

Технические характеристики

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Photoelectric Applications



Carwash

Carlo Gavazzi's photoelectric sensors have long been the standard in the carwash industry. We offer high power photoelectric systems built to operate reliably in mist, fog, splashing water and detergents. With amplifiers that can control up to ten pairs of sensors, which offer full diagnostic and alignment capabilities, vehicle detection in this demanding environment has never been easier.

Automatic Industrial Doors

Carlo Gavazzi's photoelectric sensors are designed to meet the latest regulations for automatic industrial doors in North America and Europe. A door controller can verify the sensing function through the built-in control input. The sensors are designed for object as well as for safety edge detection. A broad range of sensors in different shapes and sizes are available.

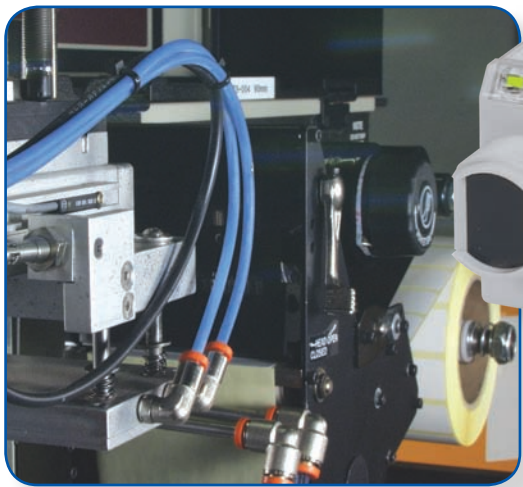


Packaging and Food/Beverage

Carlo Gavazzi offers a broad range of photoelectric sensors for packaging and food/beverage machinery. The sensing program consists of various sensing principles: Diffuse, background suppression, retro-reflective with or without polarization, through-beam, contrast, color sensors and clear object detection. Also available are fiber optic sensors which can be mounted in extreme temperature and atmospheric conditions, as well as slotted sensors for labeling applications.

Elevator and Entrance Control

New photoelectric sensors with one-step snap mounting and long sensing distances provide the benefits that are most desired in the elevator and entrance control industry – simple, flexible, and reliable. Available as stand-alone units or with external amplifier and relay output. These compact sensors feature a 15 meter sensing distance, giving great range for a great price.



Material Handling

Carlo Gavazzi's extensive line of photoelectric sensors includes many of the most popular configurations and styles used for material handling applications. With extended sensing ranges in through-beam, polarized retroreflective, diffuse, and transparent object detection, finding the right sensor for any application is no problem.

Wood

Thanks to exceptionally high excess gains, many of our photoelectric sensors are used in environments where dirt and dust normally cause detection problems. With external amplifiers capable of controlling up to ten pairs of sensors, the flexibility exists to detect timber, paper, tools, and more, with outstanding reliability.



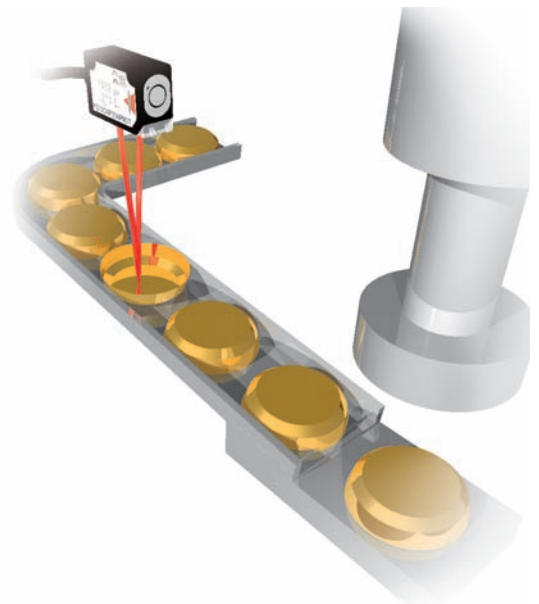
Diffuse-Reflective Photoelectric Sensors

In diffuse-reflective photoelectric sensors, the emitter and receiver are integrated in the same unit. The emitter generates a modulated light beam. An object placed in front of the photoelectric sensor will reflect diffused light at all angles with a certain intensity (reflectivity) depending on its surface, size, color and distance from the sensor. The output changes state if the receiver senses sufficient light. Emitter and receiver are synchronized to reduce interference from ambient light. The sensing distance can be adjusted by potentiometer or by teach-in.



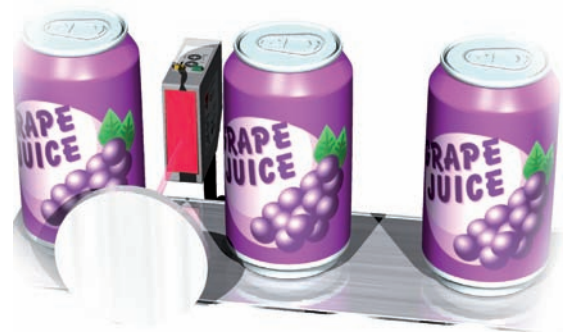
Diffuse-Reflective Photoelectric Sensors with Background Suppression

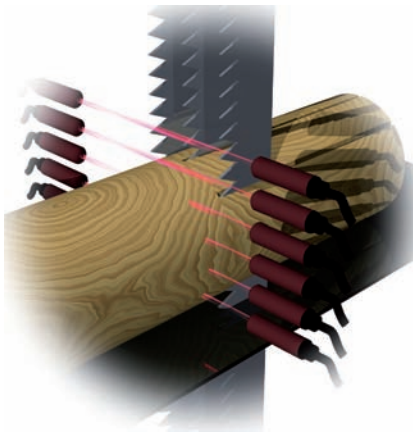
Diffuse-reflective photoelectric sensors with background suppression avoid false signals caused by shiny backgrounds by suppressing all light reflected behind the target object. It is the angle of reflected light that is sensed and not only the intensity that makes it possible to distinguish between an object and a background. The background can therefore reflect more light than the actual object without causing a false signal. Only light reflected in front of the background will cause a change in the output state. The background suppression is adjustable within a certain range and can be done either electrically or manually.



Polarized Retro-Reflective Photoelectric Sensors

With retro-reflective photoelectric sensors, the emitter and receiver are integrated in the same unit. The emitter generates a modulated light beam, which, if reflected by a reflector or special reflective tape, is sensed by the receiver. The output changes state if an object interrupts the light reflected by the reflector. Emitter and receiver are synchronized to reduce interference from ambient light. In certain types the sensing distance can be adjusted by potentiometer or by teach-in. To increase immunity from targets with highly reflective surfaces, a retro reflective sensor can be equipped with polarization filters (anti-glare filters).





Through-Beam Photoelectric Sensors

Through-beam photoelectric sensors have a separate emitter and receiver unit. The switching element changes state when an object interrupts the modulated light beam between the emitter and receiver. The amplifier stage can be in a separate unit or self-contained in the receiver unit. In separate amplifier types, emitter and receiver are electrically synchronized. In other types, the sensitivity of the receiver element is adjusted by potentiometer or by teach-in.

Fiber Optic Photoelectric Sensors

A fiber optic sensor can be configured as a diffuse or through-beam sensor depending on the fibers attached. The advantage of using fibers is that they can enter areas where standard sensors cannot be mounted. Safe operation in high temperature, vibrations, large electro magnetic fields etc. can be achieved.

Contrast Photoelectric Sensors

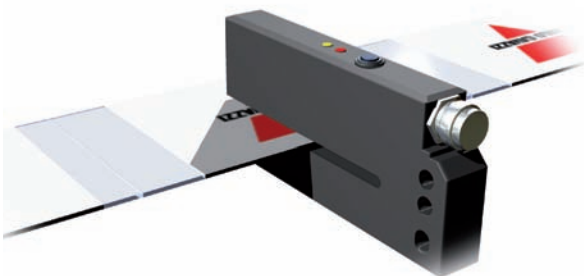
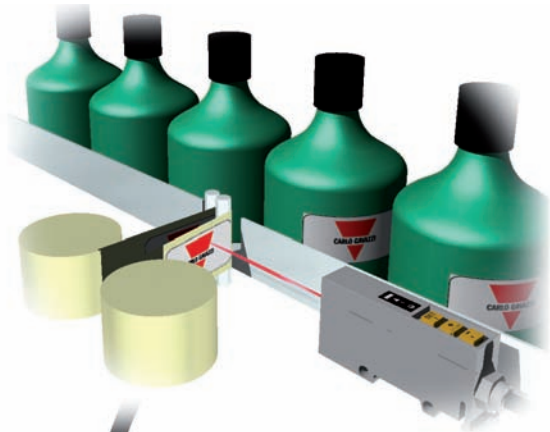
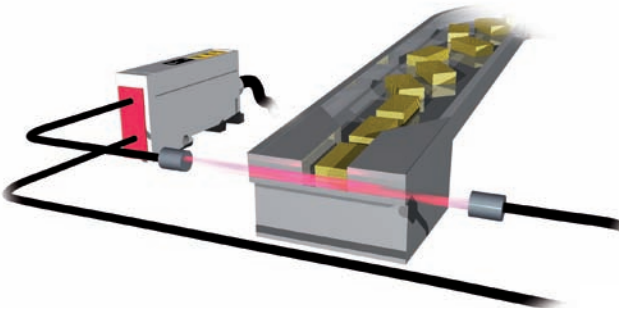
Contrast sensors are used for detecting color marks on items such as labels. The sensor works like a standard diffuse sensor with the difference being that the light beam is concentrated to a small spot. The emitter uses white light and the receiver is optimized to distinguish between several shades of gray tones from a scale ranking from black to white.

Color Photoelectric Sensors

The color sensor can detect real colors. The emitter, consisting of three LEDs (red, green and blue), emits light to the object; the reflected light is analyzed by the receiver circuit and compared with the stored reference signal. The output changes state if the received signal is within the selected tolerances. The sensor consists of an amplifier and detachable fiber heads with different focus distance. The sensor can be used for both reflective as well as transparent materials.





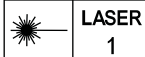
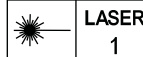

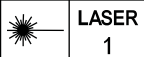
Slotted Photoelectric Sensors

The sensor is a through beam sensor where the emitter and receiver are mounted in each side of the slot on the sensor. The sensor can be set up to detect the smallest variation of light interruption and can therefore be used for detecting a label from its carrier foil.







Photoelectric Time of Flight (ToF) sensors with IO-Link

Integrated amplifier




Types	LD30 Stainless steel AISI 316L		LD30 ABS housing Back potentiometer	
Connections	2 m cable	M8 connector	2 m cable	M8 connector
				
Dimensions (mm)	11 x 31.5 x 21	11 x 31.5 x 21	10 x 30 x 20	10 x 30 x 20
Diffuse reflective background suppression, Infrared Laser - Class 1				
Operating frequency / Sensing distance (Sn)	5 Hz / 1 m	5 Hz / 1 m	5 Hz / 1 m	5 Hz / 1 m
	LD30ETBI10BPA2IO	LD30ETBI10BPM5IO	LD30CTBI10BPA2IO	LD30CTBI10BPM5IO
Specifications				
Detection function	2 separate functions, Single mode, Windows Mode, Two-point Mode	2 separate functions, Single mode, Windows Mode, Two-point Mode	2 separate functions, Single mode, Windows Mode, Two-point Mode	2 separate functions, Single mode, Windows Mode, Two-point Mode
Sensing Principle	Time Of Flight detection (TOF)	Time Of Flight detection (TOF)	Time Of Flight detection (TOF)	Time Of Flight detection (TOF)
Light source	Infrared Laser - Class 1	Infrared Laser - Class 1	Infrared Laser - Class 1	Infrared Laser - Class 1
Analogue output	Via IO-Link	Via IO-Link	Via IO-Link	Via IO-Link
Selectable function output 1	NPN, PNP or Push-Pull	NPN, PNP or Push-Pull	NPN, PNP or Push-Pull	NPN, PNP or Push-Pull
Selectable function output 2	NPN, PNP, Push-Pull, External input or External teach	NPN, PNP, Push-Pull, External input or External teach	NPN, PNP, Push-Pull, External input or External teach	NPN, PNP, Push-Pull, External input or External teach
Diagnostics	Operation hours, Power cycles, Detection cycles max. and min. Temperatures, Short-circuit, Maintenance, No of Parameter change	Operation hours, Power cycles, Detection cycles max. and min. Temperatures, Short-circuit, Maintenance, No of Parameter change	Operation hours, Power cycles, Detection cycles max. and min. Temperatures, Short-circuit, Maintenance, No of Parameter change	Operation hours, Power cycles, Detection cycles max. and min. Temperatures, Short-circuit, Maintenance, No of Parameter change
Logic functions	AND, OR, X-OR, Gated SR-FF	AND, OR, X-OR, Gated SR-FF	AND, OR, X-OR, Gated SR-FF	AND, OR, X-OR, Gated SR-FF
Timer functions	ON delay, OFF delay, ON+OFF delay and One shot	ON delay, OFF delay, ON+OFF delay and One shot	ON delay, OFF delay, ON+OFF delay and One shot	ON delay, OFF delay, ON+OFF delay and One shot
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 1.0 VDC	≤ 1.0 VDC	≤ 1.0 VDC	≤ 1.0 VDC
No load supply current (I _o)	≤ 20 mA	≤ 20 mA	≤ 20 mA	≤ 20 mA
Protection short-circuit (S)	SPT	SPT	SPT	SPT
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)	SPT	SPT	SPT	SPT
Output current	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Housing material	Stainless steel AISI 316L	Stainless steel AISI 316L	ABS	ABS
Operating temperature	-25°C to +50°C	-25°C to +50°C	-25°C to +50°C	-25°C to +50°C
Degree of protection	IP68, IP69K	IP68, IP69K	IP67	IP67
LED colour	Yellow + Green	Yellow + Green	Yellow + Green	Yellow + Green
Communication interface	IO-Link	IO-Link	IO-Link	IO-Link
Transmission type	COM2 (38,4 kBaud)	COM2 (38,4 kBaud)	COM2 (38,4 kBaud)	COM2 (38,4 kBaud)
IO-Link revision	01:01:00	01:01:00	01:01:00	01:01:00
SDCI standard	IEC 61131-9	IEC 61131-9	IEC 61131-9	IEC 61131-9
Profiles	Smart Sensor: Process Data Variable; Device Identification	Smart Sensor: Process Data Variable; Device Identification	Smart Sensor: Process Data Variable; Device Identification	Smart Sensor: Process Data Variable; Device Identification
SIO mode	Yes	Yes	Yes	Yes
Required master port type	A	A	A	A
Min. process cycle time [ms]	5	5	5	5
Approvals/Marks	CE - cULus - ECOLAB Class 1 laser according to IEC 60825-1:2014	CE - cULus - ECOLAB Class 1 laser according to IEC 60825-1:2014	CE - cULus Class 1 laser according to IEC 60825-1:2014	CE - cULus Class 1 laser according to IEC 60825-1:2014
				

Photoelectric sensors

	M18, DC, axial type		M18, DC, radial type	
Types	PA18CA.	PA18CA.	PA18CR.	PA18CR.
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 40	M18 x 44	M18 x 50	M18 x 54
Diffuse reflective				
Sensing distance (Sn)	50 - 1000 mm	50 - 1000 mm	50 - 800 mm	50 - 800 mm
NPN NO+NC	PA18CAD10NASA	PA18CAD10NAM1SA	PA18CRD08NASA	PA18CRD08NAM1SA
PNP NO+NC	PA18CAD10PASA	PA18CAD10PAM1SA	PA18CRD08PASA	PA18CRD08PAM1SA
Diffuse reflective WS				
Sensing distance (Sn)	0 - 400 mm	0 - 400 mm		
NPN NO+NC	PA18CAD04NAWS	PA18CAD04NAM1WS		
PNP NO+NC	PA18CAD04PAWS	PA18CAD04PAM1WS		
Retro reflective polarized				
Sensing distance (Sn)	5 - 500 cm	5 - 500 cm	5 - 400 cm	5 - 400 cm
NPN NO+NC	PA18CAP50NASA	PA18CAP50NAM1SA	PA18CRP40NASA	PA18CRP40NAM1SA
PNP NO+NC	PA18CAP50PASA	PA18CAP50PAM1SA	PA18CRP40PASA	PA18CRP40PAM1SA
Retro reflective				
Sensing distance (Sn)	5 - 650 cm	5 - 650 cm	5 - 500 cm	5 - 500 cm
NPN NO+NC	PA18CAR65NASA	PA18CAR65NAM1SA	PA18CRR50NASA	PA18CRR50NAM1SA
PNP NO+NC	PA18CAR65PASA	PA18CAR65PAM1SA	PA18CRR50PASA	PA18CRR50PAM1SA
Through-beam emitter (E)				
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 16 m	1 - 16 m
	PA18CAT20	PA18CAT20M1	PA18CRT16	PA18CRT16M1
Through-beam receiver (R)				
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 16 m	1 - 16 m
NPN NO+NC	PA18CAT20NASA	PA18CAT20NAM1SA	PA18CRT16NASA	PA18CRT16NAM1SA
PNP NO+NC	PA18CAT20PASA	PA18CAT20PAM1SA	PA18CRT16PASA	PA18CRT16PAM1SA
Background suppression (BGS)				
Sensing distance (Sn)	10 - 200 mm	10 - 200 mm		
NPN NO+NC	PA18CAB20NASA	PA18CAB20NAM1SA		
PNP NO+NC	PA18CAB20PASA	PA18CAB20PAM1SA		
Specifications				
Operating frequency	500 Hz	500 Hz	500 Hz	500 Hz
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP67 + IP69K	IP67 + IP69K	IP67 + IP69K	IP67 + IP69K
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Supply current BGS, E + R	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC
Housing material	ABS, PMMA, PBTB	ABS, PMMA, PBTB	ABS, PMMA, PBTB	ABS, PMMA, PBTB
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow, Green	Yellow, Green	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB



Photoelectric sensors

M18, DC, square type





Types	PH18.	PH18.	PH18.
Connections	2 m cable	M12 connector	Pigtail M12
			
Dimensions (mm)	15 x 21 (31.5) x 35	15 x 21 (31.5) x 35	15 x 21 (31.5) x 35
Diffuse reflective			
Sensing distance (Sn)	50 - 1000 mm	50 - 1000 mm	50 - 1000 mm
NPN NO+NC	PH18CND10NASA	PH18CND10NAM1SA	PH18CND10NAT1SA
PNP NC+NC	PH18CND10PASA	PH18CND10PAM1SA	PH18CND10PAT1SA
Retro reflective polarized			
Sensing distance (Sn)	5 - 500 cm	5 - 500 cm	5 - 500 cm
NPN NO+NC	PH18CNP50NASA	PH18CNP50NAM1SA	PH18CNP50NAT1SA
PNP NO+NC	PH18CNP50PASA	PH18CNP50PAM1SA	PH18CNP50PAT1SA
Retro reflective			
Sensing distance (Sn)	5 - 650 cm	5 - 650 cm	5 - 650 cm
NPN NO+NC	PH18CNR65NASA	PH18CNR65NAM1SA	PH18CNR65NAT1SA
PNP NO+NC	PH18CNR65PASA	PH18CNR65PAM1SA	PH18CNR65PAT1SA
Through-beam emitter (E)			
Sensing distance (Sn)	1 - 20 m PH18CNT20	1 - 20 m PH18CNT20M1	1 - 20 m PH18CNT20T1
Through-beam receiver (R)			
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 20 m
NPN NO+NC	PH18CNT20NASA	PH18CNT20NAM1SA	PH18CNT20NAT1SA
PNP NO+NC	PH18CNT20PASA	PH18CNT20PAM1SA	PH18CNT20PAT1SA
Background suppression (BGS)			
Sensing distance (Sn)	8 - 200 mm	8 - 200 mm	8 - 200 mm
NPN NO+NC	PH18CNB20NASA	PH18CNB20NAM1SA	PH18CNB20NAT1SA
PNP NO+NC	PH18CNB20PASA	PH18CNB20PAM1SA	PH18CNB20PAT1SA
Specifications			
Operating frequency	500 Hz	500 Hz	500 Hz
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP67 + IP69K	IP67 + IP69K	IP67 + IP69K
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	SPT
Transients (T)			
Supply current BGS, E + R	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC	≤ 25 mA @ 24 VDC ≤ 40 mA @ 24 VDC
Housing material	ABS, PMMA	ABS, PMMA	ABS, PMMA
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow, Green	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB

Photoelectric sensors

M18 metal, DC, integrated amplifier





Types	E.18..	E.18..-1
Connections	2 m cable	M12 connector
		
Dimensions (mm)	M18 x 55	M18 x 67
Diffuse reflective		
Operating frequency	120 Hz	120 Hz
Sensing distance (Sn)	400 mm, adjustable	400 mm, adjustable
NPN NO+NC	EO1804NPAS	EO1804NPAS-1
PNP NC+NC	EO1804PPAS	EO1804PPAS-1
Retro reflective polarized		
Operating frequency	100 Hz	100 Hz
Sensing distance (Sn)	2 m, adjustable	2 m, adjustable
NPN NO+NC	EP1820NPAS	EP1820NPAS-1
PNP NO+NC	EP1820PPAS	EP1820PPAS-1
Retro reflective		
Operating frequency	120 Hz	120 Hz
Sensing distance (Sn)	3 m, adjustable	3 m, adjustable
NPN NO+NC	ER1830NPAS	ER1830NPAS-1
PNP NO+NC	ER1830PPAS	ER1830PPAS-1
Through-beam emitter		
Sensing distance (Sn)	20 m	20 m
	ET1820	ET1820-1
Through-beam receiver		
Operating frequency	170 Hz	170 Hz
Sensing distance (Sn)	20 m, adjustable	20 m, adjustable
NPN NO+NC	ET1820NPAS	ET1820NPAS-1
PNP NO+NC	ET1820PPAS	ET1820PPAS-1
Specifications		
Rated operating voltage	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP67	IP67
Protection short-circuit (S)		
Reverse polarity (P)	SPT	SPT
Transients (T)		
Load current	< 200 mA	< 200 mA
Housing material	Nickel-plated brass	Nickel-plated brass
Operating temperature	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow	Yellow
Approvals/Marks	CE	CE

Photoelectric sensors

	M18 plastic, AC, integrated amplifier		M18 metal, AC, integrated amplifier	
Types	PA18CL	PA18CL.M6	PA18AL	PA18AL..M6
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 71.5	M18 x 83.5	M18 x 71.5	M18 x 83.5
Diffuse reflective				
Operating frequency	20 Hz	20 Hz	20 Hz	20 Hz
Sensing distance (Sn)	100 mm, fixed	100 mm, fixed		
Thyristor (SCR) NC	PA18CLD01TC	PA18CLD01TCM6		
Thyristor (SCR) NO	PA18CLD01TO	PA18CLD01TOM6		
Sensing distance (Sn)	200 mm, fixed	200 mm, fixed		
Thyristor (SCR) NC	PA18CLD02TC	PA18CLD02TCM6		
Thyristor (SCR) NO	PA18CLD02TO	PA18CLD02TOM6		
Sensing distance (Sn)	400 mm, fixed	400 mm, fixed		
Thyristor (SCR) NC	PA18CLD04TC	PA18CLD04TCM6		
Thyristor (SCR) NO	PA18CLD04TO	PA18CLD04TOM6		
Sensing distance (Sn)	400 mm, adjustable	400 mm, adjustable	400 mm, adjustable	400 mm, adjustable
Thyristor (SCR) NC	PA18CLD04TCSA	PA18CLD04TCM6SA	PA18ALD04TCSA	PA18ALD04TCM6SA
Thyristor (SCR) NO	PA18CLD04TOSA	PA18CLD04TOM6SA	PA18ALD04TOSA	PA18ALD04TOM6SA
Retro reflective polarized				
Operating frequency	25 Hz	25 Hz	25 Hz	25 Hz
Sensing distance (Sn)	2 m, fixed	2 m, fixed	2 m, adjustable	2 m, adjustable
Thyristor (SCR) NC	PA18CLP20TC	PA18CLP20TCM6	PA18ALP20TCSA	PA18ALP20TCM6SA
Thyristor (SCR) NO	PA18CLP20TO	PA18CLP20TOM6	PA18ALP20TOSA	PA18ALP20TOM6SA
Retro reflective				
Operating frequency	20 Hz	20 Hz	20 Hz	20 Hz
Sensing distance (Sn)	3 m, fixed	3 m, fixed	3 m, adjustable	3 m, adjustable
Thyristor (SCR) NC	PA18CLR30TC	PA18CLR30TCM6	PA18ALR30TCSA	PA18ALR30TCM6SA
Thyristor (SCR) NO	PA18CLR30TO	PA18CLR30TOM6	PA18ALR30TOSA	PA18ALR30TOM6SA
Specifications				
Rated operating voltage	20 - 250 VAC	20 - 250 VAC	20 - 250 VAC	20 - 250 VAC
Voltage drop	≤ 10 VAC	≤ 10 VAC	≤ 10 VAC	≤ 10 VAC
Off state current	≤ 5 mA AC	≤ 5 mA AC	≤ 5 mA AC	≤ 5 mA AC
Degree of protection	IP67	IP67	IP67	IP67
Protection short-circuit (S)				
Reverse polarity (P)	PT	PT	PT	PT
Transients (T)				
Load current	< 500 mA	< 500 mA	< 500 mA	< 500 mA
Housing material	Polyester (PBTP)	Polyester (PBTP)	Nickel-plated brass	Nickel-plated brass
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA




Photoelectric sensors

Integrated amplifier

Types	PD30 Stainless steel AISI 316L		PD30 ABS housing Back potentiometer	
Connections	2 m cable	M8 connector	2 m cable	M8 connector
				
Dimensions (mm)	11 x 31.5 x 21	11 x 31.5 x 21	10 x 30 x 20	10 x 30 x 20
Diffuse reflective				
Operating frequency / Sensing distance (Sn)	1000 Hz / 1 m	1000 Hz / 1 m	1000 Hz / 1 m	1000 Hz / 1 m
NPN NO+NC	PD30ETD10NASA	PD30ETD10NAM5SA	PD30CND10NASA	PD30CND10NAM5SA
PNP NO+NC	PD30ETD10PASA	PD30ETD10PAM5SA	PD30CND10PASA	PD30CND10PAM5SA
Diffuse reflective, extremely wide angle, infrared light				
Operating frequency / Sensing distance (Sn)	1000 Hz / 200 mm	1000 Hz / 200 mm		
NPN NO+NC	PD30ETD02NAWE	PD30ETD02NAM5WE		
PNP NO+NC	PD30ETD02PAWE	PD30ETD02PAM5WE		
Diffuse reflective background suppression, red light				
Operating frequency / Sensing distance (Sn)	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm
NPN NO+NC	PD30ETB20NASA	PD30ETB20NAM5SA	PD30CNB20NASA	PD30CNB20NAM5SA
PNP NO+NC	PD30ETB20PASA	PD30ETB20PAM5SA	PD30CNB20PASA	PD30CNB20PAM5SA
Diffuse reflective background suppression, infrared light				
Operating frequency / Sensing distance (Sn)	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm
NPN NO+NC	PD30ETB20NAIS	PD30ETB20NAM5IS	PD30CNB20NAIS	PD30CNB20NAM5IS
PNP NO+NC	PD30ETB20PAIS	PD30ETB20PAM5IS	PD30CNB20PAIS	PD30CNB20PAM5IS
Retro reflective				
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m
NPN NO+NC	PD30ETR60NASA	PD30ETR60NAM5SA	PD30CNR60NASA	PD30CNR60NAM5SA
PNP NO+NC	PD30ETR60PASA	PD30ETR60PAM5SA	PD30CNR60PASA	PD30CNR60PAM5SA
Retro reflective polarized				
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m
NPN NO+NC	PD30ETP60NASA	PD30ETP60NAM5SA	PD30CNP60NASA	PD30CNP60NAM5SA
PNP NO+NC	PD30ETP60PASA	PD30ETP60PAM5SA	PD30CNP60PASA	PD30CNP60PAM5SA
Through-beam emitter				
Sensing distance (Sn)	15 m	15 m	15 m	15 m
	PD30ETT15	PD30ETT15M5	PD30CNT15	PD30CNT15M5
Through-beam receiver				
Operating frequency / Sensing distance (Sn)	500 Hz / 15 m	500 Hz / 15 m	500 Hz / 15 m	500 Hz / 15 m
NPN NO/NC	PD30ETT15NASA	PD30ETT15M5NASA	PD30CNT15NASA	PD30CNT15NAM5SA
PNP NO/NC	PD30ETT15PASA	PD30ETT15M5PASA	PD30CNT15PASA	PD30CNT15PAM5SA
Specifications				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP68, IP69K	IP68, IP69K	IP67	IP67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	Stainless steel AISI 316L	Stainless steel AISI 316L	ABS	ABS
Operating temperature	-40 (-25)°C to +60°C	-40 (-25)°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks ULS08	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus	CE - cULus





Photoelectric sensors

Integrated amplifier

Types	PD30 PointSpot Back potentiometer		PD30 Top potentiometer
Connections	2 m cable	M8 connector	2 m cable
			
Dimensions (mm)	10 x 30 x 20	10 x 30 x 20	10 x 30 x 20
Diffuse reflective			
Operating frequency / Sensing distance (Sn)			1000 Hz / 1 m
NPN NO+NC			PD30CTD10NASA
PNP NO+NC			PD30CTD10PASA
Diffuse reflective, extremely wide angle, infrared light			
Operating frequency / Sensing distance (Sn)			1000 Hz / 200 mm
NPN NO+NC			PD30CTD02NAWE
PNP NO+NC			PD30CTD02PAWE
Diffuse reflective background suppression, red light			
Operating frequency / Sensing distance (Sn)	500 Hz / 250 mm	500 Hz / 250 mm	500 Hz / 200 mm
NPN NO+NC	PD30CNB25NAPS	PD30CNB25NAM5PS	PD30CTB20NASA
PNP NO+NC	PD30CNB25PAPS	PD30CNB25PAM5PS	PD30CTB20PASA
Diffuse reflective background suppression, infrared light			
Operating frequency / Sensing distance (Sn)			500 Hz / 200 mm
NPN NO+NC			PD30CTB20NAIS
PNP NO+NC			PD30CTB20PAIS
Retro reflective polarized			
Operating frequency / Sensing distance (Sn)	1000 Hz / 5 m	1000 Hz / 5 m	
NPN NO+NC	PD30CNP50NAPS	PD30CNP50NAM5PS	
PNP NO+NC	PD30CNP50PAPS	PD30CNP50PAM5PS	
Specifications			
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP67	IP67	IP67
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	SPT
Transients (T)			
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	ABS	ABS	ABS
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks UL508	CE - cULus	CE - cULus	CE - cULus

Photoelectric sensors

Integrated amplifier

Types	PD30 - Advanced with teach-in			
Connections	2 m cable	M8 connector	2 m cable	M8 connector
				
Dimensions (mm)	10 x 30 x 20	10 x 30 x 20	10 x 30 x 20	10 x 30 x 20
Retro reflective		Retro reflective - transparent objects		
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m, Teach-in	1000 Hz / 6 m, Teach-in	1000 Hz / 2 m, Teach-in	1000 Hz / 2 m, Teach-in
Mute NPN NO/NC	PD30CNR06NPMU	PD30CNR06NPM5MU	PD30CNG02NPMU	PD30CNG02NPM5MU
Mute PNP NO/NC	PD30CNR06PPMU	PD30CNR06PPM5MU	PD30CNG02PPMU	PD30CNG02PPM5MU
Dust NPN NO/NC	PD30CNR06NPDU	PD30CNR06NPM5DU		
Dust PNP NO/NC	PD30CNR06PPDU	PD30CNR06PPM5DU		
Remote NPN NO/NC	PD30CNR06NPRT	PD30CNR06NPM5RT	PD30CNG02NPRT	PD30CNG02NPM5RT
Remote PNP NO/NC	PD30CNR06PPRT	PD30CNR06PPM5RT	PD30CNG02PPRT	PD30CNG02PPM5RT
Retro reflective polarized		Diffuse reflective		
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m, Teach-in	1000 Hz / 6 m, Teach-in	1000 Hz / 1 m, Teach-in	1000 Hz / 1 m, Teach-in
Mute NPN NO/NC	PD30CNP06NPMU	PD30CNP06NPM5MU		
Mute PNP NO/NC	PD30CNP06PPMU	PD30CNP06PPM5MU		
Dust NPN NO/NC	PD30CNP06NPDU	PD30CNP06NPM5DU	PD30CND10NPDU	PD30CND10NPM5DU
Dust PNP NO/NC	PD30CNP06PPDU	PD30CNP06PPM5DU	PD30CND10PPDU	PD30CND10PPM5DU
Remote NPN NO/NC	PD30CNP06NPRT	PD30CNP06NPM5RT	PD30CND10NPRT	PD30CND10NPM5RT
Remote PNP NO/NC	PD30CNP06PPRT	PD30CNP06PPM5RT	PD30CND10PPRT	PD30CND10PPM5RT
Through-beam emitter				
Sensing distance (Sn)	15 m, Teach-in	15 m, Teach-in		
NPN	PD30CNT15NMU	PD30CNT15NM5MU		
PNP	PD30CNT15PMU	PD30CNT15PM5MU		
Through-beam receiver mute function		Diffuse reflective background suppression		
Operating frequency / Sensing distance (Sn)	1000 Hz / 15 m, Teach-in	1000 Hz / 15 m, Teach-in	1000 Hz / 150 mm, Teach-in	1000 Hz / 150 mm, Teach-in
Remote NPN NO/NC	PD30CNT15NPRT	PD30CNT15NPM5RT	PD30CNB15NPRT	PD30CNB15NPM5RT
Remote PNP NO/NC	PD30CNT15PPRT	PD30CNT15PPM5RT	PD30CNB15PPRT	PD30CNB15PPM5RT
Dust NPN NO/NC	PD30CNT15NPDU	PD30CNT15NPM5DU		
Dust PNP NO/NC	PD30CNT15PPDU	PD30CNT15PPM5DU		
Specifications				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.4 VDC @ 100 mA	≤ 2.4 VDC @ 100 mA	≤ 2.4 VDC @ 100 mA	≤ 2.4 VDC @ 100 mA
Degree of protection	IP67	IP67	IP67	IP67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	ABS	ABS	ABS	ABS
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +55°C	-25°C to +55°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks UL508	CE - cULus	CE - cULus	CE - cULus	CE - cULus

Photoelectric sensors

Through-beam, transistor output

Types	PB10..	PA12	PB18..	PE12..
Connections	5 m cable	M12 connector	5 m cable	5 m cable
				

Dimensions (mm)	Ø10	M12	Ø18	Ø12
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Through-beam emitter

Sensing distance (Sn)	20 m	20 m	15 m	15 m
Single channel	PB10CNT20	PA12BNT20	PB18CNT15	PE12CNT15
Channel 1	PB10C1T20	PA12B1T20		PE12C1T15
Channel 2	PB10C2T20	PA12B2T20		PE12C2T15
Channel 3	PB10C3T20	PA12B3T20		PE12C3T15

Through-beam receiver

Operating frequency	100 Hz (for 3 ch 30 Hz)	100 Hz (for 3 ch 30 Hz)	100 Hz	100 Hz
Sensing distance (Sn)	20 m	20 m	15 m	15 m
NPN NO Single channel	PB10CNT20NO	PA12BNT20NO	PB18CNT15NO	PE12CNT15NO
NPN NC Single channel	PB10CNT20NC	PA12BNT20NC	PB18CNT15NC	PE12CNT15NC
PNP NO Single channel	PB10CNT20PO	PA12BNT20PO	PB18CNT15PO	PE12CNT15PO
PNP NC Single channel	PB10CNT20PC	PA12BNT20PC	PB18CNT15PC	PE12CNT15PC
NPN NO Channel 1	PB10C1T20NO	PA12B1T20NO		PE12C1T15NO
NPN NC Channel 1	PB10C1T20NC	PA12B1T20NC		PE12C1T15NC
PNP NO Channel 1	PB10C1T20PO	PA12B1T20PO		PE12C1T15PO
PNP NC Channel 1	PB10C1T20PC	PA12B1T20PC		PE12C1T15PC
NPN NO Channel 2	PB10C2T20NO	PA12B2T20NO		PE12C2T15NO
NPN NC Channel 2	PB10C2T20NC	PA12B2T20NC		PE12C2T15NC
PNP NO Channel 2	PB10C2T20PO	PA12B2T20PO		PE12C2T15PO
PNP NC Channel 2	PB10C2T20PC	PA12B2T20PC		PE12C2T15PC
NPN NO Channel 3	PB10C3T20NO	PA12B3T20NO		PE12C3T15NO
NPN NC Channel 3	PB10C3T20NC	PA12B3T20NC		PE12C3T15NC
PNP NO Channel 3	PB10C3T20PO	PA12B3T20PO		PE12C3T15PO
PNP NC Channel 3	PB10C3T20PC	PA12B3T20PC		PE12C3T15PC

Specifications

Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 1.5 VDC	≤ 1.5 VDC	≤ 1.5 VDC	≤ 1.5 VDC
Degree of protection	IP67	IP67	IP67	IP67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	PC	PC	PTE	PC
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
LED colour	Green (E), Yellow (R)	Green (E), Yellow (R)		Green (E), Yellow (R)
Approvals/Marks	CE	CE	CE	CE
UL 508	cULus	UL - cUL	cULus	cULus
UL 325	cURus	UR - cURus	cURus	cURus

NB! For pig-tail connector versions add C2 after the part number

Photoelectric sensors

DC, integrated amplifier

Types	PD70	PD112	PA.	PB.
Connections	2 m cable or connector		2 m cable or connector	
				

Dimensions (mm)	11.6 x 11.6 x 70	112 x 45 x 25	36 x 18 x 63	18 x 75 x 36
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Diffuse reflective background suppression

Operating frequency		Door mode 16.7 Hz Industry mode 250 Hz	1000 Hz	1000 Hz
Sensing distance (Sn)		2.5 m, adjustable	150 mm, adjustable	150 mm, adjustable
Cable		2 m	2 m	2 m
NPN/PNP, NO+NC		-	PA15INPA/PA15IPPA	PB15INPA/PB15IPPA
NPN+PNP, NO/NC		PD112CNB25BP	-	-
Connector		M12	M12	M12
NPN/PNP, NO+NC		-	PA15INPA-1/PA15IPPA-1	PB15INPA-1/PB15IPPA-1
NPN+PNP, NO/NC		PD112CNB25BPM1		

Retro reflective polarized

Operating frequency			1000 Hz	1000 Hz
Sensing distance (Sn)			3 m, adjustable	3 m, adjustable
Cable			2 m	2 m
NPN/PNP, NO+NC			PA3PNPA/PA3PPPA	PB3PNPA/PB3PPPA
Connector			M12	M12
NPN/PNP, NO+NC			PA3PNPA-1/PA3PPPA-1	PB3PNPA-1/PB3PPPA-1

Through-beam




Operating frequency	100 Hz			
Sensing distance (Sn)	12 m, adjustable			
Cable	2 m			
NPN NO (Receiver)	PD70CNT12NO			
NPN NC (Receiver)	PD70CNT12NC			
PNP NO (Receiver)	PD70CNT12PO			
PNP NC (Receiver)	PD70CNT12PC			
Mute High (Emitter)	PD70CNT12MH			
Mute Low (Emitter)	PD70CNT12ML			
Connector	M8			
NPN NO (Receiver)	PD70CNT12NOM5			
NPN NC (Receiver)	PD70CNT12NCM5			
PNP NO (Receiver)	PD70CNT12POM5			
PNP NC (Receiver)	PD70CNT12PCM5			
Mute High (Emitter)	PD70CNT12M5MH			
Mute Low (Emitter)	PD70CNT12M5ML			

Specifications



Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 1.8 VDC	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP67	IP67	IP67	IP67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	< 200 mA	< 200 mA	< 200 mA
Housing material	PC Black	PC Black	Aluminium	Reinforced ABS
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow, Receiver output Green, Emitter power ON	Yellow, Output Green, Power ON	Yellow	Yellow
Approvals/Marks	CE - cURus	CE - cULus	CE	CE

Photoelectric sensors





Integrated amplifier

Types	PC50	PC50..M1	PC50
Connections	2 m cable	M12 connector	2 m cable
			
Dimensions (mm)	17 x 50 x 50	17 x 50 x 50	17 x 50 x 50
Diffuse reflective			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	1 m, adjustable	1 m, adjustable	
NPN/PNP NO+NC	PC50CND10BA	PC50CND10BAM1	
Sensing distance (Sn)	2 m, adjustable	2 m, adjustable	
NPN/PNP NO+NC	PC50CND20BA	PC50CND20BAM1	
Sensing distance (Sn)			1 m, adjustable
Relay SPDT Multivoltage			PC50CND10RP
Sensing distance (Sn)			2 m, adjustable
Relay SPDT Multivoltage			PC50CND20RP
Diffuse reflective background suppression			
Operating frequency	250 Hz	250 Hz	
Sensing distance (Sn)	500 mm, adjustable	500 mm, adjustable	
NPN/PNP NO+NC	PC50CNB50BA	PC50CNB50BAM1	
Retro reflective polarized			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	6 m, adjustable	6 m, adjustable	6 m, adjustable
NPN/PNP NO+NC	PC50CNP06BA	PC50CNP06BAM1	
Mute High	PC50CNP06BAMH	PC50CNP06BAM1MH	
Mute Low	PC50CNP06BAML	PC50CNP06BAM1ML	
Relay SPDT Multivoltage			PC50CNP06RP
Retro reflective			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	10 m, adjustable	10 m, adjustable	10 m, adjustable
NPN/PNP NO+NC	PC50CNR10BA	PC50CNR10BAM1	
Relay SPDT Multivoltage			PC50CNR10RP
Through-beam emitter			
Sensing distance (Sn)	20 m	20 m	20 m
	PC50CNT20B	PC50CNT20BM1	PC50CNT20R
Through-beam receiver			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	20 m, adjustable	20 m, adjustable	20 m, adjustable
NPN/PNP NO+NC	PC50CNT20BA	PC50CNT20BAM1	-
Relay SPDT Multivoltage			PC50CNT20RP
Specifications			
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	12 - 240 VDC / 24 - 240 VAC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC	Relay SPDT
Degree of protection	IP67	IP67	IP67
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	PT
Transients (T)			
Load current	≤ 200 mA	≤ 200 mA	≤ 3 mA
Housing material	Reinforced ABS/PC	Reinforced ABS/PC	Reinforced ABS/PC
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

Photoelectric sensors



	Fork sensor	Fiber optic sensor
Types	PF74..	FA1
Connections	5 m cable	2 m cable
		
Dimensions (mm)	15 x 60 x 74	10 x 33 x 80
Fork sensor		
Operating frequency	≤ 1100 Hz	
Sensing distance (Sn)	30 mm, slot width	
PNP NO, NPN NC	PF74CNT30BC	
PNP NC, NPN NO	PF74CNT30BO	
Diffuse reflective		
Operating frequency		200, 500, 1000, 5000 μS
Sensing distance (Sn)		Fiber dependent
NPN NO or NC		FA1-N
PNP NO or NC		FA1-P
General specifications		
Rated operating voltage	19.2 - 28.8 VDC	12 to 24 VDC
Voltage drop	≤ 1.5 VDC @ 100 mA	≤ 1.5 VDC
Degree of protection	IP65	IP40
Protection short-circuit (S)		
Reverse polarity (P)	SPT	SPT
Transients (T)		
Load current	≤ 30 mA	≤ 100 mA
Housing material	PC, black	ABS
Operating temperature	-25°C to +60°C	0°C to +60°C
LED colour	Yellow + Green	Red + Green
Approvals/Marks UL508	CE	CE - cULus (UL508)
Light source		Red LED 660 nm
Plastic fiber unit		FUR (reflective) & FUT (through beam) series. Please refer to FUR FUT specifications datasheets

Photoelectric sensors





	Integrated amplifier relay output			Through-beam relay output
Types	PM..	PM..	PD86	PD98
Connections	Terminals single relay	Terminal block mute input	Terminal block mute input	Terminal block mute input
				
Dimensions (mm)	25 x 65 x 81	25 x 65 x 81	86 x 44 x 39	98 x 56 x 37
Diffuse reflective				
Oper. freq. / Sens. dist. (Sn)	20 Hz			
Sensing distance (Sn)	0.8 m, adjustable			
Relay SPDT Multivoltage	PMD8RG / RGT PMD8RI / RIT			
Retro reflective polarized				
Oper. freq. / Sens. dist. (Sn)	20 Hz / 12 m, fixed	20 Hz / 12 m, fixed	20 Hz / 12 m, fixed	
Relay SPDT Multivoltage	PMP12RG / PMP12RI		PD86CNP12QPMU	
Relay SPST (PC)	PMP12RGM / PMP12RIM		PD86CAP12QPTD	
Relay SPST (PC) - Detachable Terminals			PD86CAP12QPFD	
Relay SPST (PC) - Fixed Terminals			PD86CAP12QPTF	
Relay SPST (ZAMAK)			PD86HNP12QPMU-01C	
Relay SPST (ZAMAK) - Detachable Terminals			PD86HAP12QPTD-01C	
Relay SPST (ZAMAK) - Fixed Terminals			PD86HAP12QPTF-01C	
Retro reflective				
Oper. freq. / Sens. dist. (Sn)	20 Hz / 10 m, fixed			
Relay SPDT Multivoltage	PMR10RG / RGT			
Relay SPST	PMR10RI / RIT			
Through-beam emitter				
Sensing distance (Sn)	20 m	20 m	30 m (15 m default)	
	PMT20G / PMT20I	PMT20GM / PMT20IM	PD98CNT30QMU*	
Through-beam receiver				
Oper. freq. / Sens. dist. (Sn)	20 Hz / 20 m, fixed	20 Hz / 20 m, fixed		25 Hz / 30 m (15 m default)
Relay SPDT Multivoltage	PMT20RG / RGT PMT20RI / RIT			
Relay SPST				
General specifications				
Rated operating voltage	12 - 240 VDC / 24 - 240 VAC	24 VAC/DC ±20%	24 VAC/DC ±20%	12 V to 24 VAC/DC
Voltage drop	Relay SPDT	Relay SPST	Relay SPST	Relay DPDT
Degree of protection	IP67	IP67	IP66	IP54
Protection short-circuit (S)				
Reverse polarity (P)	PT	PT	PT	PT
Transients (T)				
Load current	≤ 3 A	≤ 3 A	1 A (AC), 0.5 A (DC)	1 A (AC), 0.5 A (DC)
Housing material	PC/ABS	PC/ABS	PD86C.. : PC + PMMA PD86H.. : ZAMAK + PMMA	PC/ABS
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow	Yellow	Yellow + Green	Yellow (receiver)
Approvals/Marks	CE - UL - CSA	CE - UL325 - UL508	CE - UL325 - UL508	CE - UL325
Remarks	G = PG 13.5 Outlet I = ½"NPT Outlet T = Timer	G = PG 13.5 Outlet I = ½"NPT Outlet Mute input	Mute input CA and HA types: Angular detection and adjustable lenses ± 4,5°	Mute input

* Item number set, emitter + receiver.

Photoelectric sensors




	Heavy duty infrared barrier	Through-beam relay output
Types	PD140	PD180
Connections	Terminal block	Terminal block
		
Dimensions (mm)	140 x 51 x 46	180 x 51 x 49
Through-beam range		
Indoor sensing distance (max)	60 m outdoor	15 / 30 m
General specifications		
Technology	Infrared	Infrared
Supply voltage receiver or emitter	12...24 VAC/VDC	12 + 24 VAC/DC
Battery supply emitter		2 x 3,6 VDC, 2100 mAh Lithium batteries size AA
Consumption	155 mA to 24 VAC (Emitter and receiver)	35 mA DC (55 mA DC with low battery alarm)
Output	SPDT	2 x SPST
Contact rating	1 A /@ 30 VDC, 0.5 A @ 50 VAC (resistive load)	1 A @ 30 VDC, 0.5 A @ 30 VAC (resistive load)
Approvals	CE - UL325 - UL508	CE - UL325 - CSA
Conformity	EN 12445, EN 12453, EN12978, EN/ISO 13849-1 ESPE2, RoHS	EN 12445, EN12453, EN12978, EN/ISO 13849-1 ESPE2, RoHS
Test input	Emitter test input	Emitter test input
Environmental specifications		
Wavelength	850 nm	850 nm
Operating temperature	-20°C to +60°C	-25°C to +55°C
Degree of protection	IP65	IP55
Mechanical specifications		
LED transmitter	Power signal	None (energy saving)
LED receiver	Signal for alignment with transmitter	Power ON - Green LED Output - Yellow LED
Optical adjustment	Horizontal 200° Vertical ±15°	Horizontal 200° Vertical ±30°
Mounting	Wall mounted type	Wall mounted type
Material	Aluminium, PC	PC
Weight	460 g (set)	Emitter 270 g Receiver 230 g
Comments	ESPE Category 2, EN 61496-2 Accessory: Laser alignment tool	ESPE Category 2, EN 61496-2 Emitter is supplied with 2 x 3.6 VDC 2100 mAh lithium batteries
Accessories	APD140-LA01 APD140-LA02 APD140-TC01	

Photoelectric sensors

	Sensors	Amplifier 1-channel	Amplifier 2-channel	Amplifier 3-channel
Types	MPF..	MPF1..	MPF2..	MPF3..
Connections	10 m cable	Terminals	Terminals	Terminals
				
Dimensions (mm)	See sensor type	70 x 57 x 86	70 x 57 x 86	70 x 57 x 86
Amplifier				
		1-Channel	2-Channel	3-Channel
12-24 VAC/DC ±15% Low current		MPF1-912RSL	MPF2-912RSL	MPF3-912RSL
12-24 VAC/DC ±15%		MPF1-912RS	MPF2-912RS	MPF3-912RS
115 VAC ±15%		MPF1-115RS	MPF2-115RS	MPF3-115RS
230 VAC ±15%		MPF1-230RS	MPF2-230RS	MPF3-230RS
Through-beam emitter		Output and function selection		
Sensing distance (Sn)	15 m	No Dist Adjust		Dist Adjust
Ø12 x 20	MPFT15-4 (C)	Normal Mute	Inverted Mute	Normal Mute Inverted Mute
D11 x 24.5	MPFT15-D11-4			
D18 x 25	MPFT15-D18-4 (C)	RS	RSI	RSA RSAI
M14 x 23	MPFT15-M14-4 (C)	RSL	RSLI	RSLA RSLAI
Through-beam receiver				
Sensing distance (Sn)	15 m			
Ø12 x 20	MPFR-4 (C)			
D11 x 24.5	MPFR-D11-4			
D18 x 25	MPFR-D18-4 (C)			
M14 x 23	MPFR-M14-4 (C)			
General specifications				
Rated operating voltage	Powered by amplifier	See amplifier reference	See amplifier reference	See amplifier reference
Output		1 x 2 SPST in series	2 x 2 SPST in series	3 x 2 SPST in series
Low current resistive load		RS type: 2 A @ 240 VAC / 30 VDC RSL type: 0.5 A @ 50 VAC / 30 VAC	RS type: 2 A @ 240 VAC / 30 VDC RSL type: 0.5 A @ 50 VAC / 30 VAC	RS type: 2 A @ 240 VAC / 30 VDC RSL type: 0.5 A @ 50 VAC / 30 VAC
Operating frequency	Amplifier dependent	10 Hz	10 Hz	10 Hz
Degree of protection	IP67	IP40	IP40	IP40
Protection short-circuit (S)				
Reverse polarity (P)	SPT	PT	PT	PT
Transients (T)				
Housing material				
-Amplifier		PC	PC	PC
-Sensor Ø12+D11+D18	PC + ABS			
-Sensor	PC + Stainless steel			
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour		Yellow	Yellow	Yellow
Approvals/Marks	CE - UL325 - UL508	CE - UL325 - UL508	CE - UL325 - UL508	CE - UL325 - UL508
Remarks	C = Pigtail connector version			
Optical angle (degrees)	±5			

Photoelectric sensors

Sensors for amplifiers

Types	MOF..	MOF.. ATEX	MNF..	MDF..
Connections	10 m cable	Terminals	Terminals	Terminals
				
Dimensions (mm)	Ø 10 x 42	Ø 10 x 42	Ø 20 x 80	Ø 13.5 x 55

Through-beam emitter

Sensing distance (Sn)	20 m	20 m		
Max. ±2° optical angle	MOFT20 MOFT20-M12-2	MOFT20AX MOFT20-M12-2AX		
Sensing distance (Sn)	50 m			
Max. ±2° optical angle	MOFT50 MOFT50-M12-2			
Sensing distance (Sn)	20 m	20 m		
Max. ±5° optical angle	MOFT20-5 MOFT20-M12-5	MOFT20-5AX MOFT20-M12-5AX		
Sensing distance (Sn)	20 m	20 m	15 m	30 m
Max. ±8° optical angle	MOFT20-8 MOFT20-M12-8 MOFT20-M14-8	MOFT20-8AX MOFT20-M12-8AX MOFT20-M14-8AX	MNFT15	MDFT30

Through-beam receiver

Operating frequency	Amplifier dependent	Amplifier dependent	Amplifier dependent	Amplifier dependent
Sensing distance (Sn)	See emitter	See emitter	See emitter	See emitter
Max. ±2° optical angle	MOFR MOFR-M12-2	MOFRAX MOFR-M12-2AX		
Max. ±5° optical angle	MOFR-5 MOFR-M12-5	MOFR-5AX MOFR-M12-5AX		
Max. ±8° optical angle	MOFR-8 MOFR-M12-8 MOFR-M14-8	MOFR-8AX MOFR-M12-8AX MOFR-M14-8AX	MNFR15	MDFR30

General specifications

Rated operating voltage	Powered by Amplifier	Powered by Amplifier	Powered by Amplifier	Powered by Amplifier
Output	On Amplifier	On Amplifier	On Amplifier	On Amplifier
Operating frequency	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..
Degree of protection	IP66 - IP67	IP66 - IP67	IP67	IP67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Housing material sensor	Ø10: PC M14 + M14: PC + SS	Ø10: PC M14 + M14: PC + SS	PC M14 + M14: PC + SS	Acetal, glass reinforced
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	None	None	None	None
Approvals/Marks	CE	CE - ATEX	CE	CE

Photoelectric sensors

Types

Amplifiers for sensors

Connections

1 1-pole plug

1 1-pole plug

1 1-pole plug



Dimensions (mm)

35 x 80 x 81.5

35 x 80 x 81.5

35 x 80 x 81.5

Description

Standard amplifier with Sensor diagnostics and adjustable sensing distance

As S142A but with adjustable time delay

As S142A but with Master / Slave function for high neighbour immunity

Amplifier references

1 x SPDT relay

S142ARNN924

S142BRNN924

1 x NPN output

S142ARNN024

S142BRNN024

1 x NPN alarm output

S142ARNN115
S142ARNN230

S142BRNN115
S142BRNN230

1 x SPDT relay

S142ARNT924

S142BRNT924

1 x NPN output or alarm

S142ARNT024

1 x Emitter mute input

S142ARNT115
S142ARNT230

S142BRNT115
S142BRNT230

1 x PNP output

S142APPT924

S142BPPT924

1 x PNP alarm output

S142APPT115

S142BPPT115

1 x Emitter mute input

S142APPT230

S142BPPT230

1 x SPDT relay

S142CRXA924

A - Auto distance adjustment

S142CRXA115
S142CRXA230

M - Manual distance adjustment

S142CRXM924
S142CRXM115
S142CRXM230

General specifications

Rated operating voltage

924

24 VAC/DC

24 VAC/DC

24 VAC/DC

115

115 VAC

115 VAC

115 VAC

230

230 VAC

230 VAC

230 VAC

Relay load current
resistive load

10 A @ 250 VAC / 25 VDC SPD

10 A @ 250 VAC / 25 VDC SPD

10 A @ 250 VAC / 25 VDC SPD

Transistor load current

100 mA 40 VDC

100 mA 40 VDC

Operation frequency

20 Hz

20 Hz, no timer

15 Hz @ 2 systems
4 Hz @ 6 systems

Degree of protection

IP20

IP20

IP20

Protection short-circuit (S)

Reverse polarity (P)

Transients (T)

SPT

SPT

S

Housing material

Noryl SE1, Light grey

Noryl SE1, Light grey

Noryl SE1, Light grey

Operating temperature

-20°C to +50°C

-20°C to +50°C

-20°C to +50°C





Approvals/Marks

CE - UL - CSA

CE - UL - CSA

CE - UL - CSA

Photoelectric sensors

Types	S1430 UAP..	S1430 RAL..	S1430 ROS..	PAM...
Connections	1 1-pole plug	1 1-pole plug	1 1-pole plug	Terminals
				
Dimensions (mm)	35 x 80 x 81.5	35 x 80 x 81.5	35 x 80 x 81.5	2, 3, 4, 5, 6 DIN housing
Description	3 inputs 3 transistor outputs	3 inputs 3 transistor outputs	3 inputs 3 double relay outputs	2-4-6-8 or 10 channels modular system
Amplifier references				
12-30 VAC/DC $\pm 15\%$	S1430UAP912			
15-30 VAC/DC $\pm 10\%$		S1430RAL915	S1430ROS915	
No. of channels				2 channels
- NPN output, NO				PAM02AN3ANO/NC
- PNP output, NO				PAM02AN3APO/PC
No. of channels				4 channels
- NPN output, NO				PAM04AN3ANO/NC
- PNP output, NO				PAM04AN3APO/PC
No. of channels				6 channels
- NPN output, NO				PAM06AN3ANO/NC
- PNP output, NO				PAM06AN3APO/PC
Extension modules references				
No. of channels				2 channels
- NPN output, NO				PAM02CN3ANO
- NPN output, NC				PAM02CN3ANC
- PNP output, NO				PAM02CN3APO
- PNP output, NC				PAM02CN3APC
No. of channels				4 channels
- NPN output, NO				PAM04CN3ANO
- NPN output, NC				PAM04CN3ANC
- PNP output, NO				PAM04CN3APO
- PNP output, NC				PAM04CN3APC
General specifications				
Rated operating voltage	See Amplifier type	See Amplifier type	See Amplifier type	18 - 33 VDC
Output	3 x Transistor NPN/PNP/NO/NC	3 x SPST	3 x SPST	One output per channel
Load current resistive load	100 mA, 40 VDC, NPN	1.5 A @ 100 VAC / 30 VDC	1.5 A @ 100 VAC / 30 VDC	20 mA, 33 VDC, NPN / PNP 8 A @ 250 VAC / 24 VDC SPDT resistive load
Operation frequency	16 Hz	12.5 Hz	12.5 Hz	30 Hz @ 6 channels
Degree of protection	IP20	IP20	IP20	IP20
Protection short-circuit (S)				
Reverse polarity (P)	SPT	PT	PT	SPT
Transients (T)				
Housing material	Noryl SE1, Light grey	Noryl SE1, Light grey	Noryl SE1, Light grey	
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
LED colour	Yellow + Green + Red	Yellow + Green + Red	Yellow + Green + Red	Yellow + Green + Red
Approvals/Marks	Multiplexed system	Multiplexed system	Multiplexed system	Multiplexed system, test functions, bargraph, mute input etc.

Photoelectric sensors

Types Wireless entrapment protection device for industrial doors ESPE

Connections Main controller Subcontroller PB 11



Dimensions (mm) 35 x 35 x 125 26 x 242 x 45 Ø11 x 24.5

Description The Carlo Gavazzi main controller can control up to 4 subcontrollers This flexible Carlo Gavazzi subcontroller can handle 2 safety edges and 1 door-in-door limit switch




References

Main controller **WSM 2 B A 2 D24**
 Subcontroller **WSS 2 B A 2 BAT**
 Photoelectric sensor Emitter **PB 11 CNT 15 WE**
 Photoelectric sensor Receiver **PB 11 CNT 15 WR**

General specifications


Rated operating voltage	12 - 24 VAC/DC	1 - 4 Lithium 3.6 VDC size AA batteries	From subcontroller
Supply current	< 50 mA		
Relay load current resistive load	1 A / 30 VDC 0.5 A / 30 VAC		
Communication frequency	2.4 GHz Duplex	2.4 GHz Duplex	
Response time	120 mS	120 mS	
Number of channels	16	16	
Communication distance	10 m wireless	10 m wireless	
Sensing distance			15 m
Subcontroller up-time		10 - 80 sec	
Test input	On main module		
Degree of protection	IP66	IP66	IP67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	PT	P	
Housing material	ABS, Light grey	PC, Light grey	PA6 Glass reinforced
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +55°C
LED colour	Green, Yellow, Red	Yellow	-
Approvals/Marks	CE - UL - FCC	CE - UL - FCC	CE - UL

Photoelectric sensors

Types	Wireless entrapment protection device for industrial gates ESPE		
Connections	Main controller	Subcontroller	PB 11
			
Dimensions (mm)	35 x 35 x 125	26 x 242 x 45	Ø11 x 24.5
Description	The Carlo Gavazzi main controller can control up to 6 subcontrollers	This flexible Carlo Gavazzi subcontroller can handle one opening safety edge and one closing edge	
References			
Main controller (N.O. 8.2 kohm output)	WSM6GAOOD24		
Main controller (N.C. output)	WSM6GACCD24		
Subcontroller	WSS2GA2BAT		
Photoelectric sensor Emitter	PB 11 CNT 15 WE		
Photoelectric sensor Receiver	PB 11 CNT 15 WR		
General specifications			
Rated operating voltage	12 - 24 VAC/DC	1 - 4 Lithium 3.6 VDC size AA batteries	From subcontroller
Supply current	< 50 mA		
Relay load current resistive load	1 A / 30 VDC 0.5 A / 30 VAC		
Communication frequency	2.4 GHz Duplex	2.4 GHz Duplex	
Response time	From 15 to 100 ms	From 15 to 100 ms	
Number of channels	16	16	
Communication distance	15 m wireless	15 m wireless	
Sensing distance			2.5 m
Subcontroller up-time	15 – 105 s, fixed time or infinite		
Test input	On main module		
Degree of protection	IP66	IP66	IP67
Protection short-circuit (S)			
Reverse polarity (P)	PT	P	
Transients (T)			
Housing material	ABS, Light grey	PC, Light grey	PA6 Glass reinforced
Operating temperature	-25°C to +55°C		
LED colour	Green, Yellow, Red	Yellow	
Approvals/Marks	CE - UL - FCC - TÜV	CE - UL - FCC - TÜV	CE - UL

Photoelectric level sensors

Integrated amplifier

Types	VP0.E.	VP ATEX	VP E.M
Connections	2 m cable	2 m cable	2 m cable
			

Dimensions (mm)	3/8" x 74	3/8" x 74	3/8" x 74
Light type	Unmodulated	Unmodulated	Unmodulated

Optical level sensor references

Operating frequency	30 Hz	30 Hz	30 Hz
Sensing dist. (Sn), Hor.	± 5 mm, fixed	± 5 mm, fixed	± 5 mm, fixed
Sensing dist. (Sn), Ver.	± 2.5 mm, fixed	± 2.5 mm, fixed	± 2.5 mm, fixed
Housing material	Polysulfone	Polysulfone	Polysulfone
NPN NO	VP02E		VP02EM
NPN NC	VP01E		VP01EM
PNP NO	VP02EP	VP02EPAX	VP02EPM
PNP NC	VP01EP	VP01EPAX	VP01EPM
Housing material	Polyamide 12	Polyamide 12	Polyamide 12
NPN NO	VP04E		VP04EM
NPN NC	VP03E		VP03EM
PNP NO	VP04EP	VP04EPAX	VP04EPM
PNP NC	VP03EP	VP03EPAX	VP03EPM
Housing material	Polysulfone		
SCR NO	VP02-110TB		
SCR NC	VP01-110TB		
SCR NO	VP02-230TB		
SCR NC	VP01-230TB		


DC-types

Rated operating voltage	10 - 40 VDC	10 - 16.8 VDC	10 - 40 VDC
Voltage drop	≤ 1.0 VDC	≤ 1.0 VDC	≤ 1.0 VDC
Off-state current	≤ 12 mA	≤ 12 mA	≤ 12 mA
Load current	< 200 mA	< 50 mA	< 200 mA

AC-types (SCR)



Rated operating voltage	110 or 230 VAC		
Voltage drop	≤ 9 VAC		
Off-state current	≤ 7 mA		
Load current	< 10 - 100 mA		

General specifications

Degree of protection	IP67	IP67	IP67
Protection short-circuit (S)			
Reverse polarity (P)	PT	PT	PT
Transients (T)			
Operating temperature	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C
LED colour	Yellow	Yellow	Yellow
Pressure	10 bar @ +60°C	10 bar @ +60°C	10 bar @ +60°C
Approvals/Marks	CE	CE -  - TÜV - ATEX zone 1	CE

Photoelectric level sensors

Integrated amplifier

Types	VPA..../VPB....	VPA....-1/VPB....-1
Connections	2 m cable	M12 connector
		

Dimensions (mm)	3/8" x 70.5	3/8" x 90.5
Light type	Modulated	Modulated

Optical level sensor references

Operating frequency	30 Hz	30 Hz
Sensing dist. (Sn), Hor.	± 5 mm, fixed	± 5 mm, fixed
Sensing dist. (Sn), Ver.	± 2.5 mm, fixed	± 2.5 mm, fixed
Housing material	Stainless steel/polysulfone	Stainless steel/polysulfone
NPN NO+NC	VPA1MNA	VPA1MNA-1
PNP NO+NC	VPA1MPA	VPA1MPA-1
Housing material	Stainless steel and glass	Stainless steel and glass
NPN NO+NC	VPA2MNA	VPA2MNA-1
PNP NO+NC	VPA2MPA	VPA2MPA-1
Housing material	Nickel-pl. brass/polysulfone	Nickel-pl. brass/polysulfone
NPN NO+NC	VPB1MNA	VPB1MNA-1
PNP NO+NC	VPB1MPA	VPB1MPA-1
Housing material	Nickel-plated brass and glass	Nickel-plated brass and glass
NPN NO+NC	VPB2MNA	VPB2MNA-1
PNP NO+NC	VPB2MPA	VPB2MPA-1

DC-types



Rated operational voltage	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC
Off-state current	≤ 7 mA	≤ 7 mA
Load current	< 200 mA	< 200 mA

General specifications

Degree of protection	IP67	IP67
Protection short-circuit (S)		
Reverse polarity (P)	SPT	SPT
Transients (T)		
Operating temperature	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow	No LED
Pressure	10 bar @ +60°C	10 bar @ +60°C
Approvals/Marks	CE	CE

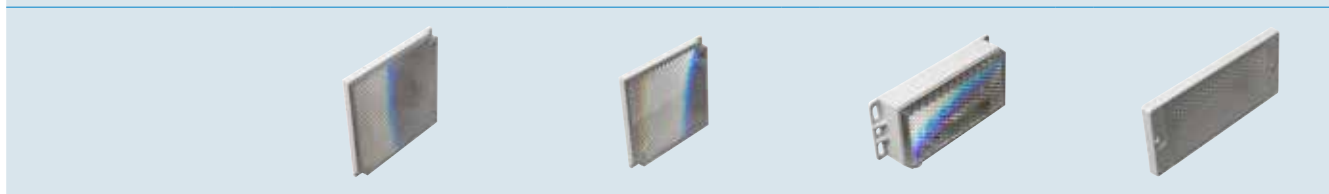
Motion and presence sensors

Combined motion and presence detectors for pedestrian doors

Types	GUARDIAN 1	GUARDIAN 2
Connections	Terminal block	Terminal block
		
Dimensions (mm)	210 x 77 x 58	210 x 77 x 58
Technology	Digital video camera technology 640 x 480	Digital video camera technology 640 x 480
Door types	Straight sliding doors	Curved and straight sliding doors
Features	The Guardian sensor is a unique motion and presence detector that provides maximum safety and protection in pedestrian sliding door installations. Equipped with the latest digital video camera technology, Guardian watches over the entrance and exit area safeguarding people within, while at the same time controlling the doors. Guardian is able to ignore cross traffic, and it has a brilliant capability of self-adjusting to changes in the environment and weather conditions.	
Input specifications		
Mounting height	180 cm to 300 cm	180 cm to 300 cm
Motion zone sensing area	Height 180 cm = 246 x 204 cm Height 220 cm = 300 x 249 cm Height 300 cm = 410 x 340 cm	Height 180 cm = 246 x 204 cm Height 220 cm = 300 x 249 cm Height 300 cm = 410 x 340 cm
Presence zone sensing area	Height 180 cm = 42 cm x door width Height 220 cm = 51 cm x door width Height 300 cm = 70 cm x door width	Height 180 cm = 42 cm x door width Height 220 cm = 51 cm x door width Height 300 cm = 70 cm x door width
Maximum door radius vs. Mounting height		Height 180 cm = Radius 130 cm Height 220 cm = Radius 170 cm Height 300 cm = Radius 200 cm
Sensitivity	Adjustment in 7 steps	Adjustment in 7 steps
Presence time	7 step rotary switch: (10, 30 sec.) 1 min, 5 min (not accordance to DIN18650)	7 step rotary switch: (10, 30 sec.) 1 min, 5 min (not accordance to DIN18650)
Ambient light	10 lux - 50.000 lux	10 lux - 50.000 lux
Output specifications		
Output function	Safety and Motion Zone: relay - SPST Common relay data: 1 A DC 30 VDC 600.000 cycles @ 0.5 A, 50 VAC/30 VDC	Safety and Motion Zone: relay - SPST Common relay data: 1 A DC 30 VDC 600.000 cycles @ 0.5 A, 50 VAC/30 VDC
General specifications		
Rated operating voltage	12 - 24 VAC	12 - 24 VAC
No load supply current	Max. 230 mA	Max. 230 mA
Test input. Active high	ON > 9 VAC/VDC OFF < 6 VAC/VDC	ON > 9 VAC/VDC OFF < 6 VAC/VDC
Test input. Active low	ON < 6 VAC/VDC OFF > 9 VAC/VDC	ON < 6 VAC/VDC OFF > 9 VAC/VDC
Type of ESPE	Type 2	Type 2
Degree of protection	IP64	IP64
TÜV	In acc. with machinery directive 2006/42/EC, annex I DIN 18650-1 § 5.7.4, edition 2005 (prEN16005), EN13241-1, EN 12978	In acc. with machinery directive 2006/42/EC, annex I DIN 18650-1 § 5.7.4, edition 2005 (prEN16005), EN13241-1, EN 12978
UL-approved	cURus: UL325, CSA-C22.2 No. 247	cURus: UL325, CSA-C22.2 No. 247
Marking	CE	CE
References		
Marking	GUARDIAN 1	GUARDIAN 2

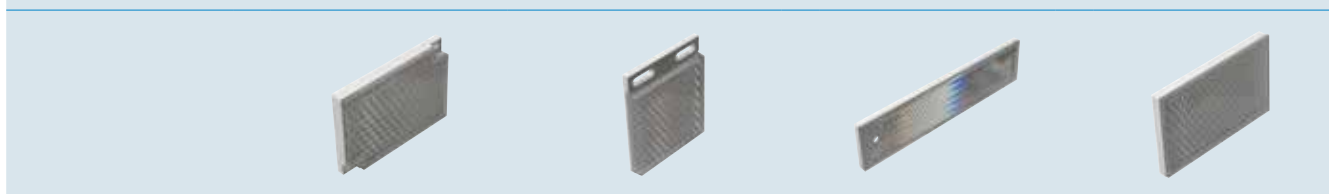
Photoelectric sensors accessories

Reflectors, rectangular



Item Number	ER100	ER840	ER681	ER686
Dimensions (mm)	100 x 100 x 9.2	84.5 x 84.5 x 9	52 x 119 x 27	55.3 x 126 x 9
Mounting (screws not incl.)	2 x M3 screws	2 x M3.5 screws	4 x M4 screws	2 x M6 screws
Reduction factor	1.2	0.96	0.92	0.92

Reflectors, rectangular



Item Number	ER4060	ER5060	ER42182	ER5080
Dimensions (mm)	60 x 41 x 8	55.5 x 61 x 8	186 x 46.5 x 8	80 x 54 x 8
Mounting (screws not incl.)	2 x M3.5 screws	2 x M4 screws	2 x M6 screws	Adhesive
Reduction factor	0.81	0.80	0.65	0.60

Reflectors, rectangular



Item Number	ER483	ER8	ER665	ER530
Dimensions (mm)	32.5 x 65 x 8	82 x 37 x 5.5	18.5 x 120 x 65	19 x 72.5 x 8.4
Mounting (screws not incl.)	2 x M3.5 screws	Adhesive	2 x M4 screws	2 x M3.5 screws
Reduction factor	0.55	0.51	0.45	0.45

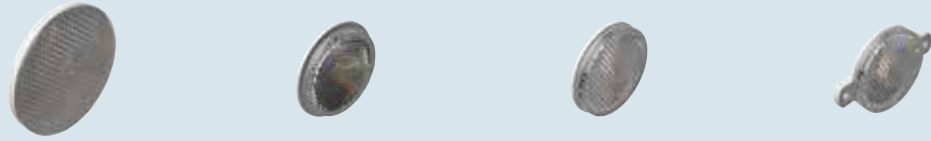
Reflectors, rectangular



Item Number	ER390	ER1	ER640	ER692
Dimensions (mm)	23.5 x 47.5 x 8	51 x 17.5 x 5	13 x 17 x 5	Ø 35 x 5.5
Mounting (screws not incl.)	2 x M3.5 screws	Adhesive	Adhesive	Adhesive
Reduction factor	1.39	0.20	0.16	0.53

Photoelectric sensors accessories

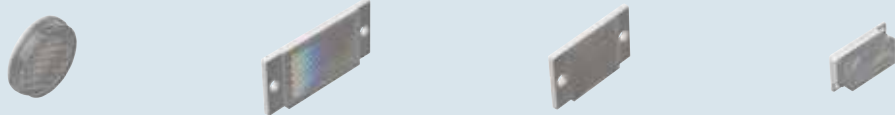
Reflectors, cylindrical



Item Number	ER4	ER460	ER420	ER423
Dimensions (mm)	Ø 84 x 7.4	Ø 46 x 6.5	Ø 42 x 6.3	Ø 41.5 x 6
Mounting (screws not incl.)	1 x M4 screw	Adhesive	Adhesive	2 x M3 screws
Reduction factor	1	0.55	0.54	0.54

Reflectors, cylindrical

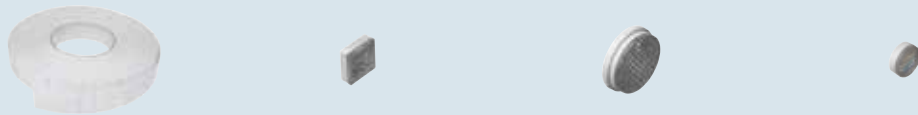
Micro cube reflectors for LD32



Item Number	ER689	EM 130-20	EM 120-20	EM 123-70
Dimensions (mm)	Ø 25 x 5.5	20 x 43	20 x 32	13.7 x 23
Mounting (screws not incl.)	Adhesive	2 x M3 screws	2 x M3.5 screws	2 x M2 screws
Reduction factor	0.39	1 (Micro Cube)	1 (Micro Cube)	1 (Micro Cube)

Reflectors, tape

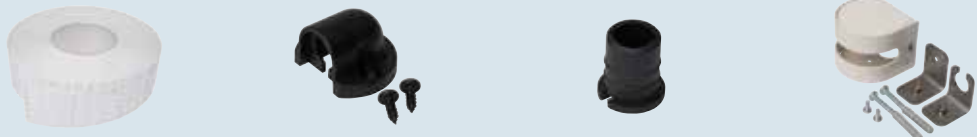
Micro cube reflectors for LD32



Item Number	ERT25	EM 111-40	EM 121-41	EM 110-40
Dimensions (mm)	25 mm x 45.7 m	10.5 x 10.5	Ø20	Ø10
Mounting (screws not incl.)	Adhesive			
Reduction factor	0.23 (25 x 25 mm)	1 (Micro Cube)	1 (Micro Cube)	1 (Micro Cube)

Reflectors, tape

Accessories, photoelectric sensors



Item Number	ERT50	AMPF-MB1	AMPF-MB2	AMPF-MB3
Dimensions (mm)/Used for	50 mm x 45.7 m	MPFT15-4 & MPFR-4	MPFT15-4 & MPFR-4	MPFT15-4 & MPFR-4
Mounting (screws not incl.)	Adhesive			
Reduction factor/ Description	0.34 (50 x 50 mm)	Plastic mounting bracket for wall mounting	Adaptor for fitting to an Ø18 mm rubber profile	Metal mounting bracket for harsh environment

Photoelectric sensors accessories

Accessories, photoelectric sensors



Item Number	610DC	APA3	MB-M01	MB18A
Used for	S1430...	PA.. sensors	MOF.. sensors	M18 sensors
Description	Plug conversion	Mounting bracket in anodized aluminium	Ball mounting bracket for flexible mounting	Mounting bracket in plastic

Accessories, photoelectric sensors

Brackets



Item Number	APA18-MB1	APH18-MB1	APA-2	APB-1
Used for	PA18 sensors	PH18 sensors	PA.. sensors	PB
Description	Mounting bracket in plastic	Mounting bracket in plastic	Mounting bracket in steel, black	Mounting bracket in steel, black

Brackets



Item Number	MB02	APD32-MB3	APD30 MB1	APD30 MB2
Used for	PM	PD32 - LD32	PD.. sensors	PD.. sensors
Description	Long mounting bracket for wall mounting in steel, chromium-plated	Mounting bracket in steel, chromium-plated	Mounting bracket in steel, chromium-plated	Mounting bracket in steel, chromium-plated

Brackets

Alignment tools



Item Number	ACP50-1	APD140-LA01	APD140-LA02	APD140-TC01
Used for	PC50.. sensors	PD140.. Heavy duty infrared barrier	PD140.. Heavy duty infrared barrier	PD140.. Heavy duty infrared barrier
Description	Mounting bracket in steel, chromium-plated	Laser alignment tool	Laser alignment tool without batteries (Battery: DL1/3N, CR1/3N 3V - Lithium)	Alignment test cable

PB10, PB18, PE12**Sensing Principle**

Through-beam: Up to 20 m
 Supply Voltage: 10-30 VDC
 Output: 100 mA
 NO or NC
 NPN or PNP

Operating Temperature:

-20 to +50°C

Enclosure Rating:

IP67

LED Indication:

Power or Output

Connection:

Cable

Dimensions:

PB10: Ø10 x 42 mm
 PB18: Ø18 x 30 mm
 PE12: Ø12 x 29 mm

PA18, Ex18**Sensing Principle**

Through-beam: 10 or 20 m
 Retroreflective: 3 m
 Pol. retro-reflective: 2 m
 Diffuse reflective: 400 mm
 Supply Voltage: 10-40 VDC or
 20-250 VAC

Output:

NO + NC
 200mA
 NPN or PNP,
 NO or NC
 500mA SCR

Operating Temperature:

-20 to +60°C

Enclosure Rating:

IP67

LED Indication:

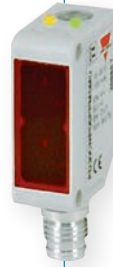
Power or Output

Connection:

Cable or M12
 Plug

Dimensions:

M18 x 55 or 72 mm

PD30**Sensing Principle**

Through-beam: 15 m
 Retro-reflective: 6 m
 Pol. retro-reflective: 6 m
 Transparent Object: 2 m
 Diffuse: 1 m
 Background suppression: 140 mm

Supply Voltage:

10-30 VDC

Output:

NO or NC
 100 mA
 NPN or PNP

Operating Temperature:

-25 to +55°C

Operating Frequency:

1000 Hz

Enclosure Rating:

IP67

LED Indication:

Power and Output

Connection:

Cable or M8 Plug

Dimensions:

10.8 x 20 x 30 mm

PD32, LD32**Sensing Principle**

Through-beam: 6 m
 Pol. retro-reflective: 3 m
 Diffuse reflective: 500 mm
 Background suppression: 120 mm
 Clear Object: 500 mm

Supply Voltage:

10-30 VDC

Output:

NO + NC,
 200mA
 NPN or PNP

Operating Temperature:

-25 to +60°C

Operating Frequency:

1000 Hz

Enclosure Rating:

IP67

LED Indication:

Power and Output

Connection:

Cable or M8 Plug

Dimensions:

12 x 20 x 32 mm

CGPS-U**Sensing Principle**

Through Beam: 20 m
 Retro-reflective: 1, 2, or 3 m
 Diffuse: 100 mm

Supply Voltage:

10-30 VDC

Output:

NO + NC
 150mA,
 NPN or PNP

Operating Temperature:

-20 to +50°C

Operating Frequency:

1000 Hz

Enclosure Rating:

IP66

LED Indication:

Power and Output

Connection:

Cable, M8 Plug,
 or M8 pig-tail

Dimensions:

13.5 x 29 x 35 mm

Ex55**Sensing Principle**

Through-beam: 5 m
 Pol. retro-reflective: 2 m
 Diffuse reflective: 200 or 600mm

Supply Voltage:

10-30 VDC

Output:

NO and NC,
 200 mA NPN
 or PNP

Operating Temperature:

-20 to +60°C

Operating Frequency:

500 Hz

Enclosure Rating:

IP67

LED Indication:

Output

Connection:

Cable or M12
 Plug

Dimensions:

35 x 55 x 15 mm

PD60**Sensing Principle**

Clear Object: 0.8 m or 1.4 m
 Contrast: 18 mm (fiber
 dependent)

Fiber optic:

200 mm

Supply Voltage:

10-30 VDC

Output:

NO or NC,
 200 mA NPN
 or PNP

Operating Temperature:

0 to +60°C

Operating Frequency:

1000 Hz or
 20000 Hz
 (contrast)

Enclosure Rating:

IP67

LED Indication:

Power and Output

Connection:

Cable or M8
 Plug

Dimensions:

13 x 30 x 60 mm

PC50**Sensing Principle**

Through-beam: 20 m
 Retro-reflective: 10 m
 Pol. retro-reflective: 6 m
 Diffuse reflective: 1 m or 2 m

Supply Voltage:

10-30 VDC
 or 12-240 VDC
 and 24-240 VAC

Output:

NO or NC, 200mA
 NPN or PNP
 or SPDT Relay

AC1:

3A/250 VAC

DC1:

3A/30 VDC

Operating Temperature:

-20 to +60°C

Enclosure Rating:

IP67

LED Indication:

Power and Output

Connection:

Cable or M12
 Plug

Dimensions:

17 x 50 x 50 mm

PM**Sensing Principle**

Through-beam: Up to 20 m
 Pol. retro-reflective: 12 m
 Retro-reflective: 10 m
 Diffuse reflective: 0.8 m
Supply Voltage: 12-265 VDC and 24-265 VDC

Output: SPDT relay,
 AC15: 2A/250 VAC
 DC13: 3A/30 VDC

Operating Temperature: -25 to +55°C

Operating Frequency: 20 Hz

Enclosure Rating: IP67
LED Indication: Output ON
Connections: Screw terminals
Dimensions: 25 x 68 x 81 mm

PF80**Sensing Principle**

Fork Width: 3 mm
Supply Voltage: 10-30 VDC
Output: NO or NC,
 100 mA NPN and PNP - Push-pull

Operating Temperature: -20 to +60°C

Operating Frequency: 10 kHz

Enclosure Rating: IP65

LED Indication: Red and Yellow LED

Connection: M18 Plug
Dimensions: 12 x 38 x 80 mm

PD12**Sensing Principle**

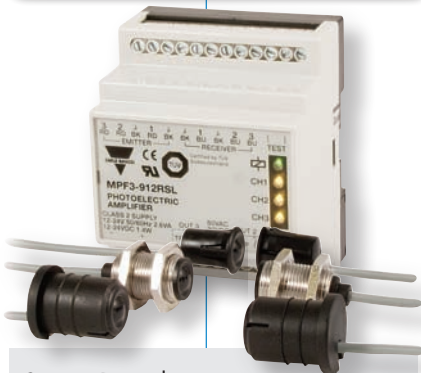
Diffuse reflective: Color: 2-60 mm
 Storage of up to 4 independent colors
Supply Voltage: 24 VDC
Output: 1 or 4 outputs NO or NC, 100 mA NPN and PNP - Push-pull

Operating Temperature: 0 to +40°C

Operating Frequency: 500 (25) Hz

Enclosure Rating: IP65
LED Indication: Power, Output, Teach

Connection: M12 Plug
Dimensions: 12 x 20 x 32 mm
Accessories: Optical fibers

MPF**Sensing Principle**

Through-beam: 15 m
Channels (sensor set): 1, 2 or 3
Supply Voltage: 12-265 VAC/DC,
 115 VAC or 230 VAC

Output: SPDT relay,
 AC15: 0.75A/240 VAC
 DC13: 0.22A/125 VDC

Operating Temperature: -20 to +60°C

Operating Frequency: 10 Hz

Enclosure Rating: Amplifier IP40,
 Sensors IP67

LED Indication: Output and supply
Connection: Screw terminals
Dimensions: 4 DIN (70 x 86 x 57 mm)
Sensors:
 MPF.. 4: Ø12 x 20 mm
 MPF.. 4-M14: M14 x 28 mm
 MPF.. 4-D18: Ø18 x 25 mm

MOF, S142**Sensing Principle**

Through-beam: 20 or 50 m
Supply Voltage: 12-24 VAC/DC,
 115 VAC or 230 VAC

Output: SPDT relay,
 AC1: 8A/250 VAC
 DC1: 0.2A/250 or 2A/25 VDC

Operating Temperature: Amp: -20 to +50°C
 Sensor: -20 to +60°C

Operating Frequency: 20 Hz

Enclosure Rating: Amplifier IP40,
 Sensors IP67

LED Indication: Supply, Output, Signal
Connection: 11 pole circular socket
Dimensions: 35 x 80 x 84 mm
Sensors:
 MOF..: Ø10 x 42 mm
 MOF.. M12: M12 x 42 mm
 MOF.. M14: M14 x 42 mm

VP**Sensing Principle**

Liquid level sensing
 (Sensor tip in contact with liquid)
Supply Voltage: 10 - 40 VDC
Output: NO or NC, 200 mA
 NPN or PNP




Operating Temperature: -20 to +80°C

Operating Frequency: 30 Hz

Enclosure Rating: IP67,
LED Indication: Output

Connection: Cable or M12 plug
Dimensions: 3/8" x 74 mm
Options: Glass or plastic tip

Photoelectric sensors

	Edge infrared photoelectric safety switch	Heavy duty infrared barrier	Through-beam relay output
Types	IREPSS1	IRPHS20 / IRPHS60	PD180
Connections	Terminal block	Terminal block	Terminal block
			
Dimensions (mm)	34 x 190 x 32	60 x 130 x 52	180 x 51 x 49
Through-beam range			
Indoor sensing distance (max) m	10	20 / 60	15 / 30
General specifications			
Technology	Infrared	Infrared	Infrared
Supply voltage Receiver or Emitter	12/24 VAC/VDC (depending on jumper insertion)	12/24 VAC/VDC (depending on jumper insertion)	12 + 24 VAC/DC
Battery Supply Emitter			2 x 3,6 VDC, 2100 mAh Lithium Batteries size AA
Consumption	60 mA to 24 VAC (tx + rx)	110 mA to 24 VAC (tx + rx)	35 mA DC (55 mA DC with low battery alarm)
Output	changeover relay SPDT	NO and NC with double relay in series	2 x SPST
Contact rating	1 A @ 24 VAC (resistive load)	1 A @ 24 VAC (resistive load)	1 A @ 30 VDC (resistive load)
Approvals	CE	CE	CE - UL325
Conformity	EN 12453, EN 954-1, RoHS	EN 12453, EN 954-1, RoHS	EN 12445, EN12453, EN12978, RoHS
Test input			Emitter test input
Environmental specifications			
Wavelength	950 nm	950 nm	850 nm
Operating temperature	-20°C to +60°C	-20°C to +60°C	-25°C to +55°C
Degree of protection	IP 54	IP 66	IP 55
Mechanical specifications			
LED transmitter	Power signal	Power signal	None (energy saving)
LED receiver	Signal for alignment with transmitter	Signal for alignment with transmitter	Power ON - Green LED Output - Yellow LED
Optical adjustment		Horizontal 180°	Horizontal 200° Vertical ±30°
Mounting	Wall or ceiling mounted type	Wall mounted type	Wall mounted type
Weight	310g (couple)	940g (couple)	Emitter 270g Receiver 230g
Comments			Emitter is supplied with 2 x 3.6 VDC 2100 mAh Lithium Batteries



Sensors for Amplifiers

Types — MOF.. MNF.. MCF.. MDF..

Connections — 10 m Cable Terminals Terminals Terminals



Dimensions (mm) — Ø10 x 42 Ø20 x 80 Ø13.5 x 65 Ø13.5 x 55

Through-beam Emitter

Sensing distance (Sn) Max. ±2° optical angle	5 m MOFT5 MOFT5-M12-2			
Sensing distance (Sn) Max. ±2° optical angle	20 m MOFT20 MOFT20-M12-2			
Sensing distance (Sn) Max. ±2° optical angle	50 m MOFT50 MOFT50-M12-2			
Sensing distance (Sn) Max. ±5° optical angle	20 m MOFT20-5 MOFT20-M12-5			
Sensing distance (Sn) Max. ±8° optical angle	20 m MOFT20-8 MOFT20-M12-8 MOFT20-M14-8	15 m MNFT15 MMFT15	30 m MCFT30	30 m MDFR30

Through-beam Receiver

Operating frequency	Amplifier dependent	Amplifier dependent	Amplifier dependent	Amplifier dependent
Sensing distance (Sn) Max. ±2° optical angle	See emitter MOFR MOFR-M12-2 MOFR-5 MOFR-M12-5	See emitter	See emitter	See emitter
Max. ±5° optical angle	MOFR-8 MOFR-M12-8 MOFR-M14-8	MNFR15 MMFR15	MCFR30	MDFR30
Max. ±8° optical angle				

Characteristics

Rated operating voltage	Powered by Amplifier	Powered by Amplifier	Powered by Amplifier	Powered by Amplifier
Output	On Amplifier	On Amplifier	On Amplifier	On Amplifier
Operating frequency	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..
Degree of protection	IP 66 - IP 67	IP 67	IP 67	IP 67
Protection Short-circuit (S)				
Reverse polarity (P)				
Transients (T)	SPT	SPT	SPT	SPT
Housing material Sensor	Ø10: PC M14 + M14: PC + SS	PC M14 + M14: PC + SS	Acetal, glass reinforced	Acetal, glass reinforced
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	None	None	None	None
Approvals/Marks	CE	CE	CE	CE

Sense







Photoelectric Sensors

	Miniature, DC, Integrated Amplifier		DC, Integrated Amplifier	
Types	PD32.	PD32.M5	E.55...	E.55...-1
Connections	2 m Cable	M8 Connector	2 m Cable	M12 Connector
Dimensions (mm)	12 x 20 x 32	12 x 20 x 32	35 x 55 x 15	35 x 55 x 15
Diffuse reflective				
Operating frequency	1000 Hz	1000 Hz	500 Hz (*100 Hz)	500 Hz (*100 Hz)
Sensing distance (Sn)	500 mm, Teach-in	500 mm, Teach-in	200 mm, adjustable	200 mm, adjustable
NPN NO+NC	PD32CND50NPT	PD32CND50NPM5T	ED5502NPAP	ED5502NPAP-1
PNP NC+NC	PD32CND50PPT	PD32CND50PPM5T	ED5502PPAP	ED5502PPAP-1
Sensing distance (Sn)			600 mm, adjustable*	600 mm, adjustable*
NPN NO+NC			ED5506NPAP	ED5506NPAP-1
PNP NC+NC			ED5506PPAP	ED5506PPAP-1
Diffuse reflective background suppress.				
Operating frequency	1000 Hz	1000 Hz		
Sensing distance (Sn)	120 mm, Teach-in	120 mm, Teach-in		
NPN NO+NC	PD32CNB12NPT	PD32CNB12NPM5T		
PNP NC+NC	PD32CNB12PPT	PD32CNB12PPM5T		
Retro reflective Polariz.				
Operating frequency	1000 Hz	1000 Hz	250 Hz	250 Hz
Sensing distance (Sn)	3 m, Teach-in	3 m, Teach-in	2 m, adjustable	2 m, adjustable
NPN NO+NC	PD32CNP30NPT	PD32CNP30NPM5T	EP5520NPAP	EP5520NPAP-1
PNP NC+NC	PD32CNP30PPT	PD32CNP30PPM5T	EP5520PPAP	EP5520PPAP-1
Through-beam Emitter				
Sensing distance (Sn)	6 m	6 m	5 m	5 m
	PD32CNT60	PD32CNT60M5	ET5505	ET5505-1
Through-beam Receiver				
Operating frequency	500 Hz	500 Hz	100 Hz	100 Hz
Sensing distance (Sn)	6 m, Teach-in	6 m, Teach-in	5 m, adjustable	5 m, adjustable
NPN NO+NC	PD32CNT60NPT	PD32CNT60NPM5T	ET5505NPAP	ET5505PPAP
PNP NO+NC	PD32CNT60PPT	PD32CNT60PPM5T	ET5505NPAP-1	ET5505PPAP-1
Transparent detection				
Operating frequency	1000 Hz	1000 Hz		
Sensing distance (Sn)	500 mm, Teach-in	500 mm, Teach-in		
NPN NO+NC	PD32CNG05NPT	PD32CNG05NPM5T		
PNP NO+NC	PD32CNG05PPT	PD32CNG05PPM5T		
Characteristics				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.4 VDC	≤ 2.4 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67a
Protection Short-circuit (S)				
Reverse polarity (P)				
Transients (T)	SPT	SPT	SPT	SPT
Load current	≤ 100 mA	≤ 100 mA	≤ 200 mA	≤ 200 mA
Housing material	ABS	ABS	PC/ABS	PC/ABS
Operating temperature	-25°C to +60°C	-25°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow	Yellow
Approvals/Marks	CE - cUL	CE - cUL	CE	CE





	M18 Plastic, DC, Integrated Amplifier		M18 Metal, DC, Integrated Amplifier	
Types	PA18CS.	PA18CS.M1	E.18..	E.18..-1
Connections	2 m Cable	M12 Connector	2 m Cable	M12 Connector
				
Dimensions (mm)	M18 x 55	M18 x 67	M18 x 55	M18 x 67
Diffuse reflective				
Operating frequency	100 Hz	100 Hz	100 Hz	100 Hz
Sensing distance (Sn)	100 mm, fixed	100 mm, fixed		
NPN NO+NC	PA18CSD01NA	PA18CSD01NAM1		
PNP NO+NC	PA18CSD01PA	PA18CSD01PAM1		
Sensing distance (Sn)	200 mm, fixed	200 mm, fixed		
NPN NO+NC	PA18CSD02NA	PA18CSD02NAM1		
PNP NC+NC	PA18CSD02PA	PA18CSD02PAM1		
Sensing distance (Sn)	400 mm, fixed	400 mm, fixed		
NPN NO+NC	PA18CSD04NA	PA18CSD04NAM1		
PNP NC+NC	PA18CSD04PA	PA18CSD04PAM1		
Sensing distance (Sn)	400 mm, adjustable	400 mm, adjustable	400 mm, adjustable	400 mm, adjustable
NPN NO+NC	PA18CSD04NASA	PA18CSD04NAM1SA	EO1804NPAS	EO1804NPAS-1
PNP NC+NC	PA18CSD04PASA	PA18CSD04PAM1SA	EO1804PPAS	EO1804PPAS-1
Retro reflective Polariz.				
Operating frequency	100 Hz	100 Hz	100 Hz	100 Hz
Sensing distance (Sn)	2 m, fixed	2 m, fixed	2 m, adjustable	2 m, adjustable
NPN NO+NC	PA18CSP20NA	PA18CSP20NAM1	EP1820NPAS	EP1820NPAS-1
PNP NO+NC	PA18CSP20PA	PA18CSP20PAM1	EP1820PPAS	EP1820PPAS-1
Retro reflective				
Operating frequency	100 Hz	100 Hz	100 Hz	100 Hz
Sensing distance (Sn)	3 m, fixed	3 m, fixed	3 m, adjustable	3 m, adjustable
NPN NO+NC	PA18CSR30NA	PA18CSR30NAM1	ER1830NPAS	ER1830NPAS-1
PNP NO+NC	PA18CSR30PA	PA18CSR30PAM1	ER1830PPAS	ER1830PPAS-1
Through-beam Emitter				
Sensing distance (Sn)	10 m	10 m	20 m	20 m
	PA18CST10	PA18CST10M1	ET1820	ET1820-1
Through-beam Receiver				
Operating frequency	100 Hz	100 Hz	100 Hz	100 Hz
Sensing distance (Sn)	10 m, fixed	10 m, fixed	20 m, adjustable	20 m, adjustable
NPN NO+NC	PA18CST10NA	PA18CST10NAM1	ET1820NPAS	ET1820NPAS-1
PNP NO+NC	PA18CST10PA	PA18CST10PAM1	ET1820PPAS	ET1820PPAS-1
Retro reflective				
Operating frequency			100 Hz	100 Hz
Sensing distance (Sn)			Fibre dependent	Fibre dependent
NPN NO+NC			EF1801NPAS	EF1801NPAS-1
PNP NO+NC			EF1801PPAS	EF1801PPAS-1
Characteristics				
Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection Short-circuit(S)				
Rev. polarity(P)-Transients(T)	SPT	SPT	SPT	SPT
Load current	< 200 mA	< 200 mA	< 200 mA	< 200 mA
Housing material	Polyester (PBTP)	Polyester (PBTP)	Nickel-plated brass	Nickel-plated brass
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE	CE	CE	CE

Sense

По вопросам продаж и поддержки обращайтесь:

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Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
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