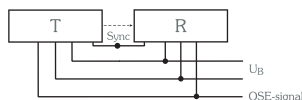


- OSE-signal output
- installation in door opening / blanking
- no closing-forces
- slim aluminum casing
- insensitive against ambient light
- high degree of protection IP67



The safety light curtain LIGI-OSE-A can be connected directly to any controls with an OSE-signal-input and be operated as an optoelectronic safety edge.

The electronics are mounted in a slim aluminum casing and filled with epoxy resin. The LIGI has a high-quality 4-pin plug with an M8 thread and latch.



Technical data

operating voltage	10...30 VDC
door width	1.6 ... 10m
output display	OSE-signal green/yellow LED-transmitter green/red LED-receiver
connection	threaded, M8 4-pins
degree of protection	IP67, filled with epoxy resin

For door systems with a lower assembly height, the LIGI can be delivered in sequentially 130mm shorter sizes.

Set LIGI-OSE
see price list 4.01

Item number

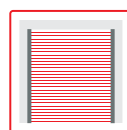
217225

set consists of:
transmitter and receiver, two connection cables S34G-LIGI/5m and S34G-LIGI/15m, alignment clamp LIGI-JK 10 pack of 10

LIGI-PNP-A



- PNP-output and test-input
- installation in door opening / blanking
- no closing-forces
- slim aluminum casing
- insensitive against ambient light
- high degree of protection IP67

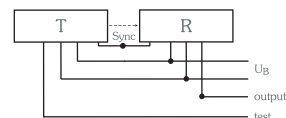


The safety light curtain LIGI-PNP-A can be connected directly to any controls with a PNP-signal-input (plus-switching) and be operated as an optoelectronic safety edge.

Safety relevant functions can be tested by the system with the test-input included in the transmitter.

The electronics are mounted in a slim aluminum casing and filled with epoxy resin.

The LIGI has a high-quality 4-pin plug with an M8 thread and latch.



Technical data

operating voltage	10...30 VDC
door width	1.6 ... 10m
output display	PNP-signal/test-input green/yellow LED-transmitter green/red LED-receiver
connection	threaded, M8 4-pins
degree of protection	IP67, filled with epoxy resin

For door systems with a lower assembly height, the LIGI can be delivered in sequentially 130mm shorter sizes.

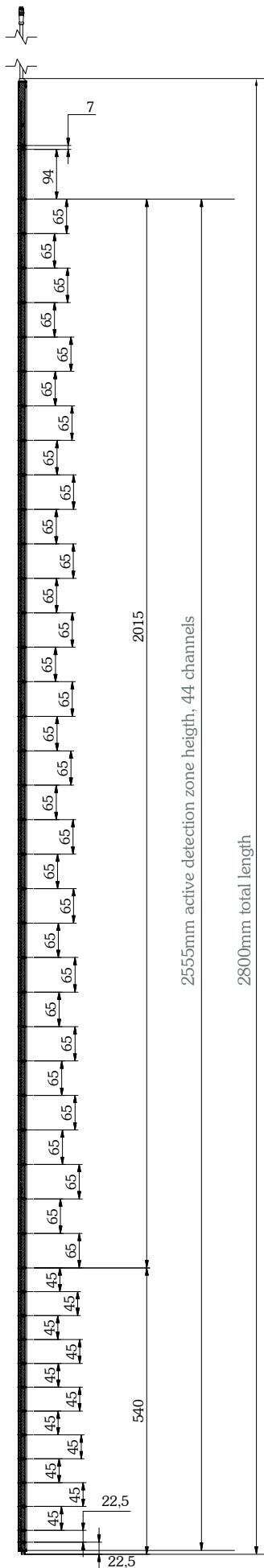
Set LIGI-PNP
see price list 4.11

Item number

217339

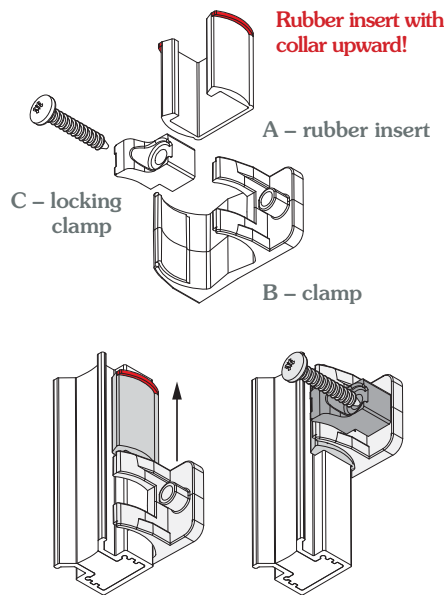
set consists of:
transmitter and receiver, two connection cables S34G/5m and S34G/15m, alignment clamp LIGI-JK 10 pack of 10

MOUNTING



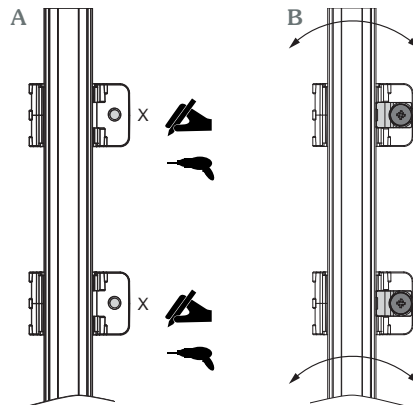
1. Correct mounting of alignment clamp

Please check available space for the light curtain to avoid damages caused by the moving door.



2. Connection cable must always face upwards

Transmitter and receiver must be leveled, topmost and lowest alignment clamps have to be mounted max 100mm of light curtain end and additional clamps with a max distance of 600mm.



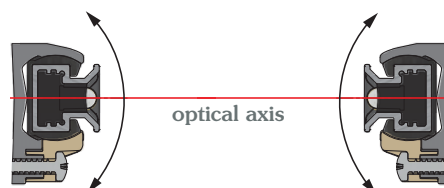
A Mark hole pattern and drill holes.

B Slightly tighten screws, LIIG must still be alignable.

Please use the supplied screws and self-locking nuts.

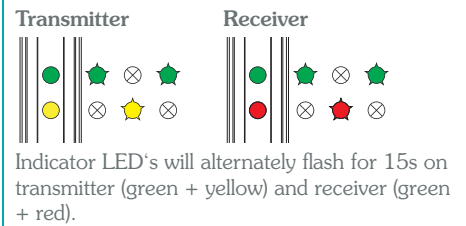
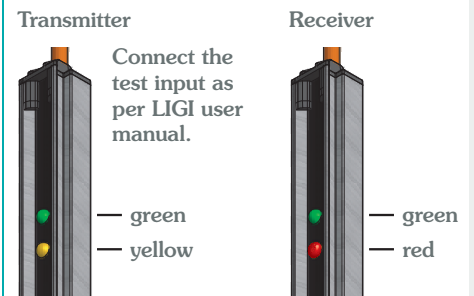
3. Alignment of optical axis

Align optical axis of transmitter and receiver to one another. Connect LIIG according to user manual.



4. Alignment mode

Once roughly aligned please switch into alignment mode (OSE = green wire of transmitter, PNP = black wire of transmitter).



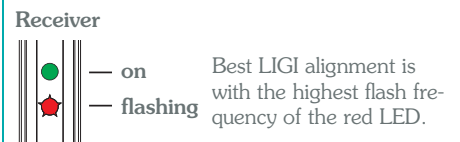
5. Optimal alignment



Step 1: turn receiver slowly to the left and right till red LED flashes with the highest frequency.

Step 2: turn transmitter slowly to the left and right till red LED flashes with the highest frequency.

repeat step 1



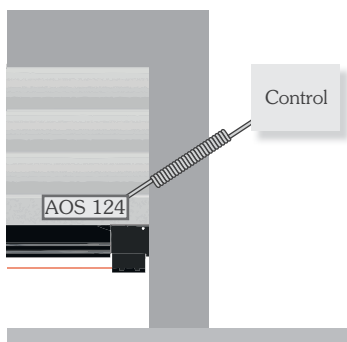
Tighten screws of the alignment clamps. Switch into normal operation by leaving the alignment mode.

Please make sure that the door movement does not interfere with the light curtain operation.

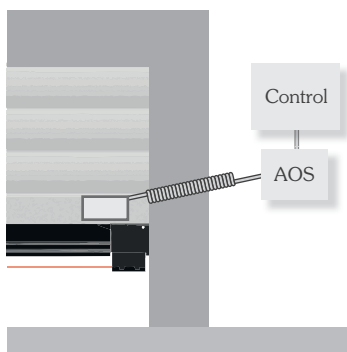
APPLICATION

All safety light barriers with an OSE-signal or in some cases additionally 8k2 resistor contact strips can be connected to the safety processing units. These are evaluated and then provide a switching function in the form of a potential-free contact. This is often necessary with older controls, as these lack a direct interface for the analysis of the OSE-safety-signal. The safety processing unit can typically be used for upgrading older systems.

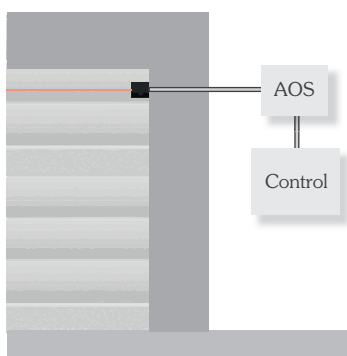
The safety processing units of the AOS-series were developed in accordance with ISO 13849-1 "Safety-related parts of control systems".



Optoelectronic safety edge installed on the door curtain.



optoelectronic safety edge

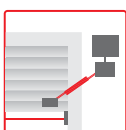


pull-in protection

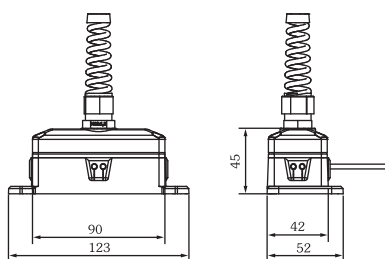
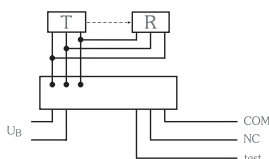
AOS 124



- one OSE-input
- a safety circuit
- relay-output and test-input
- for mounting on the door curtain
- LED-indicators



The compact safety processing unit AOS 124 is installed directly on the door curtain. It can process an optoelectronic safety edge with an OSE-signal and is available as a potential-free contact for the control.



Technical data

operating voltage	19...35 VDC or 19...30 VAC
input	1x OSE-signal
output	relay/test-input
display	yellow LEDs
safety	Cat. 2, ISO 13849-1
degree of protection	IP65

Set AOS 124
see price list 5.01

Item number

215307

set consists of:
safety processing unit AOS 124 in an LAD2-casing including seal kit and spiral cable gland M16

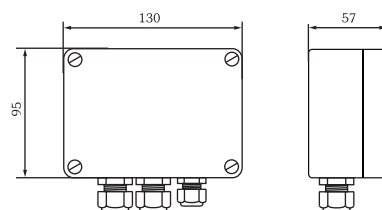
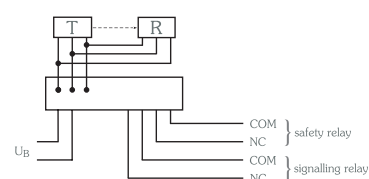
AOS 3000



- one OSE-input
- a safety circuit
- positively driven safety-relays
- signal contact with pulse function
- power-/function-display-LEDs



The safety processing unit AOS 3000 is suitable for an optoelectronic safety edge or for a pull-in protection with an OSE-output.



Technical data

operating voltage	AOS 3024 24 VAC AOS 3024 24 VDC AOS 3230 230 VAC
input	1x OSE-signal
output	1x safety contact 1x signal contact
display	yellow LEDs
safety	cat. 3, PL c according to ISO 13849-1
degree of protection	IP66

Set AOS 3230
see price list 5.02

Item number

214756

set consists of:
safety processing unit AOS 3230 including a spiral cable gland M16 and a cable gland M20

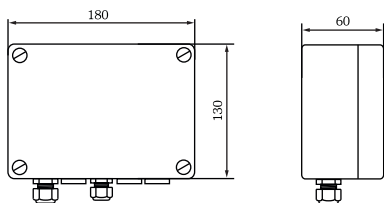
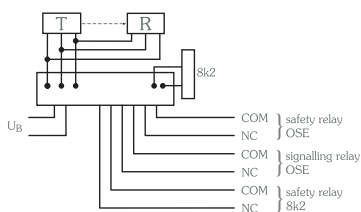
AOS 4000



- one OSE-input and one 8k2-input
- two safety circuits
- positively driven safety-relays
- signal contact with pulse function
- power-/function-display-LEDs



The safety processing unit AOS 4000 is suitable for an optoelectronic safety edge, pass door switch and 8k2-secondary safety edges.



Technical data

operating voltage	AOS 4024 24 VAC AOS 4230 230 VAC
input	1x OSE-signal 1x 8k2-input
output	2x safety contacts 1x signal contacts
display	yellow LEDs
safety	cat. 3, PL c according to ISO 13849-1
degree of protection	IP66

Set AOS 4230
see price list 5.05

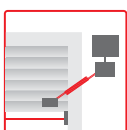
Item number

214759

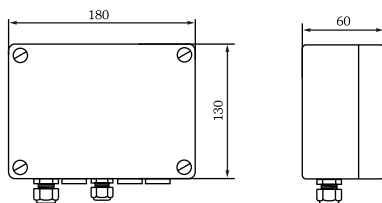
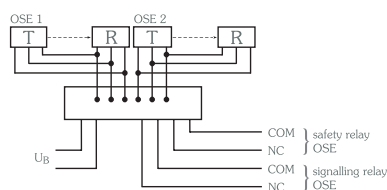
AOS 5000



- two OSE-inputs
- one safety circuit
- positively driven safety-relays
- signal contact with pulse function
- power-/function-display-LEDs



The safety processing unit AOS 5000 is suitable for two safety edges or for two pull-in protection units with OSE-output.



Technical data

operating voltage	AOS 5230 230 VAC
input	2x OSE-signal
output	1x safety contact 1x signal contact
display	green, yellow, red LEDs
safety	cat. 3, PL c according to ISO 13849-1
degree of protection	IP66

Set AOS 5230
see price list 5.07

Item number

214744

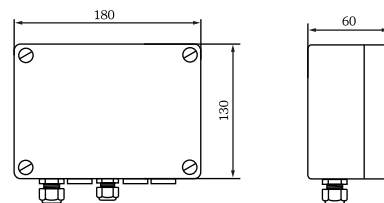
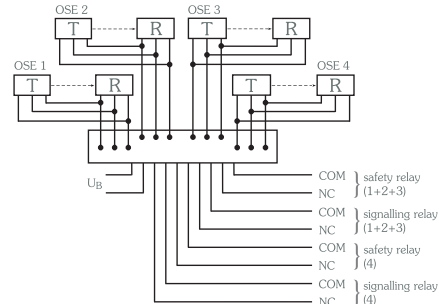
AOS 6000



- four OSE-inputs
- two safety circuits
- positively driven safety-relays
- signal contact with pulse function
- power-/function-display-LEDs



It is possible to connect three pull-in protections to an OSE-output and one safety edge to the safety processing unit AOS 6000.



Technical data

operating voltage	AOS 6230 230 VAC
input	4x OSE-Signal
output	2x safety contact 2x signal contact
display	green, yellow, red LEDs
safety	cat. 3, PL c according to ISO 13849-1
degree of protection	IP66

Set AOS 6230
see price list 5.08

Item number

215427

set consists of:
safety processing unit AOS 4230 including a spiral cable gland M16 and a cable gland M16 and M20

set consists of:
safety processing unit AOS 5230 including a spiral cable gland M16 and a cable gland M16 and M20

set consists of:
safety processing unit AOS 6230 including a spiral cable gland M16 and a cable gland M16 and M20

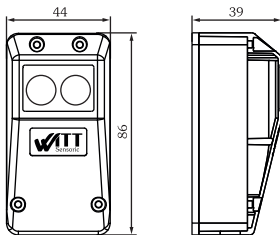
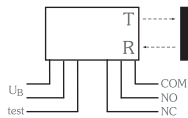
RP 25



- can safely detect any reflective object
- adjustable optical polarizing filter
- alignment- and contamination indicator
- large terminal compartment
- high degree of protection IP65



The RP 25 is a high quality reflective photo switch. The optics are furnished with a polarizing filter that can easily detect reflective metal surfaces. The RP 25 is characterized by its easy installation thanks to its large terminal compartment, a pluggable threaded terminal and a cable screw connection with variable insertion options. Realignment of the optics can easily be done even after installation.



Technical data

operating voltage	10...40 VDC or 24 VAC ±25%
door width	0.5 ... 12m
output	relay/test-input
display	green/red LEDs
connection	plug-screw plugs
degree of protection	IP65

Relevant accessories

weather protection cover	page 24
reflectors	page 24
mounting brackets	page 25

Set RP 25 see price list 6.01

Item number
216406

set consists of:
reflective photo switch RP 25, reflector RD82 SW4, mounting brackets HW-LS and HW-RD82, anti-condensation cover ISO-RD82, including a cable gland M12 and fastening material for the mounting brackets

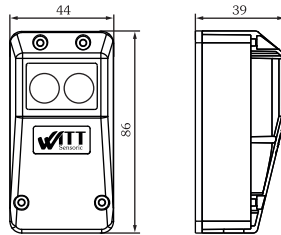
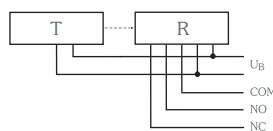
ARGOS 25



- two programmable transmitter frequencies
- alignment of the transmitters is possible
- large terminal compartment
- contamination indicator
- insensitive against ambient light
- high degree of protection IP65



The through-beam photo switch ARGOS 25 was specifically designed for door and gate systems onto which two photo switches are to be installed without interference with each other. The ARGOS 25 is installed on the surface and thanks to its high degree of protection is suitable for outdoor use.



Technical data

operating voltage	10...40 VDC or 24 VAC ±25%
door width	1.0...20m
output	relay/test-input
display	yellow LED-transmitter red/yellow LED-receiver
connection	plug-screw plugs
degree of protection	IP65

Relevant accessories

weather protection cover	page 24
mounting brackets	page 25

Set ARGOS 25 2-Kanal see price list 6.02

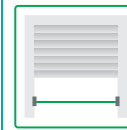
Item number
216407

set consists of:
transmitter and receiver, two mounting brackets HW-LS, including a cable gland M12 and fastening material for the mounting brackets

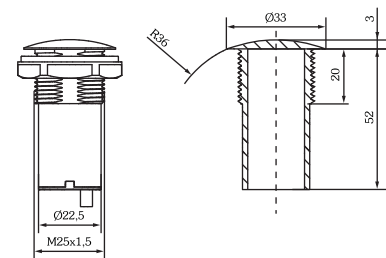
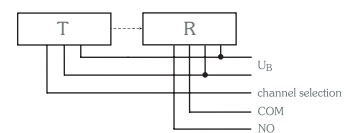
ARGOS



- two programmable transmitter frequencies
- well-designed built-in casing
- wear-free semiconductor relay
- soiling indication
- insensitive against ambient light
- high degree of protection IP67



Safe operation is guaranteed by the large opening angle, even when installation results in angular deviations. The M25 design conforms to the standardized measurements of cable screw connections. The high degree of protection of the casing is ensured with a gasket.



Technical data

operating voltage	10...40 VDC or 10...30 VAC
door width	1.0...20m
output	Semiconductor-output Potential-free closer/ test-input
display	green LED-transmitter red LED-receiver
connection	transmitter: 3x0.25mm ² receiver: 5x0.25mm ²
degree of protection	IP67, filled with epoxy resin

Set ARGOS 2-Kanal see price list 6.03

Item number
216408

set consists of:
transmitter 4m fixed cable, receiver 4m fixed cable

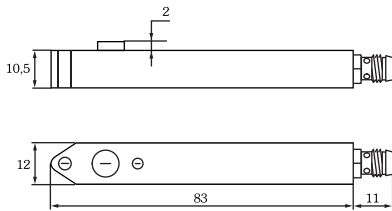
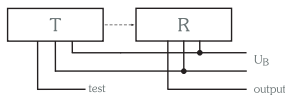
SLENDER



- installation into the profile
- semiconductor-output
- plug connection M8 4-pin
- front-sided LED-indicator
- insensitive against ambient light
- high degree of protection IP67



The SLENDER is a small through-beam photo switch. The slim design makes it optimally suited for installation in profiles. The wide aperture angle and long range ensure problem-free alignment during installation. The light-source and LED-indicator are situated on the front side of the casing. The Slender is ideally suited for outdoor use. Sunlight and ambient light pose no problem.



Technical data

operating voltage	10...30 VDC
door width	0.5...13m
output	PNP/test-input light-on
display	green LED-transmitter green/red LED-receiver
connection	threaded plug, M8 4-pin
degree of protection	IP67, filled with epoxy resin

Set SLENDER | Item number
see price list 6.04

216409

set consists of:
transmitter and receiver, including connection cable S34G/5m
and S34/G15m and two adhesive strips

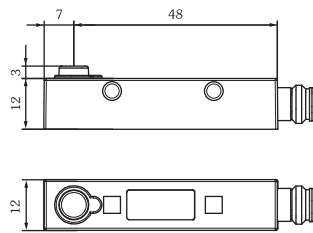
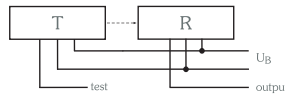
INNO-COM



- compact casing
- plug connection M8 4-pin
- LED-display in the optical window
- insensitive against ambient light
- high degree of protection IP67



The INNO-COM is a photo switch fully filled with epoxy resin which, thanks to its compact casing design, is easy to install. The long range, the lack of sensitivity to ambient light, a high-quality threaded plug connection and the high degree of protection ensures operation even in tough weather conditions. The INNO-COM is protected against polarity reversal and the outputs are short-circuit-proof.



Technical data

operating voltage	10...30 VDC
door width	0.5 ... 10m
output	PNP/test-input light-on
display	green LED-transmitter red LED-receiver
connection	threaded plug, M8 4-pin
degree of protection	IP67, filled with epoxy resin

Set INNO-COM | Item number
see price list 6.05

216410

set consists of:
transmitter and receiver, including connection cable S34G/5m
and S34/G15m

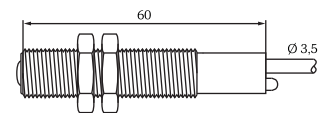
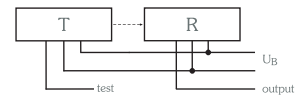
SERIES 12 GSA/GEA



- threaded-design M12x1, metal
- large opening angle
- LED-indicators
- insensitive against ambient light
- high degree of protection IP67



The series 12 is a very compact and robust threaded-light barrier, which can be directly installed with union nuts. The high degree of protection with a fixed cable, the long range and the complete lack of sensitivity to ambient light enable its operation even in tough weather conditions. The series 12 is protected against polarity reversal and the outputs are short-circuit-proof.



Technical data

operating voltage	10...30 VDC
door width	0.5 ... 15m
output	PNP/test-input light-on
display	green LED-transmitter red LED-receiver
connection	3x0.25mm ²
degree of protection	IP67, filled with epoxy resin

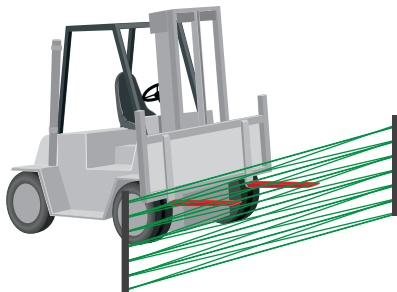
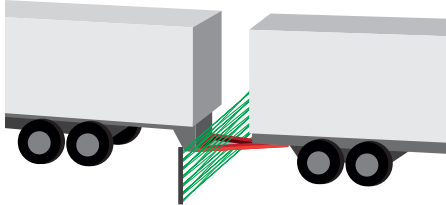
Set SERIES 12 GSA/GEA | Item number
see price list 6.06

216411

set consists of:
transmitter 5m fixed cable, receiver 15m fixed cable

APPLICATION

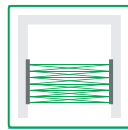
The DEGI is a light-curtain with crossed light-beams. With this technique even small objects within the area can be safely detected. The robust aluminum casing and the complete embedding with a threaded, high-quality plug connection permit smooth operation even in rough weather conditions.



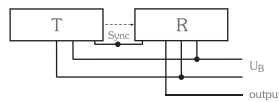
DEGI



- safe drawbar detection
- crossed beam geometry
- 52 detection beams
- protective field height 760mm
- high-quality plug connection
- high degree of protection IP67



The DEGI is installed as a flat through-beam photo switch, for the safe recognition of objects in the closing area of door systems. It can be directly connected to the photo cell input of most controls.



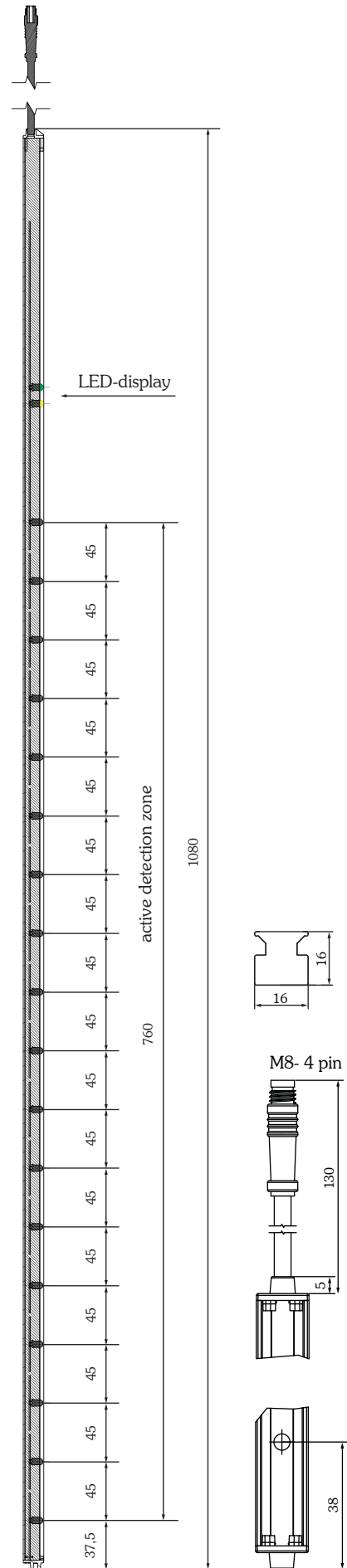
Technical data

operating voltage	10...30 VDC
door width	1.6 ... 10m
switching-output	PNP-signal/test-input
display	green/yellow LED-transmitter green/red LED-receiver
connection	screwable, M8 4-pin
degree of protection	IP67, filled with epoxy resin

Set DEGI | Item number
see price list 8.01

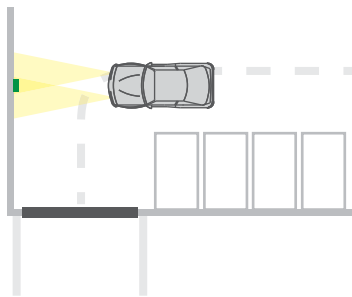
216375

set consists of:
transmitter and receiver, two connection cables S34G/5m and S34G/15m, alignment clamp LIGI-JK 10 and mounting clamp LIGI-HK 10 pack of 10

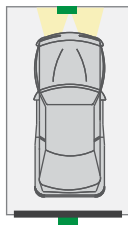


APPLICATION

The LITAS-system transforms headlight flashes from motor vehicles into switching signals to open doors and gates. The snap-in sensors can easily be inserted into the mounting sockets. Up to 6 sensors can be installed at different heights, to ensure optimal illumination from any vehicle. The flash-impulses required to start the switching procedure can be set from 2 to 5. This set-up and ambient light suppression ensure safe operation even with sunlight and unwanted headlights from passing cars. Additionally an external, potential-free button can be connected.



Underground garage exit with headlight controls.



Motor vehicle workshop bays with flashing light controls for entry and exit.



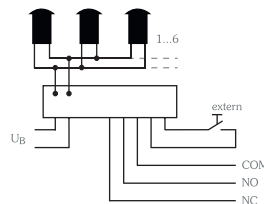
LITAS 10



- 2 to 5 headlight-impulses to open door
- pulse display with LED-counter
- adjustable light sensitivity
- suppression of ambient light
- up to 6 receiver sensors with a connectable external button



The LITAS-system initiates a switching procedure in response to headlights flashes. This makes it highly suitable as a door opener for e.g. garages and bus- or train-depots.



Technical data

operating voltage	10...40 VDC or 230 VAC
display	green, yellow LEDs LED seven-segment module
connection	3x0.5mm ²
switching-output	relay, changeover contact
degree of protection	IP66

Set LITAS 10
see price list 9.01

Item number

215781

set consists of:
processing unit LITAS 10, two receiving sensors LITEM 1 with a 6.5m fixed cable, junction box LAD 1, spiral cable 3 x 0.5 mm² (BL 750), 1 spiral cable gland M16 and 1 cable gland M16

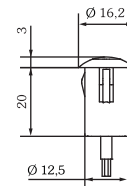
LITEM 1



- receiver sensor
- snap-in casing
- 6.5m cable length
- high degree of protection IP67



To ensure that the light-beam always hits the sensor in an optimal manner, it may be necessary to install several receiving sensors at different heights. This can especially be the case when both cars and trucks need to use the opening mechanism. Up to 6 sensors can be connected to every LITAS-processing unit.



Technical data

function	connection to a LITAS-processing unit
connection	2x0.14mm ²
degree of protection	IP67, filled with epoxy resin

Set LITEM 1
see price list 9.02

Item number

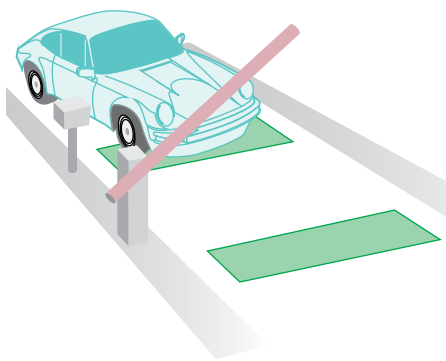
215778

APPLICATION

Vehicles and metal objects can be safely identified by a loop embedded in to the driveway, consisting of several coils of copper wire and an inductive loop analyzer of the LOOP-series. Modern technology involving a powerful micro-processor enable a loop analysis over a large induction-area of 40-1000 μ H. The LOOP-series has 1- and 2-channel variations with several possible settings for:

- changes in the loop frequency
- boost-function (suppression of sensitivity)
- directional logic
- impulse/continuous contact
- output functions
- limiting dwell time
- response delay
- drop-out delay

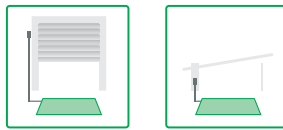
The flash code of the LED-indicators shows the actual loop frequency and any error diagnosis.



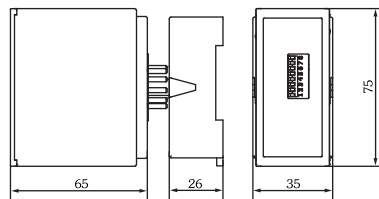
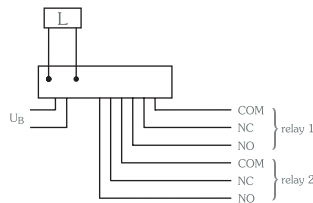
LOOP 1C



- pluggable 1-channel processing unit
- several operating-modes
- optional special function
- diagnostic function
- display of the loop frequency
- rapid reaction time



The LOOP 1C is a switching amplifier for an induction loop. Its modern electronics and powerful processor enable safe operation of loop geometries in an area of inductivity of 40-1000 μ H. The many possible settings enable universal adaptation to the operating conditions. The 11-pin plug base is pin-compatible with most current products.



Technical data

operating voltage	24 VAC/DC or 230 VAC
output	potential-free changeover contact, max. 250 V / 6 A
display connection	green, yellow, red LEDs
degree of protection	11-pin plug base, screw-terminal for rail mounting
	IP30

Set LOOP 1C/230
see price list 10.01

Item number

215723

set consists of:
inductive processing unit for one loop including an 11-pin plug base

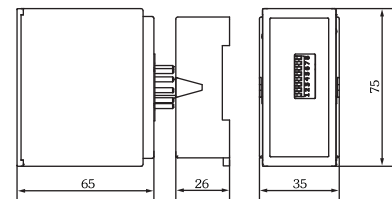
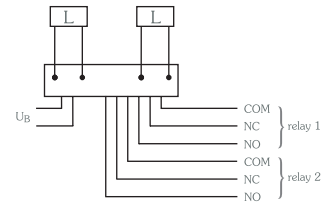
LOOP 2C



- pluggable 2-channel processing unit
- several operating-modes
- optional special function
- diagnostic function
- display of the loop frequency
- rapid reaction time



The LOOP 2C is a switching amplifier for 2 induction loops. Its modern electronics with a powerful processor ensure the safe operation of loop geometries in an area of inductivity of 40-1000 μ H. The many possible settings allow universal adaptation to the operating conditions. The 11-pin plug base is pin-compatible with most current products.



Technical data

operating voltage	24 VAC/DC or 230 VAC
output	potential-free changeover contact, max. 250 V / 6 A
display connection	green, yellow, red LEDs
degree of protection	11-pin plug base, screw-terminal for rail mounting
	IP30

Set LOOP 2C/230
see price list ab 10.03

Item number

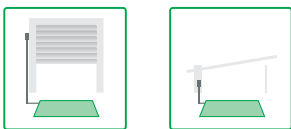
215725

set consists of:
Inductive processing unit for two loops including an 11-pin plug base.

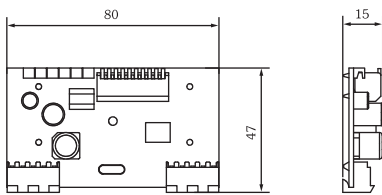
F-LOOP 1C



- single-channel plug-in module
- several operating-modes
- optional special function
- diagnostic function
- display of loop geometry
- rapid reaction time



The F-LOOP 1C is a pluggable switching amplifier for an induction loop. It can be connected directly to the respective door and gate controls and is compatible to the Feig-processing unit SVEK-1-D. Its modern electronics and powerful processor ensure safe operation of loop geometries in an area of inductivity of 40-1000µH. The many possible settings enable universal adaptation to the operating conditions.



Technical data

operating voltage 24 VDC
 output NPN-output
 display green, yellow, red LEDs

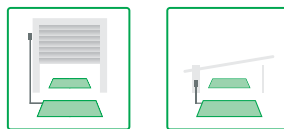
compatible with Feig SVEK-1-D

Set F-LOOP 1C | Item number
 see price list 10.05 | **216417**

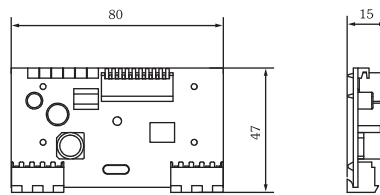
F-LOOP 2C



- 2-channel plug-in module
- several operating-modes
- optional special function
- diagnostic function
- display of loop geometry
- rapid reaction time



The F-LOOP 2C is a pluggable switching amplifier for 2 induction loops. It can be connected directly to the respective door and gate controls and is compatible to the Feig-processing unit SVEK-2-D. Its modern electronics and powerful processor ensure safe operation of loop geometries in an area of inductivity of 40-1000µH. The many possible settings enable universal adaptation to the operating conditions.



Technical data

operating voltage 24 VDC
 output NPN-output
 display green, yellow, red LEDs

Compatible with Feig SVEK-2-D

Set F-LOOP 2C | Item number
 see price list 10.06 | **216418**

APPLICATION

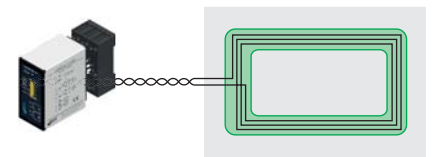
Loop installation

The individual cores should not shift against each other. The loop geometry must not be allowed to change. If possible, the installation should be kept away from any metal objects.

Number of coils in the loop

perimeter	number of coils
U = 2 - 5m	N = 5
U = 5 - 9m	N = 4
U = 9 - 17m	N = 3

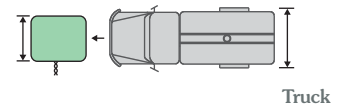
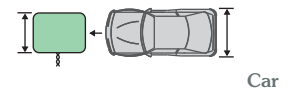
The aspect ratio should be between 1:1 and 1:3.



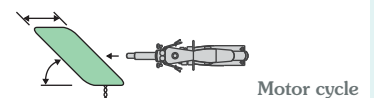
The feed line should be twisted 25 times per meter.

Loop geometry

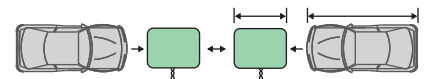
The loop-width should be equal to or slightly smaller than the widest vehicle passing over the loop.



In order to detect two-wheeled vehicles, the loop should be set up as a trapezoid or a parallelogram.



With a two-channel loop-detector it is possible to activate direction detection. The distance between the loops should then be half the length of the vehicle.



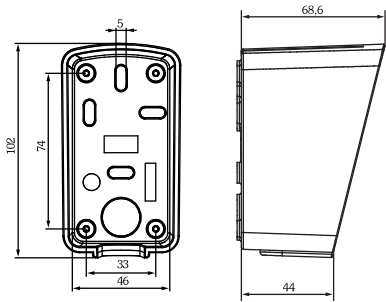
When there is only limited room it is advisable to lay the loop in the form of a figure 8.



WSH-LS



- stable weather-proof protective cover
- impact-resistant plastic PA6 GF15
- protects against environmental factors



WSH-LS
see price list 11.01

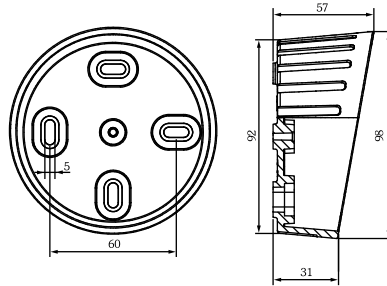
Item number

215315

WSH-RD82



- stable weather-proof protective cover
- impact-resistant plastic PA6 GF15
- protects against environmental factors
- suitable for the reflector RD82



WSH-RD82
see price list 11.02

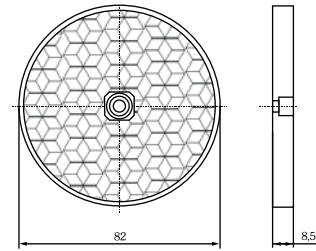
Item number

215316

RD82 SW4



- reflector for reflective photoelectric switch with polarization filters
- door width 12m (RP 25)



RD82 SW4
see price list 11.03

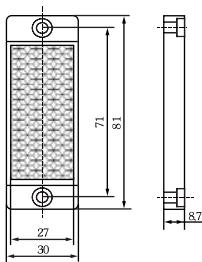
Item number

214811

R30/60



- reflector for reflective photoelectric switch with polarization filters
- slim design
- door width 8m (RP 25)



R30/60
see price list 11.06

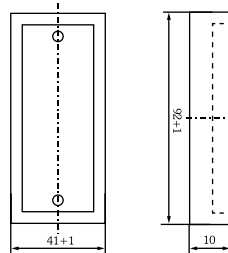
Item number

214810

ISO-R30/60



- anti-condensation cover for reflector R30/60
- reduces surface condensation
- thermic isolation from the underground

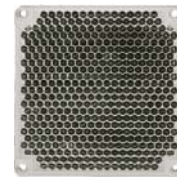


ISO-R30/60
see price list 11.07

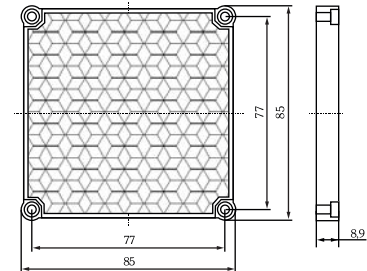
Item number

214850

RD85/85



- reflector for reflective photoelectric switch with polarization filters
- door width 12m (RP 25)



RD85/85
see price list 11.08

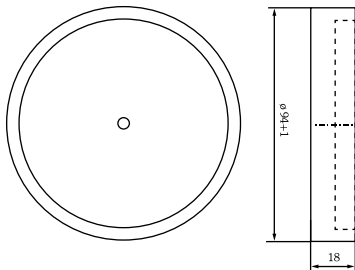
Item number

214809

ISO-RD82



- anti-condensation cover for reflector RD82
- reduces surface condensation
- thermic isolation from the ground



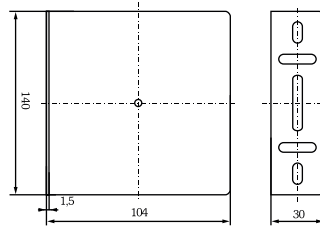
ISO-RD82
see price list 11.04

Item number
214849

HW-RD82



- V2A mounting bracket for reflector RD82



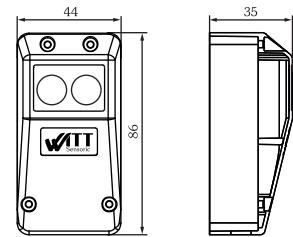
HW-RD82
see price list 11.05

Item number
214848

RP25 COVER



- cover for RP 25
- plastic PMMA



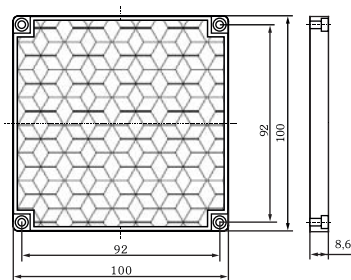
RP25 COVER
see price list 11.12

Item number
215343

R100/100



- reflector for reflective photoelectric switch with polarization filters
- door width 15m (RP 25)



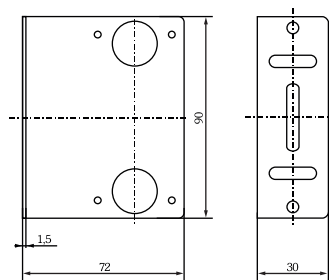
R100/100
see price list 11.09

Item number
214812

HW-LS



- V2A mounting bracket for photo switches



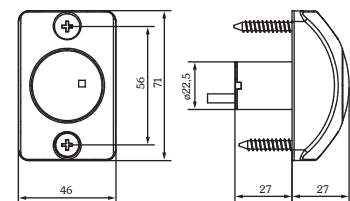
HW-LS
see price list 11.10

Item number
214847

APG-AR



- housing for surface mounting of the ARGOS photo switch
- impact-resistant plastic PA6 GF15



APG-AR
see price list 11.11

Item number
215919

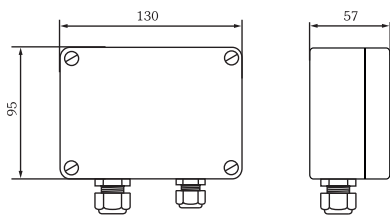
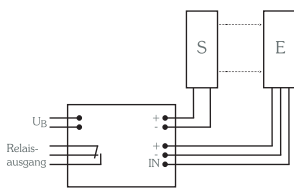
NGZ 230R



- power supply unit for photo switches and light curtains
- PNP input
- potential free relay output
- adjustable switching delay
- acoustic signal



The power supply unit NGZ 230R is for connecting photo switches with PNP output to standard potential free relay input control panels. If needed a switching delay can be used and also an acoustic signal can be switched on.



Technical data

operating voltage	230 VAC
	secondary 18 VDC / 250 mA
switching delay	adjustable 0.1-5s
output	relay 250 V / 6 A
display	LED, yellow
degree of protection	IP66

NGZ 230R | Item number
see price list 12.01

214410

set consists of:
power supply unit NGZ 230R, including a spiral cable gland M16 and a cable gland M16

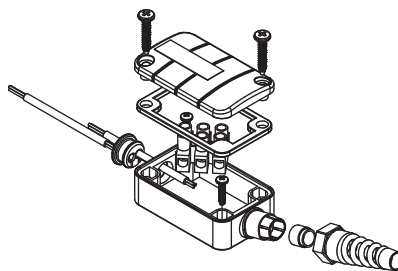
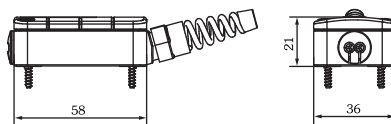
LAD 1



- compact design
- angled cable-output for the spiral cable
- degree of protection IP54



The LAD 1 is used as a wiring box between the optoelectronic safety edge and the spiral cable and is installed on the door leaf. The angled cable-output keeps the spiral cable away from the frame.



LAD 1 | Item number
see price list 12.02

214776

set consists of:
cable junction box with a spiral cable protector and a 3-pin screw terminal

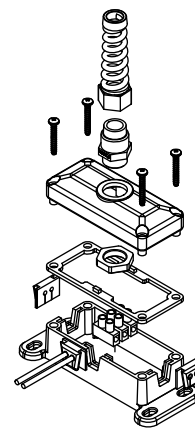
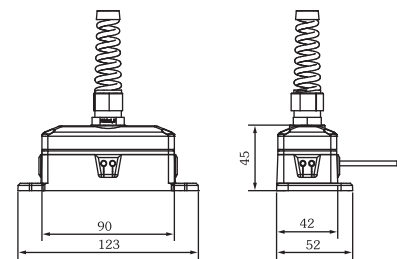
LAD 2



- compact design
- impact-proof plastic
- MODULE 2-PCB can be installed
- degree of protection IP65



The LAD 2 is installed as a wiring box directly onto the door leaf. It is very stable and has a compact design. The enclosed seal kit gives it an IP65 degree of protection. The terminal compartment offers ample space for the wiring of optoelectronic safety edges, slack rope and a door contact with a spiral cable. It is also possible to install a MODULE 2-printed circuit board.



LAD 2 | Item number
see price list 12.03

214782

set consists of:
cable junction box with a 5-pin push connector including a spiral cable gland M16 and screw set

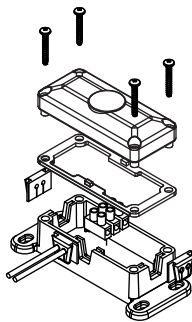
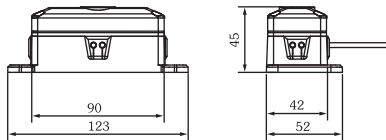
LAD 2B



- compact design
- impact-proof plastic
- MODULE 2 and 3-PCB can be installed
- degree of protection IP65



The LAD 2B is the ideal cable junction box in addition to the LAD 2. The design is exactly the same as the LAD 2 except the closed cover. It is thought to be the 2nd cable junction box on the door for the connection of optical safety edge, pass door switch and slack rope switch and can be used with MODULE 3.



LAD 2B | Item number
see price list 12.04 **214731**

set consists of:
cable junction box with a 5-pin push connector and screw set

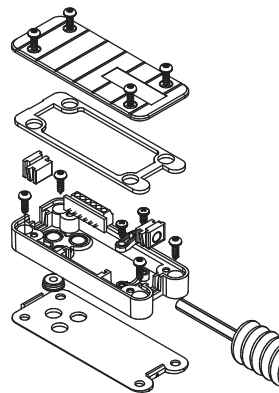
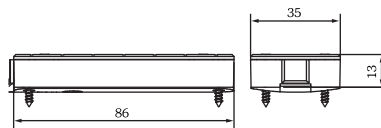
LAD 3



- very flat design
- circuit board with screw clamps
- suitable for roller shutters
- strain-relief for spiral cables
- degree of protection IP65



The LAD 3 is installed as a wiring box directly onto the door curtain. Thanks to its flat design it fits between the door and the facing. The separate clamping points allow easy wiring for optoelectronic safety edges and spiral cables.



LAD 3 | Item number
see price list 12.05 **216492**

set consists of:
cable junction box with a seal kit, strain-relief and terminal block, including a screw set, 1 screwdriver and adapter for mounting on curved profiles

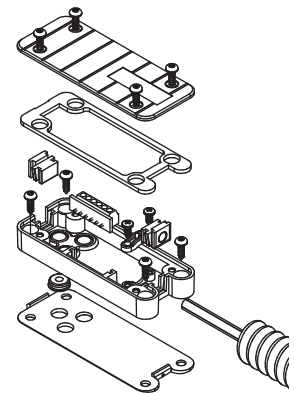
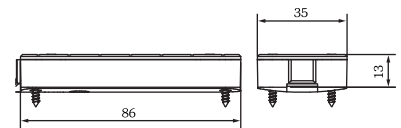
LAD 3 / LED



- Power-on indicator-LED
- transparent cover
- suitable for roller shutters
- strain-relief for spiral cables
- degree of protection IP65



The LAD 3 / LED is installed as a wiring box directly onto the door curtain. Thanks to its flat design it fits between the door and the facing. The separate clamping points allow easy wiring for optoelectronic safety edges and spiral cables. The green LED indicates power on.



LAD 3 / LED | Item number
see price list 12.06 **216445**

set consists of:
cable junction box with Power-on indicator-LED, with a seal kit, strain-relief and terminal block, including a screw set, 1 screwdriver and adapter for mounting on curved profiles

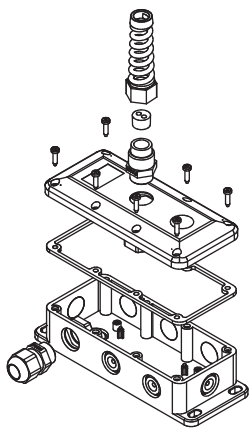
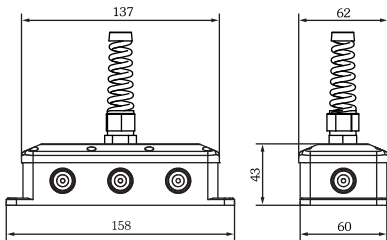
LAD 4 90°



- large terminal compartment
- impact-proof plastic
- 90° cable exit
- pre stamped cable entries
- high degree of protection IP66



The LAD 4 offers large connection space for wiring all components on the door leaf. The high-quality design with a cover seal and 8 screw attachments guarantee excellent protection. Transparent cover with 90° cable exit. For an easy and service-friendly electrical connection, the MODULE 2-PCB is available that can be installed directly into the LAD 4.



LAD 4 90° | Item number
see price list 12.07 | **215300**

set consists of:
cable junction box LAD 4, cover with 90° cable exit, including 1 spiral cable gland M16 and 3 cable screw connections M16 and seal kit

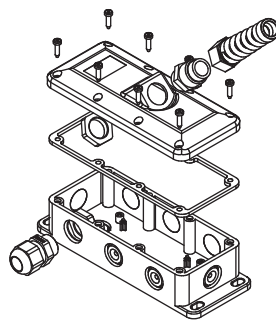
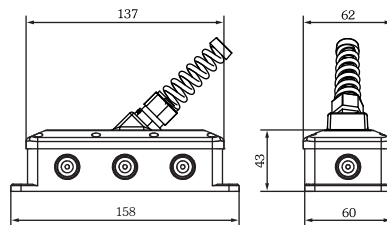
LAD 4 45°



- large terminal compartment
- impact-proof plastic
- 45° cable exit
- pre stamped cable entries
- high degree of protection IP66



The LAD 4 offers large connection space for wiring all components on the door leaf. The high-quality design with a cover seal and 8 screw attachments guarantee excellent protection. Transparent cover with 45° cable exit. For an easy and service-friendly electrical connection, the MODULE 2-PCB is available that can be installed directly into the LAD 4.



LAD 4 45° | Item number
see price list 12.08 | **215302**

set consists of:
cable junction box LAD 4, cover with 45° cable exit, including 1 spiral cable gland M16 and 3 cable screw connections M16 and seal kit

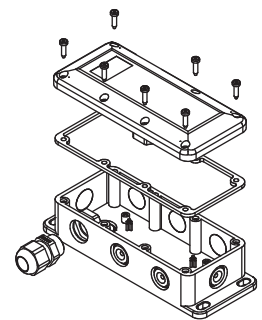
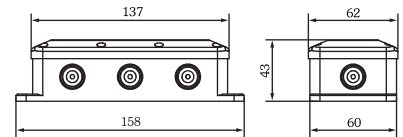
LAD 4 CLOSED



- large terminal compartment
- impact-proof plastic
- closed cover
- pre stamped cable entries
- high degree of protection IP66



The LAD 4 offers large connection space for wiring all components on the door leaf. The high-quality design with a cover seal and 8 screw attachments guarantee excellent protection. Closed transparent cover. For an easy and service-friendly electrical connection, the MODULE 2-PCB is available that can be installed directly into the LAD 4.



LAD 4 closed° | Item number
see price list 12.09 | **215398**

set consists of:
cable junction box LAD 4, with closed cover including 1 spiral cable gland M16 and 3 cable screw connections M16 and seal kit

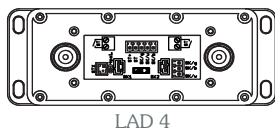
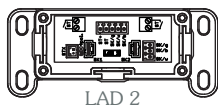
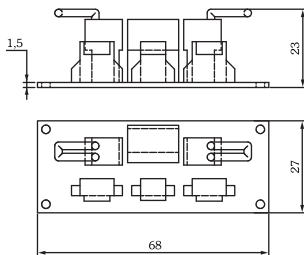
MODULE 2



- easy wiring of all door leaf components
- suitable for 4- and 5-core spiral cables
- GfA- and MFZ-compatible
- can be installed directly into an LAD 2/LAD 4



The MODULE-2-printed circuit board ensures quick and easy installation of door leaf components. The optoelectronic safety edges can be connected directly with a Molex-plug. Slack rope switch and pass door switch have their own clamping points. For especially wide doors, two MODULE-PCBs can be installed at the end and connected internally. The advantage in this case is that the sensors always have equal termination lengths and the variable cable length for the door width will only affect the connecting cable. The system can be configured for 4-core (such as GfA) or 5-core spiral cables (such as MFZ).



MODULE 2 | Item number
see price list 12.10

214749

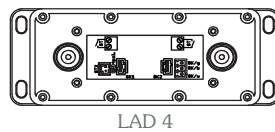
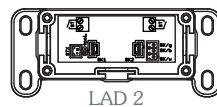
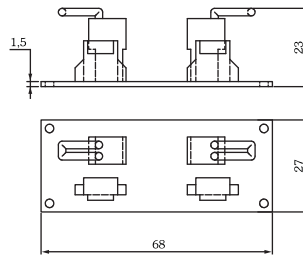
MODULE 3



- use in conjunction with MODULE 2
- easy wiring of all door leaf components
- GfA- and MFZ-compatible
- can be installed directly into an LAD 2/LAD 4



Quick installation of all door leaf components using MODULE 3 in conjunction with MODULE 2. Optical safety edge with connection cable of 0.5m and Molex plug on each side can be directly connected. In case of repairs the sensors can be quick and easy exchanged. Pass door switch and slack rope switch can be connected using the terminals on both modules as needed.

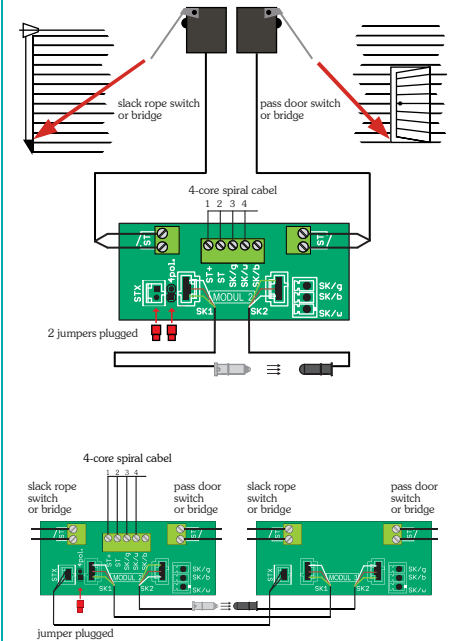


MODULE 3 | Art.-Nr.
see price list 12.11

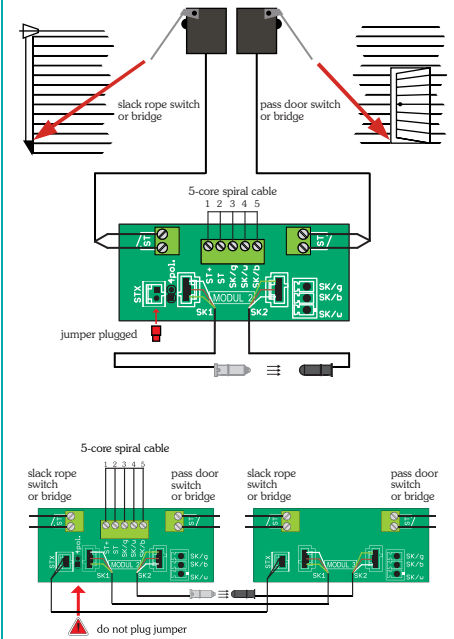
218046

APPLICATION

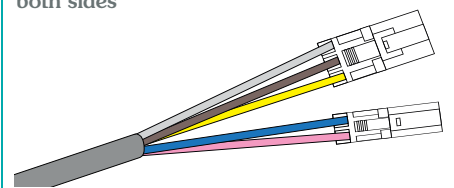
Example for connecting a 4-core spiral cable



Example for connecting a 5-core spiral cable



Link wire with 2- and 3-pin Molex plugs on both sides



see price list ab 12.12

SPIRAL CABLE SPK



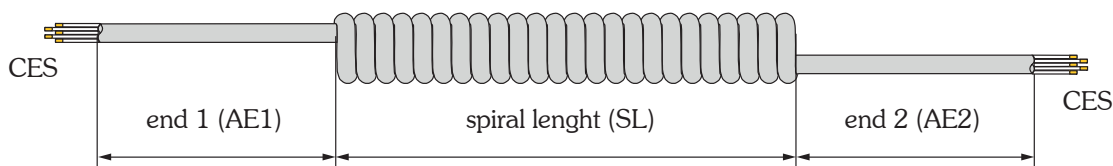
The spiral cables are manufactured with a high industrial quality, are tested to 100.000 guaranteed cycles and are suitable for operation in rough conditions. Strong retraction and long extension lengths guarantee a long life. The extension factor is four times that of the spiral length (SL).

Thanks to a special coating-mix the spiral cables are resilient to microbes, hydrolysis and almost all mineral oils. Furthermore the spiral cables are stable to UV and are free of halogens.

Material is PUR/PUR black, wire colors according to DIN 47100:

- 3-core = brown, white, green
- 4-core = brown, white, green, yellow
- 5-core = brown, white, green, yellow, grey
- 6-core = brown, white, green, yellow, grey, pink

Variable wire ends (see table), 40, 50, 60, 80, 100 or 200mm on both ends without sheathing and with core end sleeve (CES).



name	spiral length	extended length	end 1 (AE1)	end 2 (AE2)	item number	price list
3-core						
SPK 3x0.5mm ²	750	3000	200	200	214769	13.01
SPK 3x0.5mm ²	900	3600	200	200	214780	13.02
SPK 3x0.5mm ²	900	3600	4000	350	214927	13.03
SPK 3x0.5mm ²	750	3000	500	200	214931	13.04
SPK 3x0.5mm ²	600	2400	500	200	214921	13.05
SPK 3x0.5mm ²	950	3800	500	200	214924	13.06
4-core						
SPK 4x0.25mm ²	750	3000	200	200	214851	14.01
SPK 4x0.25mm ²	900	3600	1000	400	214772	14.02
SPK 4x0.25mm ²	1200	4800	4000	400	214774	14.03
SPK 4x0.25mm ²	900	3600	2000	350	215455	14.04
5-core						
SPK 5x0.25mm ²	500	2000	1000	200	214767	15.01
SPK 5x0.25mm ²	750	3000	200	200	214721	15.02
SPK 5x0.25mm ²	800	3200	1500	200	214765	15.03
SPK 5x0.25mm ²	900	3600	200	300	214745	15.04
SPK 5x0.25mm ²	900	3600	2000	350	214923	15.05
SPK 5x0.25mm ²	1000	4000	1000	1500	214874	15.06
6-core						
SPK 6x0.25mm ²	900	3600	4000	350	216978	15.07

Mounting bracket spiral cable

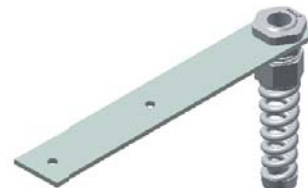
Mounting bracket to secure the spiral cable



HW-SPK-SV16
see price list 16.01

Item number

215097



HW-SPK-160/25-SV16
see price list 16.02

Item number

215098

set consists of:
mounting bracket including a spiral cable gland M16

set consists of:
mounting bracket including a spiral cable gland M16

APPLICATION



RUBFLEX® is a rubber compound specially developed to our specifications. In addition to the flexibility necessary over a wide range of temperatures, it also has excellent optophysical features for the light-channel of optical optoelectronic safety edges, a feature that was a special requirement during development. To guarantee the required physical characteristics, our company developed new testing methods that ensure the high-quality of the RUBFLEX® rubber compound.



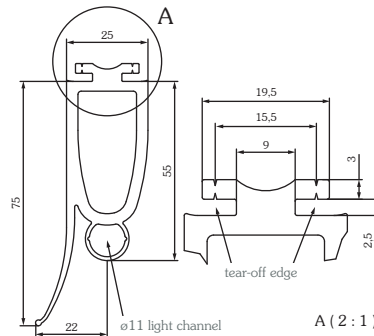
Technical data

color black
 material EPDM
 shore-hardness A 65 ±5

GP12/25-75



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: ALS 55, ALU 25x12

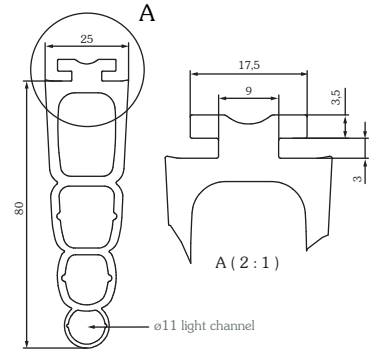


GP12/25-75 Item number
 see price list 18.01 **215289**

GP12/25-80



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: ALU 25x12



GP12/25-80 Item number
 see price list 18.02 **215447**

LS-3305



- cutting length 75mm

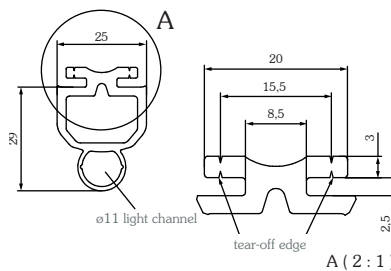
High-quality rubber profile cutter, to cleanly cut the rubber profiles

LS-3305 Item number
 see price list 17.01 **214778**

GP12/25-29

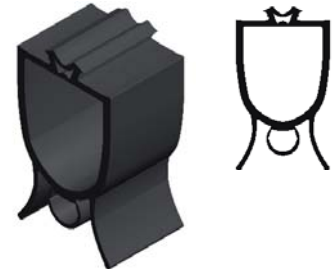


- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: ALS 30, ALU 25x12

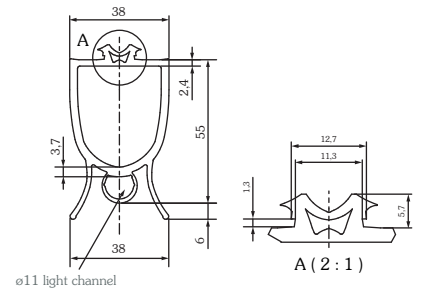


GP12/25-29 Item number
 see price list 18.03 **215386**

GP12/38-65



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: ALS 55

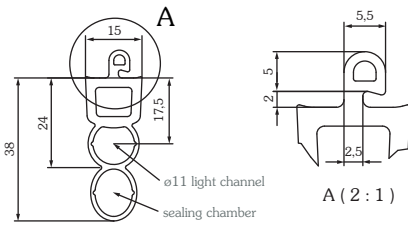


GP12/38-65 Item number
 see price list 18.04 **216120**

GP12/14-38-00



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: RAS 10



GP12/14-38-00
see price list 18.05

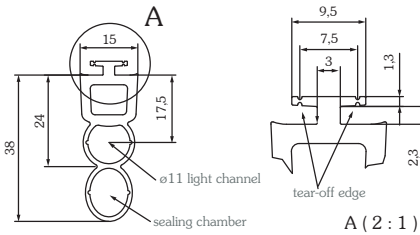
Item number

214857

GP12/14-38-01



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: RAS 30



GP12/14-38-01
see price list 18.06

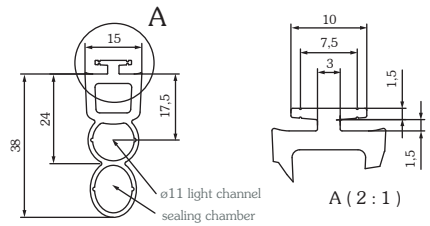
Item number

215283

GP12/14-38-02



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: RAS 30



GP12/14-38-02
see price list 18.07

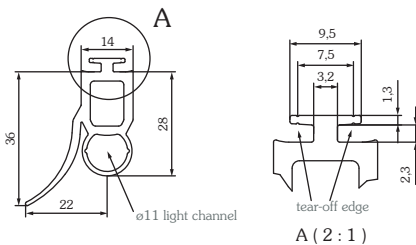
Item number

215290

GP12/14-28



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: RAS 30



GP12/14-28
see price list 18.08

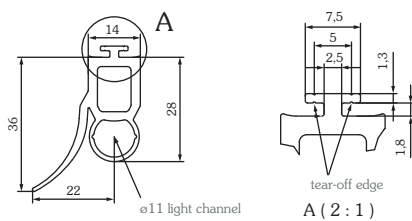
Item number

215285

GP12/14-36



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: RAS 20



GP12/14-36
see price list 18.09

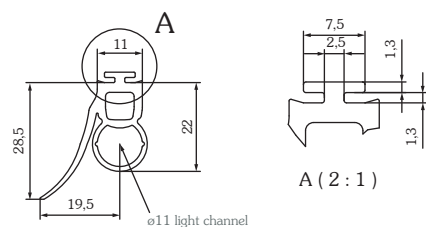
Item number

215286

GP12/11-30



- suited for designs from $\varnothing 11-12\text{mm}$



GP12/11-30
see price list 18.10

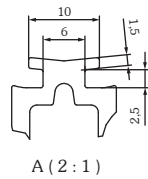
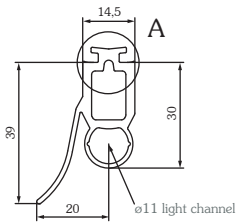
Item number

215284

GP12/145-295



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: RAS 30

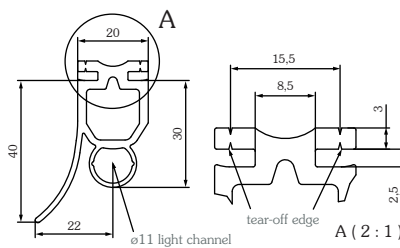


GP12/145-295 | Item number
see price list 18.11 | **215287**

GP12/20-40-00



- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: ALS 30, ALS 35, ALU 20x9

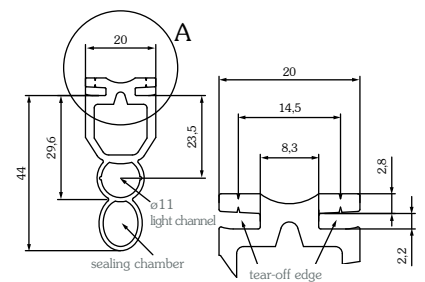


GP12/20-40-00 | Item number
see price list 18.12 | **215288**

GP12/20-40-01

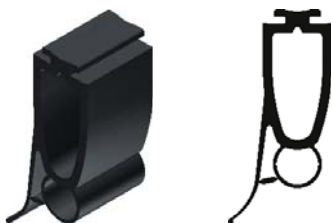


- suited for designs from $\varnothing 11-12\text{mm}$
- relevant accessories: ALS 30, ALS 35, ALU 20x9

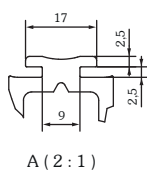
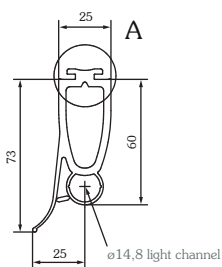


GP12/20-40-01 | Item number
see price list 18.13 | **215291**

GP15/25-75

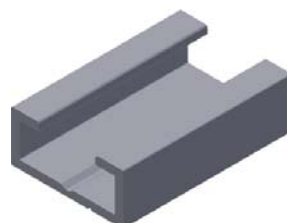


- suited for designs from $\varnothing 14-15\text{mm}$
- relevant accessories: ALS 55, ALU 25x12

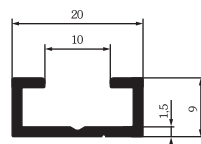


GP15/25-75 | Item number
see price list 18.14 | **214856**

ALU 20x9



- aluminum-C-profile with drilling line

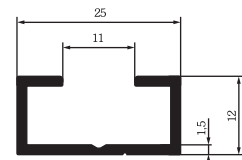


ALU 20x9 | Item number
see price list 18.15 | **215460**

ALU 25x12



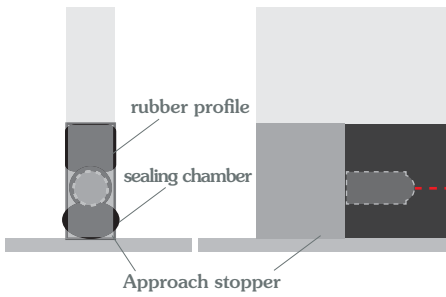
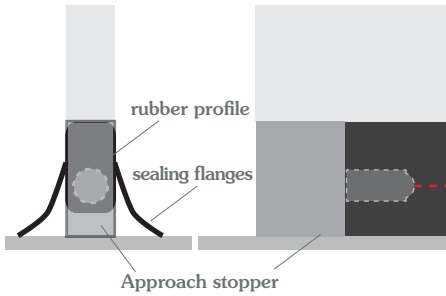
- aluminum-C-profile with drilling line



ALU 25x12 | Item number
see price list 18.16 | **215461**

APPLICATION

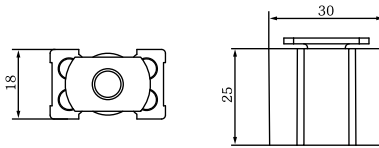
In a closed state the door leaf sits on the approach stoppers. These protect the rubber profile and/or the inner optical closing edge device from damage. The installation height is selected to ensure that the hollow chamber containing the closing edge sensor is not deformed, but that the sealing flanges or the sealing chamber make tight contact with the floor.



ALS 25



- approach stopper, including screw + T-nut M8



ALS 25
see price list 19.01

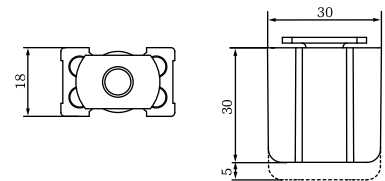
Item number

214723

ALS 30/ALS 35



- approach stopper, including screw + T-nut M8



ALS 30
see price list 19.02

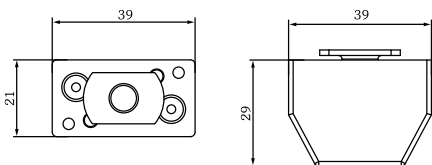
Item number

214799

MAS 1



- modular approach stopper for sectional doors, including screw + T-nut M8



MAS 1
see price list 19.07

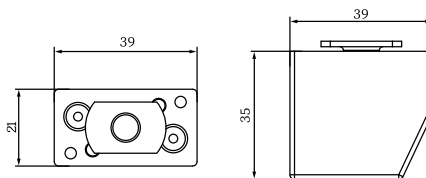
Item number

214795

MAS 2



- modular approach stopper for roller grill doors, including screw + T-nut M8



MAS 2
see price list 19.08

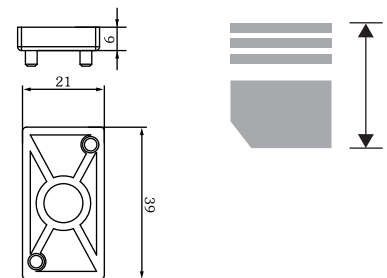
Item number

214800

MAS E



- extension module for MAS 1 and MAS 2



MAS E
see price list 19.09

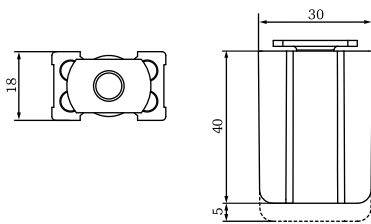
Item number

214803

ALS 40/ALS 45



- approach stopper, including screw + T-nut M8



ALS 40
see price list 19.04

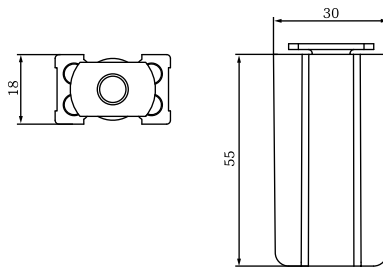
Item number

214746

ALS 55



- approach stopper, including screw + T-nut M8



ALS 55
see price list 19.06

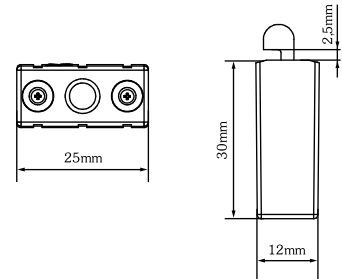
Item number

214724

RAS 10



- approach stopper, including 2 screws Plasfast 3x12



RAS 10
see price list 19.10

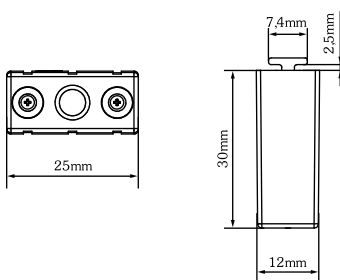
Item number

215294

RAS 20



- approach stopper, including 2 screws Plasfast 3x12



RAS 20
see price list 19.11

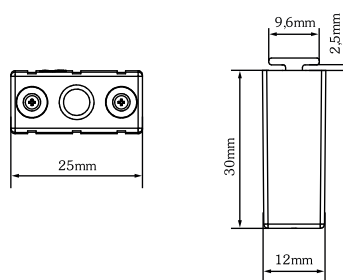
Item number

215296

RAS 30



- approach stopper, including 2 screws Plasfast 3x12



RAS 30
see price list 19.12

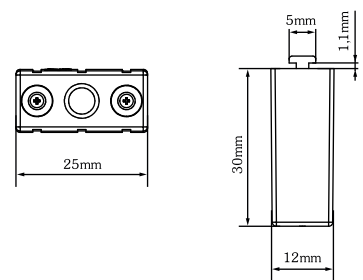
Item number

215297

RAS 40



- approach stopper, including 2 screws Plasfast 3x12



RAS 40
see price list 19.13

Item number

215298

Our fine print

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 value added tax identification number according to § 27a German Value-Added Tax Act: DE 159 968 268

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Terms and Conditions of Sale, Delivery and Payment of Witt Sensoric GmbH, Berlin

1. Conclusion of contract

We shall deliver goods solely on the basis of the following conditions. The Buyer's purchasing conditions shall not place us under obligation, even if we have not expressly contradicted them. Our General Terms and Conditions of Sale, Delivery and Payment shall be deemed accepted at the latest upon receipt of the goods.

Our offers are subject to change without notice. Concluded contracts and agreements, in particular insofar as they amend these conditions, shall only be binding for us following our written approval. Oral or written orders shall be deemed accepted when the written confirmation of order is issued or the goods ordered are delivered.

Information on technical data, dimensions, quantities, colours and other properties in catalogues, data sheets, product descriptions and similar documents are subject to change in line with developments and improvements and do not therefore constitute a guarantee.

2. Prices and terms and conditions of payment

The prices are to be construed as ex works and without packaging but plus the respective, valid, statutory value added tax. Payments are to be effected ex paying agent of the Supplier. The Buyer may only set off using claims that are not disputed or are *res judicata*. All prices shall cease to be valid upon the publication of a new price list.

3. Reservation of title

The delivery items (reserved goods) shall remain the Supplier's property until all the Supplier's claims against the Buyer resulting from the business association have been settled. Insofar as the value of all security rights to which the Supplier is entitled exceed the amount of all secured claims by more than 20%, the Supplier shall, at the Buyer's request, release an appropriate part of the security rights.

During the period in which the reservation of title applies, the Buyer shall be prohibited from pledging or ownership transfer by way of security while resale shall only be permitted to retailers during the ordinary course of business and only on condition that the retailer receives payment from its customers or makes the reservation that ownership shall only pass to the customers when they have honoured their payment obligations.

The Buyer shall inform the Supplier without delay in the case of seizure, confiscation or other orders or intervention on the part of third parties. If the Buyer violates an obligation, in particular in the case of default in payment, the Supplier shall be entitled to withdraw, and take back goods, following the unsuccessful lapse of a reasonable period set for the Buyer. This shall not affect the statutory provisions on the superfluous nature of setting a time limit. The Buyer shall be under obligation to surrender.

The Supplier shall be entitled to withhold its services or to withdraw from the contract if it becomes aware of circumstances, under which there is a threat of the Buyer becoming insolvent, or if the Buyer is not willing or able to meet its payment obligations on the due date for other reasons.

4. Delivery

The delivery time is agreed merely as an approximate time. The delivery period shall commence on the day on which the confirmation of order is dispatched and shall be deemed met if the goods have left our warehouse by the end of the delivery period, or notification of the readiness for dispatch has been provided for such goods. The delivery period shall be extended accordingly – including during a period of default in delivery – in the event of unforeseeable obstructions, which the Supplier was unable to ward off irrespective of acceptable care taken in accordance with the circumstances of the case – and irrespective of whether such obstructions apply to us or our subcontractors – such as operational disruption, intervention by the authorities, industrial action, war, mobilization, unrest, delays in the delivery of key raw materials and building materials or force majeure.

Meeting the times for deliveries shall be conditional on the timely receipt of all documents, necessary licenses and releases to be provided by the Buyer, in particular plans, as well as adherence to the agreed terms of payment and other obligations incumbent upon the Buyer. The periods shall be extended accordingly if such conditions are not met in good time. This shall not apply if the Supplier is responsible for the delay. In the event that we default in delivery, the Buyer shall be entitled to set an appropriate additional period of time.

The Buyer shall be entitled to withdraw from the contract once this additional period of time has lapsed. Claims for damages due to non-performance or delayed performance are excluded. The Buyer may not reject partial deliveries. We reserve the right to provide one or more deliveries in respect of special versions.

5. Freight, shipping

In the absence of agreements to the contrary, goods shall be shipped carriage forward. The risk shall pass to the Buyer upon the hand-over of the goods to the carrier, at the latest however when the goods leave our warehouse. Goods for which notification of dispatch is provided on the agreed date must be called up without delay. Otherwise, or in the event of the impossibility of shipping, we shall be entitled at our own discretion to store the goods at the Buyer's cost and risk and charge the Buyer for these as delivered "ex works". The Buyer shall be obliged, upon any export, to observe the export control regulations applicable to the delivery items. In the event that the export provisions are breached, the Supplier shall be entitled to withdraw from the contract.

6. Warranty, liability, notification of defects

Irrespective of a shorter requirement to give notice of defects, notification of defects is to be given at the latest two weeks following receipt of the goods. Notification of defects that cannot be identified by way of careful checking within that period is to be provided without delay once they are identified, at the latest within the warranty period. The delivery shall be deemed authorized if notification of defects is not provided in good time. The warranty period is 24 months from delivery of the goods. Insofar as notification of defects is justified, we shall, at our discretion, provide replacements, subsequent improvement or reimburse the reduced value. Further warranty claims are excluded.

Claims for damages due to the impossibility of performance, delay, positive breach of an obligation, negligence in respect of entering into the contract and unlawful actions shall be excluded unless these are based on intent or gross negligence on our part or our executive personnel. The Buyer's claims for damages and compensation of expenses (hereinafter: claims for damages) are excluded, irrespective on whichever legal grounds, in particular due to a breach of obligations resulting from the contractual relationship and unlawful actions.

This shall not apply insofar as liability is mandatory, e.g. in accordance with the German Product Liability Act, in cases of intent, gross negligence, danger to life and limb or breaching key contractual obligations. However, claims for damages in respect of breaching key contractual obligations shall be limited to the foreseeable damage that is typical of contracts insofar as intent or gross negligence do not apply or liability applies due to danger to life and limb. The regulations above are not associated with changing the onus of proof to the detriment of the Buyer.

Insofar as the Buyer is entitled to claims for damages in accordance with this Article, such claims shall fall under the statute of limitations following the lapse of the limitation period that applies to claims in respect of defects. The statutory statute of limitations shall apply to claims for damages in accordance with the German Product Liability Act.

7. Place of jurisdiction and applicable law

Even if the Buyer is a merchant, the court with jurisdiction for the Supplier's registered office is deemed the sole place of jurisdiction in respect of all disputes resulting directly or indirectly from the contractual relationship. However, the Supplier is also entitled to bring an action at the court with jurisdiction for the Buyer's registered office. German substantial law is deemed applicable to the legal relations in conjunction with this contract by way of exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).

8. Binding force of contract

The contract shall retain its binding force even in the event of the legal invalidity of individual provisions in other parts of the contract. This shall not apply if adhering to the contract would constitute reasonable hardship for one party.



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