Photoelectric Sensors

Accurate, Reliable

Superb Technology of Industrial Control

Mibbo

Manufacturing Products for QA Customers

Manufacturing Products for QA Customers

Mibbo

Family

>>>About Mibbo

Mibbo is committed to researching and developing, manufacturing and selling industrial control products. To serve the midrange and high end equipment manufactures and system integrators. It pursues "Manufacturing products for QA Customers" to provide customers with high quality products and personalized solutions, and finally to achieve corporate value and customer value growth.

Photoelectric Sensor is one of the major products in Mibbo. Providing high quality and reliable solutions in many fields, such as Industrial automation control system, industrial machinery equipment, safety control system, limit protection, location detection, signal transmission, automatic technology, speed measurement etc.

>>>Catalogue

- Series includes models that enable switching between dark-ON and light-on operation
- Response frequency as high as 1kHz
- Easy operation monitoring with bright light indicator
- Wide operating voltage range: 5 to 24 VDC
- Models in which the light indicator turns ON for dark-ON operation are also available
- A wide range of variations in eight different shapes
- Flexible robot cable is provided as a standard feature

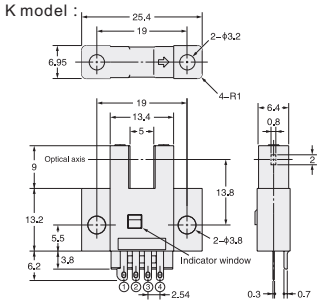



Type		K	L	T	E
Sensing distance		5mm	5mm	5mm	5mm
Item	NPN Light-ON+Dark-ON	PW-K05NCV	PW-L05NCV	PW-T05NCV	PW-E05NCV
	PNP Light-ON+Dark-ON	PW-K05PCV	PW-L05PCV	PW-T05PCV	PW-E05PCV

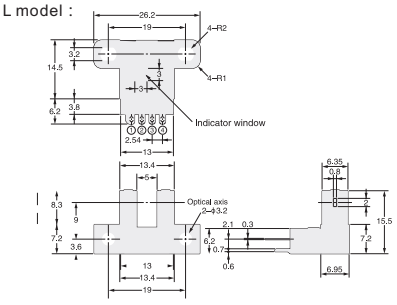
Technical Parameter		
Sensing method		Through beam type
Sensing distance		5m(slot width)
Sensing object		Opaque: 2x0.8mm min.
Differential distance		0.025mm max.
Light source(wavelength)		GaAs infrared LED with a peak wavelength of 940nm
Indicator		Light indicator (red)
Supply voltage		DC5~24V±10%
current consumption		35mA max. (NPN models) 、30mA max. (PNP models)
Control output		NPN open collector:5 to 24 VDC,100mA max. 100mA load current with a residual voltage of 0.8V max.40mA load current with a residual voltage of 0.8V max. OFF current(leakage current):0.5mA max. PNP open collector:5 to 24 VDC,50mA max. 50 mA load current with a residual voltage of 1.3V max.OFF current (leakage current):0.5mA max.
Response frequency		1kHz min (average:3kHz)
Ambient illumination		Receiving surface illmination fluorescent light: 1,000lx max.
Ambient temperature range		Operating: -25~+55° C Storage: -30~+80° C (with no icing or condensation)
Ambient humidity range		Operating: 5~85%RH Storage: 5~95%RH (with no icing or condensation)
Vibration resistance		20~2,000Hz (peak acceleration 100m/s²) Double amplitude 1.5mm X、Y、Z in each direction 2h(4min periods)
Shock resistance		500m/s² X、Y、Z in each direction 3times
Degree of protection		IP50 IEC60529规格
Connecting method		Connector Models (Direct soldering possible) Pre-wired Models (Standard cable length:1m)
Material	Case	Polybutylene phthalate(PBT)
	Cover/Emitter/receiver	Polycarbonate

Dimensions

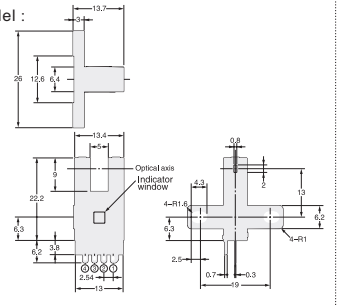
K model :



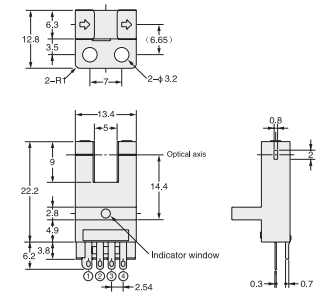
L model :



T model :

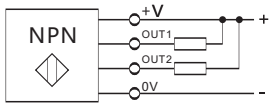


E model :



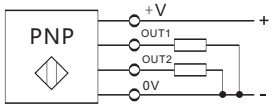
Wiring Diagram

NPN Light-ON+Dark-ON



OUT1	Light-ON
OUT2	Dark-ON

PNP Light-ON+Dark-ON



OUT1	Light-ON
OUT2	Dark-ON

Junction and Connector	
SL2-C	Connector(welded-without cable)
SL2-C2	Connector(welded-with 2m pvc cable)
SL2-C2R	Connector(welded- with 2m TRVV)

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- Response frequency as high as 1kHz
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- Wide operating voltage range: 5 to 24 VDC
- Models in which the light indicator turns ON for dark-ON operation are also available
- A wide range of variations in eight different shapes
- Flexible robot cable is provided as a standard feature

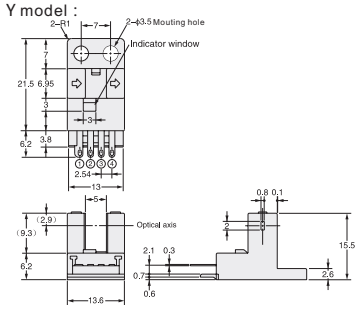



Type		Y	K	L	T
Sensing distance		5mm	5mm	5mm	5mm
Item	NPN Light-ON+Dark-ON	PW-Y05NCV	PW-K05NC	PW-L05NC	PW-T05NC
	PNP Light-ON+Dark-ON	PW-Y05PCV	PW-K05PC	PW-L05PC	PW-T05PC

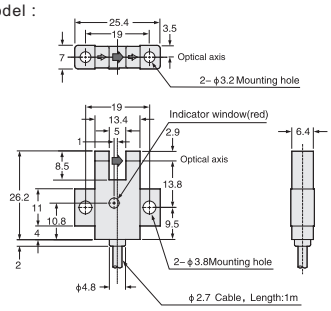
Technical Parameter		
Sensing method		Through beam type
Sensing distance		5m(slot width)
Sensing object		Opaque: 2x0.8mm min.
Differential distance		0.025mm max.
Light source(wavelength)		GaAs infrared LED with a peak wavelength of 940nm
Indicator		Light indicator (red)
Supply voltage		DC5～24V±10%
current consumption		35mA max. (NPN models) 、30mA max. (PNP models)
Control output		NPN open collector:5 to 24 VDC,100mA max. 100mA load current with a residual voltage of 0.8V max.40mA load current with a residual voltage of 0.8V max. OFF current(leakage current):0.5mA max. PNP open collector:5 to 24 VDC,50mA max. 50 mA load current with a residual voltage of 1.3V max.OFF current (leakage current):0.5mA max.
Response frequency		1kHz min (average:3kHz)
Ambient illumination		Receiving surface illmination fluorescent light: 1,000lx max.
Ambient temperature range		Operating: -25～+55° C Storage: -30～+80° C (with no icing or condensation)
Ambient humidity range		Operating: 5～85%RH Storage: 5～95%RH (with no icing or condensation)
Vibration resistance		20～2,000Hz (peak acceleration 100m/s²) Double amplitude 1.5mm X、Y、Z in each direction 2h(4min periods)
Shock resistance		500m/s²X、Y、Z in each direction 3times
Degree of protection		IP50 IEC60529规格
Connecting method		Connector Models (Direct soldering possible) Pre-wired Models (Standard cable length:1m)
Material	Case	Polybutylene phthalate(PBT)
	Cover/Emitter/receiver	Polycarbonate

Dimensions

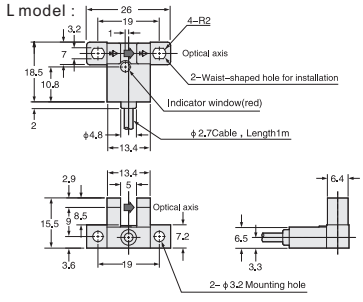
Y model :



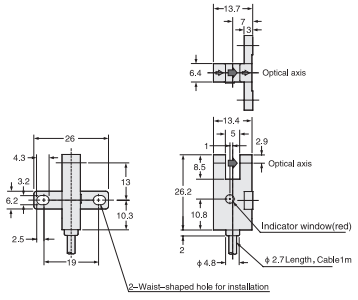
K model :



L model :

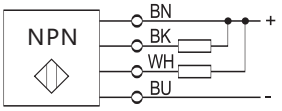


T model :



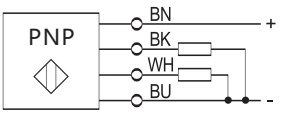
Wiring Diagram

NPN Light-ON+Dark-ON



BK	Light-ON
WH	Dark-ON

PNP Light-ON+Dark-ON



BK	Light-ON
WH	Dark-ON

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- Response frequency as high as 1kHz
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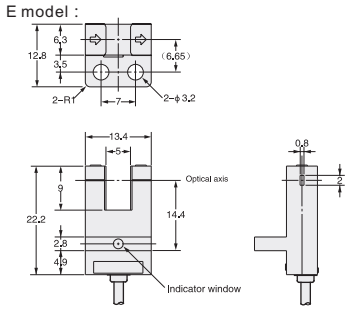
Type		E	Y	F	R
Sensing distance		5mm	5mm	5mm	5mm
Item	NPN Light-ON+Dark-ON	PW-E05NC	PW-Y05NC	PW-F05NC	PW-R05NC
	PNP Light-ON+Dark-ON	PW-E05PC	PW-Y05PC	PW-F05PC	PW-R05PC

Technical Parameter

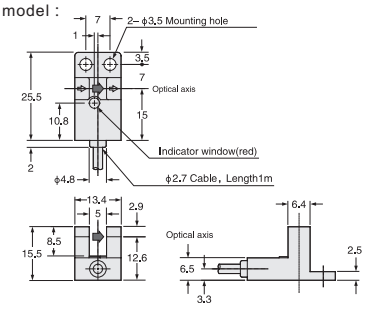
Sensing method		Through beam type
Sensing distance		5m(slot width)
Sensing object		Opaque: 2x0.8mm min.
Differential distance		0.025mm max.
Light source(wavelength)		GaAs infrared LED with a peak wavelength of 940nm
Indicator		Light indicator (red)
Supply voltage		DC5~24V±10%
current consumption		35mA max. (NPN models) 、30mA max. (PNP models)
Control output		NPN open collector:5 to 24 VDC,100mA max. 100mA load current with a residual voltage of 0.8V max.40mA load current with a residual voltage of 0.8V max. OFF current(leakage current):0.5mA max. PNP open collector:5 to 24 VDC,50mA max. 50 mA load current with a residual voltage of 1.3V max.OFF current (leakage current):0.5mA max.
Response frequency		1kHz min (average:3kHz)
Ambient illumination		Receiving surface illmination fluorescent light: 1,000lx max.
Ambient temperature range		Operating: -25~+55° C Storage: -30~+80° C (with no icing or condensation)
Ambient humidity range		Operating: 5~85%RH Storage: 5~95%RH (with no icing or condensation)
Vibration resistance		20~2,000Hz (peak acceleration 100m/s²) Double amplitude 1.5mm X、Y、Z in each direction 2h(4min periods)
Shock resistance		500m/s² X、Y、Z in each direction 3times
Degree of protection		IP50 IEC60529规格
Connecting method		Connector Models (Direct soldering possible) Pre-wired Models (Standard cable length:1m)
Material	Case	Polybutylene phthalate(PBT)
	Cover/Emitter/receiver	Polycarbonate

Dimensions

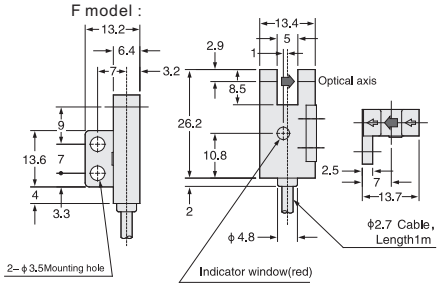
E model :



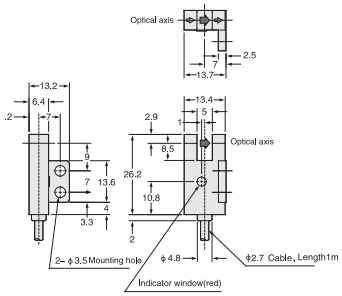
Y model :



F model :

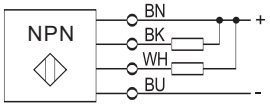


R model :



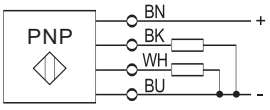
Wiring Diagram

NPN Light-ON+Dark-ON



BK	Light-ON
WH	Dark-ON

PNP Light-ON+Dark-ON



BK	Light-ON
WH	Dark-ON

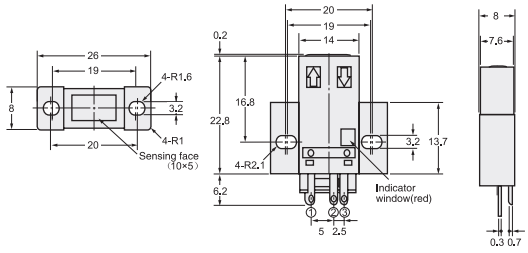
- A shiny background can be used as long as the distance between the sensor and the background is 20mm or more
- Detects minute objects such as a 0.05-mm-dia. pure copper wire
- Small dispersion in sensing distance
- Light modulation effectively reduces external light interference
- Wide operating voltage range: 5 to 24 VDC

Type		A	B
Sensing distance		25mm	25mm
Item	NPN Light-ON	PX-A25NAW	PX-B25NAW
	NPN Dark-ON	PX-A25NBW	PX-B25NBW

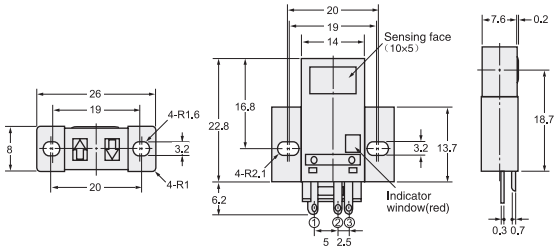
Technical Parameter		
Sensing method		Convergent reflective type
Sensing distance		2～25mm（Reflection factor 90%　15×15mm white paper）
Sensing object		Φ 0.05mm Pure copper wire
Differential distance		0.2mm max.
Light source(wavelength)		GaAs infrared LED with a peak wavelength（940nm）
Supply voltage		DC5～24V ± 10%
current consumption		Average：15mA　Peak：50mA max.
Control output		NPN voltage output: Load power supply voltage: 5 to 24 VDC Load current: 80 mA max. OFF current: 0.5 mA max. 80 mA load current with a residual voltage of 1.0 V max. 10 mA load current with a residual voltage of 0.4 V max.
Response frequency		100Hz min.
Ambient illumination		Receiving surface illmination　fluorescent light：1,000lx max.
Ambient temperature range		Operating：-10～+55° C　Storage：-25～+65° C（with no icing or condensation）
Ambient humidity range		Operating：5～85%RH　Storage：5～95%RH（with no icing or condensation）
Vibration resistance		10～55Hz double amplitude 1.5mm　X、Y、Z in each direction 2h
Shock resistance		500m/s²X、Y、Z in each direction 3times
Degree of protection		IP50 IEC60529规格
Connecting method		Special connector（soldering not possible）
Material	Case	Polycarbonate
	Holder	Polybutylene phthalate(PBT)

Dimensions

A model：

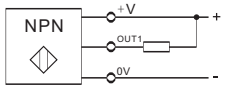


B model：



Wiring Diagram

NPN Light-ON/Dark-ON



Ultrathin Photoelectric Sensor with Build-in Amplifier

- Thickness 3.5mm
- High speed reaction : 0.5ms
- Flexible installation
- Through beam type

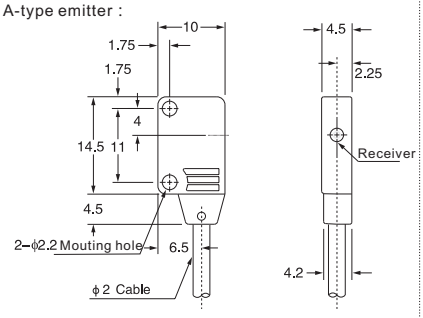
Type		A	A	B	B
Sensing distance		15cm	50cm	15cm	50cm
Item	NPN Light-ON	PC-A150NA	PC-A500NA	PC-B150NA	PC-B500NA
	NPN Dark-ON	PC-A150NB	PC-A500NB	PC-B150NB	PC-B500NB

Technical Parameter		
Sensing method		Throughbeam
Minimum detectable		Opaque: 1mm
Light source(wavelength)		Infrared LED (680nm)
Supply voltage		12~24V DC pulse (P-P) ±10% max.
Current consumption		Emitter: 10mA max. Receiver: 10mA
Protection circuits		Short-circuit protection
Response time		0.5ms max.
Control output		Load power supply voltage:26.4V DC max.; Load current: 50mA max. (Load current with a residual voltage: 2V max.)
Ambient illumination		Incandescent lamp: 5,000lx max.
Ambient temperature		Operating: -25~+55° C 、Storage: 30~+70° C (with no icing or condensation)
Ambient humidity		Operating: 35~85%RH 、Storage: 35~85%RH (with no icing or condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance		10~500Hz 3mm double amplitude for 2 hours each in X,Y and Z directions
Shock resistance		500m/s²X、Y、Z in each direction 3times
Degree of protection		IEC-IP67
Material	Case	Modified polyarylate
	Sensing surface	Modified polyarylate
Accessories		M2x8 screws, Spring gasket, Flat gasket

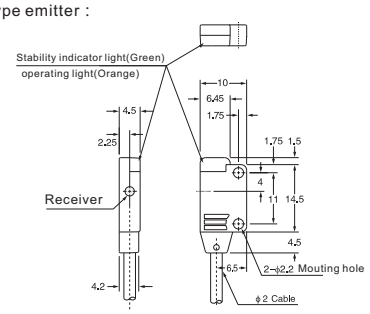
Remarks : PC-A150NA : Emitter+Receiver PC-A150NA-L : Emitter PC-A150NA-D : Receiver

Dimensions

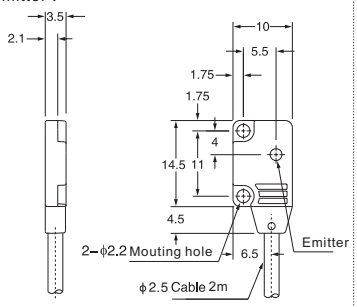
A-type emitter :



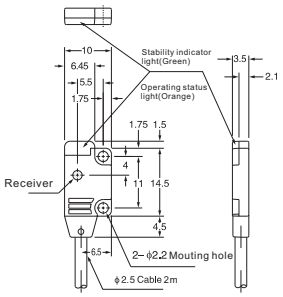
A-type emitter :



B-type emitter :

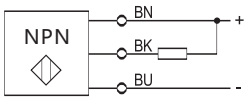


B-type emitter :

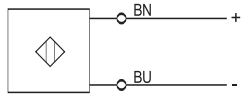


Wiring Diagram

Throughbeam Receiver Light-ON/Dark-ON



Throughbeam Emitter



- Easy installation with M3-mounting Sensors
- Long-distance(1m) Sensor
- Ultracompact,Photoelectric Sensor
- Through beam type



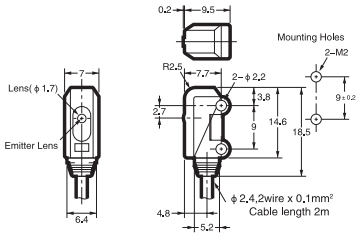

Type		C	C	D	D
Sensing distance		1m	30cm	2m	2m
Item	Light-ON	PC-CM01NA	PC-C300NA	PC-DM02NA	PC-DM02PA
	Dark-ON	PC-CM01NB	PC-C300NB	PC-DM02NB	PC-DM02PB

Technical Parameter		
Sensing method		Throughbeam
Standard sensing object		Opaque: 2mm min.
Minimum detectable		Opaque: 2mm (reference value)
Directional angle		Emitter: 3~15° Receiver: 3~15°
Light source(wavelength)		Infrared LED (650nm)
Supply voltage		12~24V DC pulse (P-P) ±10% max.
Current consumption		Emitter: 10mA max. Receiver: 20mA
Protection circuits		Power supply and control output reverse polarity protection,Output short-circuit protection
Response time		1.0ms max.
Control output		Load power supply voltage:26.4V DC max.; Load current: 50mA max. (Load current with a residual voltage: 2V max.)
Ambient illumination		Sunlight: 10,000lx max.; Incandescent lamp: 5,000lx max.
Ambient temperature		Operating: -25~+55° C、Storage: -40~+70° C (with no icing or condensation)
Ambient humidity		Operating: 35~85%RH、Storage: 35~95%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance	Destruction	10~2,000Hz double amplitude for 0.5 hours each in X、Y and Zdirections
Shock resistance	Destruction	1000m/s²X、Y、Z 3 times each X、Y and Z directions
Degree of protection		IEC-IP67
Material	Case	PBT
	Sensing surface	Modified polyarylate

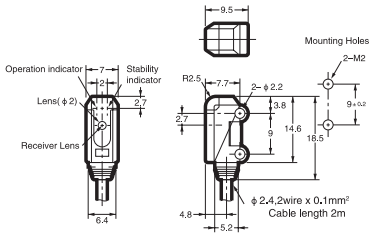
Remarks : PC-CM01NA : Emitter+Receiver PC-CM01NA : Emitter PC-CM01NA-D : Receiver

Dimensions

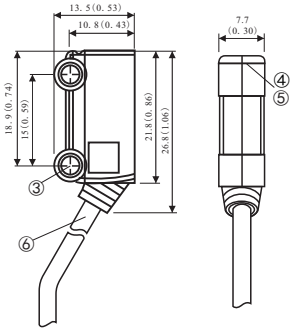
C-type emitter :



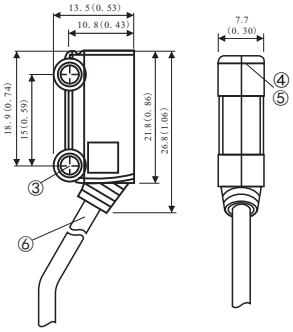
C-type emitter :



D-type emitter :



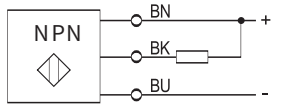
D-type emitter :



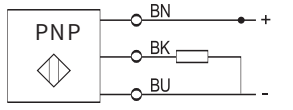
Wiring Diagram

Throughbeam Receiver

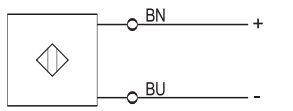
NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Throughbeam Emitter



Threaded Cylindrical Photo Sensor(Plastics Housing)

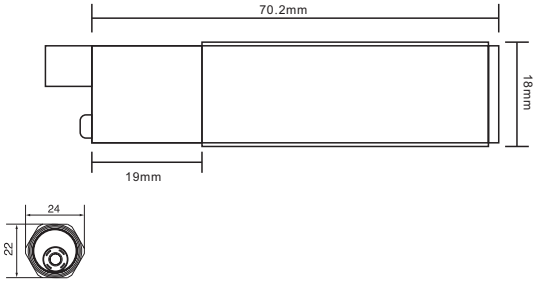
- Same appearance as cylindrical proximity sensor
- M18 threaded cylindrical outdrawing
- Short circuit and reverse connection protection

Type		H18	H18
Sensing distance		5m	3m
Item	NPN Light-ON+Dark-ON	PA-H18TM05NC	PA-H18DM03NC
	PNP Light-ON+Dark-ON	PA-H18TM05PC	PA-H18DM03PC
	NPN Light-ON/Dark-ON	PA-H18TM05NA/B	PA-H18DM03NA/B
	PNP Light-ON/Dark-ON	PA-H18TM05PA/B	PA-H18DM03PA/B

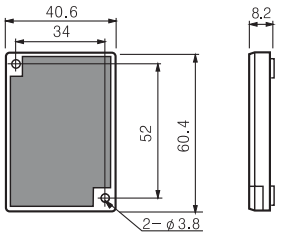
Technical Parameter			
Sensing method		Throughbeam	Retro-reflective Modles
Response time		1.0ms max.	
Control output		Load power supply voltage: 12-24V DC Load current: 100mA max. (Load current with a residual voltage: 1V max.)	
Light source(wavelength)		Infrared LED	
Ambient illumination		Receiver side Incandescent lamp: 3,000lx max.	
Ambient temperature		Operating: -25~+55° C 、Storage: -30~+70° C (with no icing or condensation)	
Ambient humidity		Operating: 45~85%RH 、Storage: 35~95%RH (with no condensation)	
Insulation resistance		20MΩ min. (DC500V)	
Dielectric strength		AC1,000V 50/60Hz 1min	
Vibration resistance		10~55Hz double amplitude for 2 hours each in X、Y and Z directions	
Shock resistance		500m/s²X、Y、Z in each direction 3times	
Degree of protection		Ip66	
Material	Case	PBT	
	Sensing surface	Methacrylic resin	
Mode connection		Two meters cable (3×0.75mm²)	
Accessories		Nuts	

Remarks : PA-H18TM05NC : Emitter+Receiver PA-H18TM05NC-L : Emitter PA-H18TM05NC-D : Receiver

Dimensions



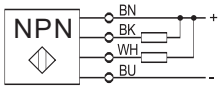
baffle-board
(Sf3)



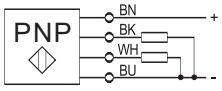
Wiring Diagram

Throughbeam Receiver
Retro-reflective Models

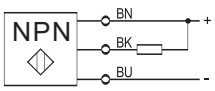
NPN Light-ON+Dark-ON



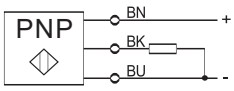
PNP Light-ON+Dark-ON



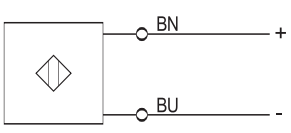
NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Throughbeam Emitter

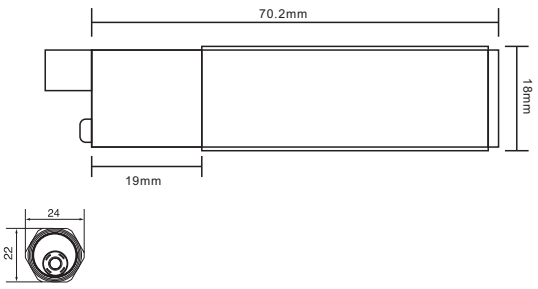


- Same appearance as cylindrical proximity sensor
- M18 threaded cylindrical outdrawing
- With distance sensitivity and adjustable
- Short circuit and reverse connection protection

Type		H18	H18
Sensing distance		10cm	30cm
Item	NPN Light-ON+Dark-ON	PA-H18B100NC	PA-H18B300NC
	PNP Light-ON+Dark-ON	PA-H18B100PC	PA-H18B300PC
	NPN Light-ON/Dark-ON	PA-H18B100NA/B	PA-H18B300NA/B
	PNP Light-ON/Dark-ON	PA-H18B100PA/B	PA-H18B300PA/B

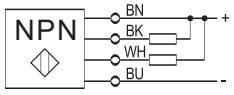
Technical Parameter		
Sensing method		Diffuse-reflective
Differential travel		20%max.of sensing distance
Response time		1.0ms max.
Sensitivity adjustment		Yes
Control output		Load power supply voltage: 12-24V DC Load current: 100mA max. (Load current with a residual voltage: 1V max.)
Light source(wavelength)		Infrared LED
Ambient illumination		Receiver side Incandescent lamp: 3,000lx max.
Ambient temperature		Operating: -25~+55° C、Storage: -30~+70° C (with no icing or condensation)
Ambient humidity		Operating: 45~85%RH、Storage: 35~95%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance		10~55Hz double amplitude for 2 hours each in X、Y and Z directions
Shock resistance		500m/s²X、Y、Z in each direction 3times
Degree of protection		Ip66
Material	Case	PBT
	Sensing surface	Methacrylic resin
Mode connection		Two meters cable (3×0.75mm²)
Accessories		Nuts

Dimensions

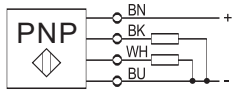


Wiring Diagram

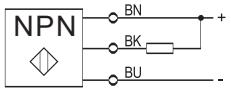
NPN Light-ON+Dark-ON



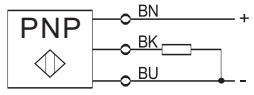
PNP Light-ON+Dark-ON



NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Threaded Cylindrical Photo Sensor(Metal Housing)

- Same appearance as cylindrical proximity sensor
- M18 threaded cylindrical outdrawing
- Short circuit and reverse connection protection

Type		R18	R18
Sensing distance		5m	3m
Item	NPN Light-ON+Dark-ON	PB-R18TM05NC	PB-R18DM03NC
	PNP Light-ON+Dark-ON	PB-R18TM05PC	PB-R18DM03PC

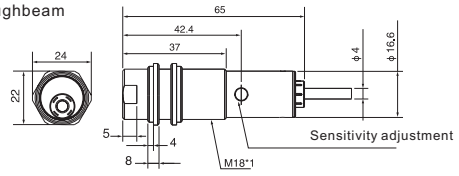
Technical Parameter			
Sensing method		Throughbeam	Retro-reflective
Response Time		1.0ms max.	
Comtrol output		Load power supply voltage: 12-24V DC Load current: 100mA max. (Load current with a residual voltage: 1V max.)	
Light source(wavelength)		Infrared LED	
Ambient illumination		Receiver side Incandescent lamp: 3,000lx max.	
Ambient temperature		Operating: -25～+55° C 、Storage: -30～+70° C (with no icing or condensation)	
Ambient humidity		Operating: 45～85%RH 、Storage: 35～95%RH (with no icing or condensation)	
Insulation resistance		20MΩ min. (DC500V)	
Dielectric strength		AC1,000V 50/60Hz 1min	
Vibration resistance		10～55Hz double amplitude for 2 hours each in X、Y and Zdirections	
Shock resistance		500m/s²X、Y、Z 3 times each X、Y and Z directions	
Degree of protection		IEC60529 IP66	
Material	Case	Brass-nickel plated	
	Sensing surface	Methacrylic resin	
Mode connection		Two meters cable (3×0.75mm²)	
Accessories		Nuts	

Remarks : PB-R18TM05NC : Emitter+Receiver PB-R18TM05NC-L : Emitter PB-R18TM05NC-D : Receiver

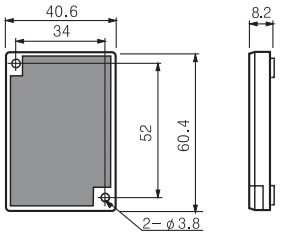
Dimensions

Retro-reflective Modles

Throughbeam



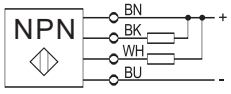
baffle-board (SF3)



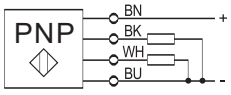
Wiring Diagram

Throughbeam Receiver
Retro-reflective Models

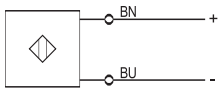
NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Throughbeam Emitter

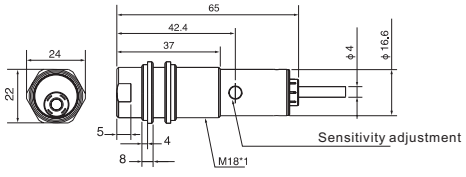


- Same appearance as cylindrical proximity sensor
- M18 threaded cylindrical outdrawing
- With distance sensitivity and adjustable
- Short circuit and reverse connection protection

Type		R18	R18
Sensing distance		10cm	30cm
Item	NPN Light-ON+Dark-ON	PB-R18B100NC	PB-R18B300NC
	PNP Light-ON+Dark-ON	PB-R18B100PC	PB-R18B300PC
	NPN Light-ON/Dark-ON	PB-R18B100NA/B	PB-R18B300NA/B
	PNP Light-ON/Dark-ON	PB-R18B100PA/B	PB-R18B300PA/B

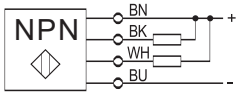
Technical Parameter		
Sensing method		Diffuse-reflective
Differential travel		20%max.of sensing distance
Response time		1.0ms max.
Sensitivity adjustment		Yes
Control output		Load power supply voltage: 12-24V DC Load current: 100mA max. (Load current with a residual voltage: 1V max.)
Light source(wavelength)		Infrared LED
Ambient illumination		Receiver side Incandescent lamp: 3,000lx max.
Ambient temperature		Operating: -25~+55° C、Storage: -30~+70° C (with no icing or condensation)
Ambient humidity		Operating: 45~85%RH、Storage: 35~95%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance		10~55Hz double amplitude for 2 hours each in X、Y and Z directions
Shock resistance		500m/s²X、Y、Z in each direction 3times
Degree of protection		Ip66
Material	Case	Brass-nickel plated
	Sensing surface	Methacrylic resin
Mode connection		Two meters cable (3×0.75mm²)
Accessories		Nuts

Dimensions

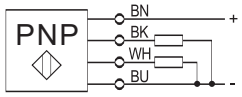


Wiring Diagram

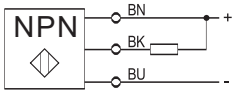
NPN Light-ON+Dark-ON



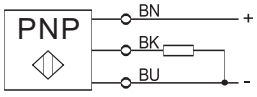
PNP Light-ON+Dark-ON



NPN Light-ON/Dark-ON



PNP Light-ON/Dark-ON



- Mechanical axis and optical axis offset of less than ±2.5° simplifies optical axis adjustment
- High stability with unique algorithm that prevents interference of external light
- Operating Temperature: - 20℃~60℃

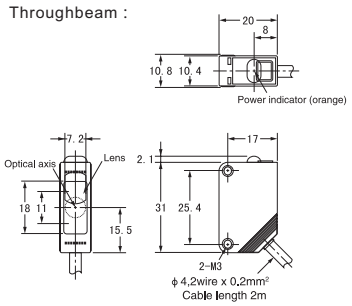
Type		A	A
Sensing distance		10m	2m
Item	NPN Light-ON+Dark-ON	PB-SATM 10N	PB-SADM 02N
	PNP Light-ON+Dark-ON	PB-SATM 10P	PB-SADM 02P

Technical Parameter			
Sensing method		Throughbeam	Retro-reflective
Standard sensing obkect		Opaque : 12mm min.	Opaque : 75mm min.
Directional angle		3～15°	2～10°
Current consumption		Emitter : 15mA Receiver : 20mA	30mA max.
Protection cirtults		Reversed power supply polarity protection , Output short-circuit protection	Reversed power supply polarity protection , Output short-circuit protection, Mutual interference prevention,and reversed output polarity protection
Response Time		1.0ms max.	2.0ms max.
Voltage		12～24VDC pulse(P-P)±10% max.	
Comtrol output		Load power supply voltage: 26.4V DC max Load current: 100mA max. (Load current with a residual voltage: 1V max.)	
Light source(wavelength)		Infrared LED	
Ambient illumination		Sunlight : 10,000lx max. ; Incandescent lamp : 3,000lx max.	
Ambient temperature		Operating : -25～+55°C 、Storage : -40～+70°C (with no icing or condensation)	
Ambient humidity		Operating : 35～85%RH 、Storage : 35～90%RH (with no condensation)	
Insulation resistance		20MΩ min. (DC500V)	
Dielectric strength		AC1,000V 50/60Hz 1min	
Vibration resistance	Destruction	10～55Hz double amplitude for 2 hours each in X、Y and Zdirections	
Shock resistance	Destruction	500m/s² X、Y、Z 3 times each X、Y and Z directions	
Degree of protection		IEC-IP67	
Material	Case	PBT	
	Sensing surface	Modified polyarylate	
Mode connection		Two meters cable (3×0. 75mm²)	

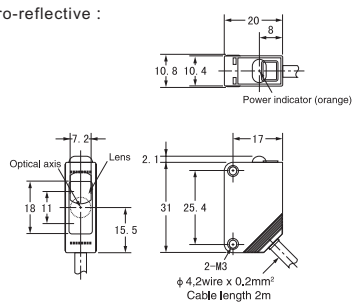
Remarks : ①PB-SATM10NC : Emitter+Receiver PB-SATM10NC-L : Emitter PB-SATM10NC-D : Receiver ②Adjust the Light-ON/Dark-ON by rotating

Dimensions

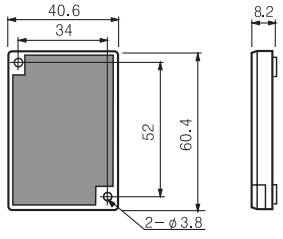
Throughbeam :



Retro-reflective :



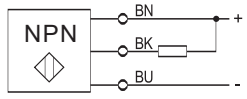
baffle-board
(Sf3)



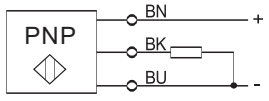
Wiring Diagram

Throughbeam Receiver
Retro-reflective Models

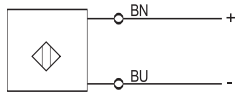
NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Throughbeam Emitter

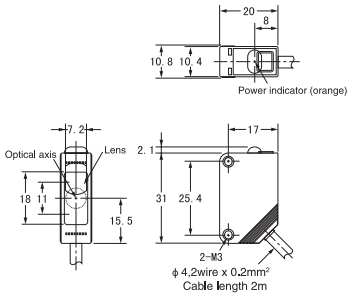


- Mechanical axis and optical axis offset of less than ±2.5° simplifies optical axis adjustment
- High stability with unique algorithm that prevents interference of external light
- Operating Temperature: - 20℃~60℃

Type		A	A
Sensing distance		10cm	40cm
Item	NPN Light-ON+Dark-ON	PB-SAB100N	PB-SAB400N
	PNP Light-ON+Dark-ON	PB-SAB100P	PB-SAB400P

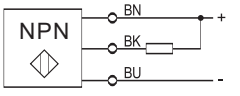
Technical Parameter		
Sensing method		Diffuse-reflective
Differential travel		20%max.of sensing distance
Voltage		12~24V DC pulse(P-P)±10% max.
Current consumption		30mA max.
Protection cirtults		Reversed power supply polarity protection ,Output short-circuit protection,Mutual interference prevention,and reversed output polarity protection
Response Time		1.0ms max.
Control output		Load power supply voltage: 26.4V DC max Load current: 100mA max. (Load current with a residual voltage: 1V max.)
Light source(wavelength)		Infrared LED
Ambient illumination		Sunlight : 10,000lx max. ; Incandescent lamp : 3,000lx max.
Ambient temperature		Operating : -25~+55℃ 、Storage : -40~+70℃ (with no icing or condensation)
Ambient humidity		Operating : 35~85%RH 、Storage : 35~90%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance	Destruction	10~55Hz double amplitude for 2 hours each in X、Y and Zdirections
Shock resistance	Destruction	500m/s^2 X、Y、Z 3 times each X、Y and Z directions
Degree of protection		IEC-IP67
Material	Case	PBT
	Sensing surface	Modified polyarylate
Mode connection		Two meters cable (3×0. 75mm^2)

Dimensions

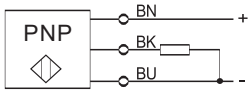


Wiring Diagram

NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Long-distance Photoelectric Sensor That Supports AC/DC Power Supplies

- Improved visibility(A red LED that makes the spot visible. Large indicators that can be seen even from a distance)
- Improved operability(Enlarged sensitivity adjuster and operation selector)
- Freely selectable power supply input (24 to 240 VDC, 24 to 240 VAC)

Type		B			
Sensing distance		20m	40m	2m	4m
Item	Relay	PB-SBTM20R	PB-SBTM40R	PB-SBDM02R	PB-SBDM04R

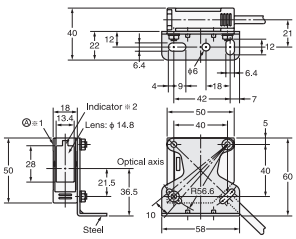
Technical Parameter

Sensing method		Throughbeam	Retro-reflective Modles
Response Time		30ms max.	
Directional angle		Both Emitter and Receiver : 3～20°	——
Life expectancy (relay output)		Mechanical : 50,000,000 times min. (switching frequency : 18,000 times/h) Electrical : 100,000 times min. (switching frequency : 18,000 times/h)	
Light source(wavelength)		Infrared LED (950nm)	
Ambient illumination		Receiver side Incandescent lamp : 3,000lx max.	
Ambient temperature		lamp : -25～+70℃ 、Operating : -40～+85℃ (with no icing or condensation)	
Ambient humidity		lamp : 45～85%RH 、Operating : 35～95%RH (with no condensation)	
Insulation resistance		20MΩ min. (DC500V)	
Dielectric strength		AC1,500V 50/60Hz 1min	
Vibration resistance		10～55Hz double amplitude for 2 hours each in X、Y and Zdirections	
Shock resistance	Destruction	500m/s² X、Y、Z 3 times each X、Y and Z directions	
	Malfunction	1000m/s² X、Y、Z 3 times each X、Y and Z directions	
Degree of protection		IEC-IP64	
Material	Case	PBT	
	Sensing surface	Methacrylic resin	
Mode connection		Two meters cable (3×0. 75mm²)	
Accessories		Mounting Bracket	

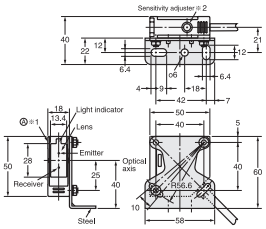
Remarks : ①PB-SBTM20R : Emitter+Receiver PB-SBTM20R-L : Emitter PB-SBTM20R-D : Receiver

Dimensions

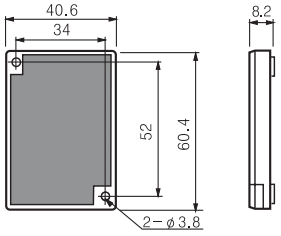
Throughbeam :



Retro-reflective :

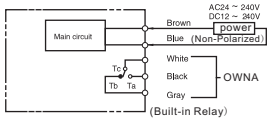


baffle-board
(Sf3)

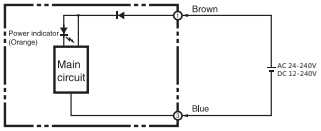


Wiring Diagram

Throughbeam Receiver
Retro-reflective Models



Throughbeam Emitter

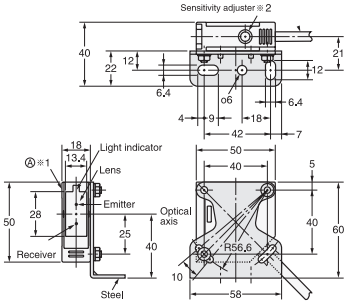


- Improved visibility(A red LED that makes the spot visible. Large indicators that can be seen even from a distance)
- Improved operability(Enlarged sensitivity adjuster and operation selector)
- Freely selectable power supply input (24 to 240 VDC, 24 to 240 VAC)

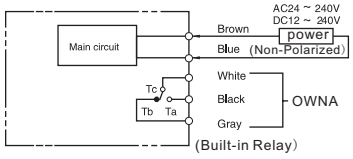
Type		B
Sensing distance		60cm
Item	Relay	PB-SBB600R

Technical Parameter		
Sensing method		Diffuse-reflective
Differential travel		20%max.of sensing distance
Response Time		30ms max.
Life expectancy (relay output)		Mechanical : 50,000,000 times min. (switching frequency : 18,000 times/h) Electrical : 100,000 times min. (switching frequency : 18,000 times/h)
Light source(wavelength)		Infrared LED (950nm)
Ambient illumination		Receiver side Incandescent lamp : 3,000lx max.
Ambient temperature		lamp : -25～+70℃、Operating : -40～+85℃ (with no icing or condensation)
Ambient humidity		lamp : 45～85%RH、Operating : 35～95%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,500V 50/60Hz 1min
Vibration resistance		10～55Hz double amplitude for 2 hours each in X、Y and Zdirections
Shock resistance	Destruction	500m/s X、Y、Z 3 times each X、Y and Z directions
	Malfunction	1000m/s X、Y、Z 3 times each X、Y and Z directions
Degree of protection		IEC-IP64
Material	Case	PBT
	Sensing surface	Methacrylic resin
Mode connection		Two meters cable (3×0. 75mm²)
Accessories		Mounting Bracket

Dimensions



Wiring Diagram



Features:
- Self-learning method to adjust the switching point accurately.
- Not affected by color
- Short response time
- Monitor assembly position reliably

Application:
- Detect the metal and plastic parts of the box on the base
- Detect bulk materials or other opaque materials in containers
- Calculate the number of polychromatic objects

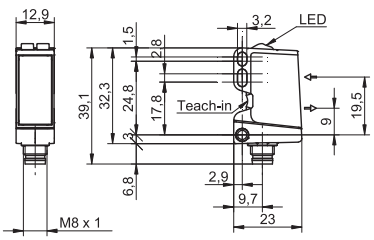



Type		A	B	C	D
Sensing distance		20cm	30cm	60cm	35cm
Item	NPN Light-ON+Dark-ON	PY-200NCV1	PY-300NC	PY-600NCV2	PY-350NC
	PNP Light-ON+Dark-ON	PY-200PCV1	PY-300PC	PY-600PCV2	PY-350PC
	Push-pull output	PY-200STV1		PY-600STV2	

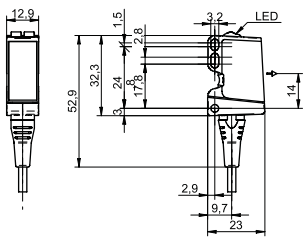
Technical Parameter				
Assay Type	Background suppression			
Sensing distance (Tw)	30~300mm		60~550mm	5~350mm
Sensing range(Tb)	15~200mm	15~300mm	30~600mm	10~300mm
Optical alignment	<2°		<1°	<2°
Response/ReleaseTime	< 0,49 ms		< 1 ms	
Power consumption (Max.)(no load)	45 mA		40 mA	45 mA
Circuit protection	—	Short circuit protection, polar reverse protection		
Width/diameter	12,9mm		18mm	12mm
Height/length	32,3mm		45mm	32,8mm
Depth	23mm		32mm	20mm
Connector Type	connector M8,4 pin	2m cable	connector M12,4 pin	2m cable
The range of operating voltage +Vs	10~30 VDC			
Light source	Pulse point source LED			
Energization indicator	LED green			
Indicator	LED yellow			
Wavelength	630 nm			
Interaction inhibition	yes			
Power consumption (typical)	30 mA			
Voltage drop(Vd)	<3VDC			
Output function	Light-ON/Dark-ON function			
Output current	<100mA			
Housing Material	plastics (ASA,PMMA)			
Front (optical)	PMMA			
Ambient temperature	-25~+60°C			
IP Grade	IP 67			

Dimensions

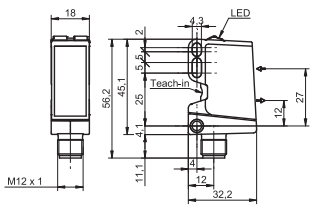
PY-200NCV1 :



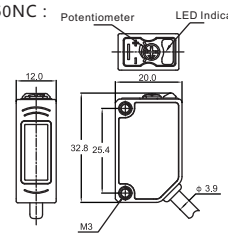
PY-300NC :



PY-600NCV2 :



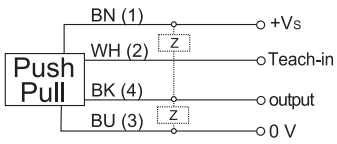
PY-350NC :



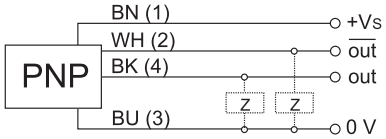
Junction and Connector	
SL1-M84-S2ZU	M8 connector , 4 pin , Straighter , 2M
SL1-M84-A2ZU	M8 connector , 4 pin , elbow , 2M
SL1-M124-S2ZU	M12 connector, 4 pin , Straighter , 2M
SL1-M124-A2ZU	M12 connector , 4 pin , elbow , 2M

Wiring Diagram

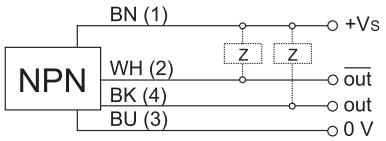
Push-pull output



PNP Light-ON+Dark-ON



NPN Light-ON+Dark-ON



Diffuse reflection laser photoelectric sensor

- Suitable for small object detection
- High power red laser light source, ultra small light spot
- One-click operation, all operations and functions are implemented by a button
- Metal shell packaging, beautiful and generous
- We can customize the software functions according to customers' needs
- Distance is adjustable

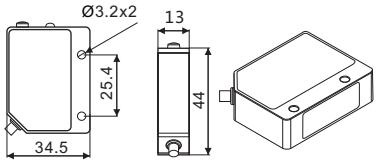



Type		A		B	C
Sensing distance		6cm	10cm	35cm	35cm
Item	NPN Light-ON/Dark-ON	JGA-60N	JGA-100N	JGA-350NCV1	JGA-350NC
	PNP Light-ON/Dark-ON	JGA-60P	JGA-100P	JGA-350PCV1	JGA-350PC
	Push-pull output	JGA-60S	JGA-100S		

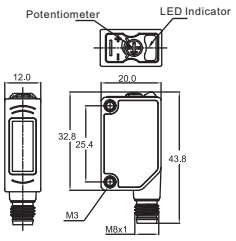
Technical Parameter				
Sensing method	Diffuse type	Diffuse type	Diffuse type	Diffuse type
Sensing distance (white matt material)	10-60mm(adjustable)	20-100mm(adjustable)	5-350mm(adjustable)	
Min. sensing object	0.03mm		0.5mm	
Spot size	0.3mm (At 60mm)		2mm (At 100mm)	
Response time	1ms	0.5ms	1ms	
Sensitivity adjustment	Button to set		Turn adjusting	
Operation mode	LIGHT-ON/DARK-ON (button automatically adjusts, long press for 15 seconds, automatic conversion)		LIGHT-ON/DARK-ON(Light-ON+Dark-ON)	
Current consumption	Max. 26mA	Max. 20mA	Max. 30mA	
IP Grade	IP-66	IP-66	IP-65	
Case	Metal case		Plastic case	
Weight (including 2M connector cable)	85g		30g	
Light source	Red laser			
Indicator	Output and power: red LED, stable operation: green LED			
Control output	NPN or PNP: up to 100mA (40V), residual voltage: up to 1V			
Protection circuit	Reverse current protection, overcurrent protection, overvoltage protection			
Power	12 to 24VDC ± 10%			
Ambient illumination	Incandescent lamp: maximum 5000lx, daylight: maximum 20000lx			
Ambient temperature	"between -20 to +55 ° C no freeze"			
Ambient humidity	35 to 85%, No condensation			

Dimensions

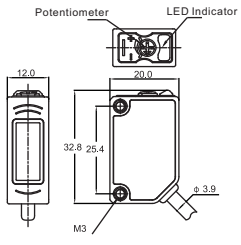
JGA-600N：
JGA-100N：



JGA-350NCV1：



JGA-350NC：

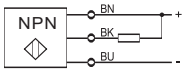


Operation method :(For jga-600n, jga-100n series)
Setting distance: After connecting the power according to the correct wiring method, firstly point the light point at the detected object, press the button for about 2-3 seconds, then release it. The indicator light flashes, and memory detects the position of the object.
Mode conversion: Press and hold the button for 15 seconds, then loosen it. If the color of the indicator light changes, the mode conversion is successful.
Wiring: Brown line --12 ~ 24VDC/ blue line --0VDC/ black line -- load output.
Tips for correct us:
1. Please do not directly shoot strong light into the sensor to receive and transmit the mirror, pay attention to safety protection and do not look directly at the beam.
2. This product is not suitable for testing mirrors.
3. In the process of use, if the sensor receives and emits condensation on the mirror or is contaminated with oil or dust, please wipe the mirror with a clean, dry and soft test paper to resume normal work.
4. If the sensor works in the working environment where oil pollution or dust is spreading, please keep the mirror of the sensor clean.

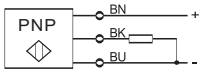
Junction and Connector	
SL1-M84-S2ZU	M8 connector , 4 pin , Straighter , 2M
SL1-M84-A2ZU	M8 connector , 4 pin , elbow , 2M

Wiring Diagram

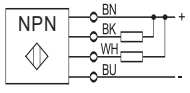
NPN Light-ON/Dark-ON



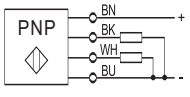
PNP Light-ON/Dark-ON



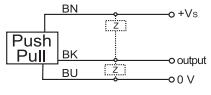
NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



Push-pull output

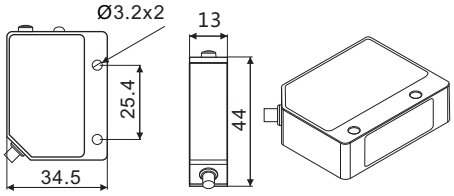


- Suitable for small object detection
- High power red laser light source, ultra small light spot
- One-click operation, all operations and functions are implemented by a button
- Metal shell packaging, beautiful and generous

Type		A
Sensing distance		50cm
Item	NPN Light-ON/Dark-ON	JGA-500N
	PNP Light-ON/Dark-ON	JGA-500P
	Push-pull output	JGA-500S

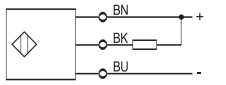
Technical Parameter	
Sensing method	Diffuse type
Sensing distance (white matt material)	50-500mm
Min. sensing object	1mm
Spot size	2mm (At 100mm)
Response time	1ms
Light source	Red laser
Sensitivity adjustment	Button to set
Operation mode	LIGHT-ON/DARK-ON (button automatically adjusts, long press for 15 seconds, automatic conversion)
Indicator	Output: red LED, stable operation: green LED
Control output	NPN or PNP: up to 100mA (40V), residual voltage: up to 1V
Protection circuit	Reverse current protection, overcurrent protection, overvoltage protection
Power	12 to 24VDC ± 10%
Current consumption	Max. 20mA
IP Grade	IP-66
Ambient illumination	Incandescent lamp: maximum 5000lx, daylight: maximum 20000lx
Ambient temperature	"between -20 to +55 ° C no freeze"
Ambient humidity	35 to 85%, No condensation
Case	Metal case
Weight (including 2M connector cable)	85g

Dimensions

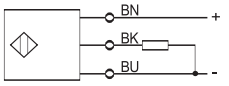


Wiring Diagram

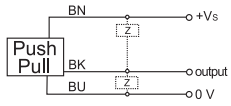
NPN Light-ON/Dark-ON



PNP Light-ON/Dark-ON



Push-pull output



Operation method :

Setting distance: After connecting the power according to the correct wiring method, firstly point the light point at the detected object, press the button for about 2-3 seconds, then release it. The indicator light flashes, and memory detects the position of the object.

Mode conversion: Press and hold the button for 15 seconds, then loosen it. If the color of the indicator light changes, the mode conversion is successful.

Wiring: Brown line --12 ~ 24VDC/ blue line --0VDC/ black line -- load output.

Tips for correct us:

1. Please do not directly shoot strong light into the sensor to receive and transmit the mirror, pay attention to safety protection and do not look directly at the beam.
2. This product is not suitable for testing mirrors.
3. In the process of use, if the sensor receives and emits condensation on the mirror or is contaminated with oil or dust, please wipe the mirror with a clean, dry and soft test paper to resume normal work.
4. If the sensor works in the working environment where oil pollution or dust is spreading, please keep the mirror of the sensor clean.

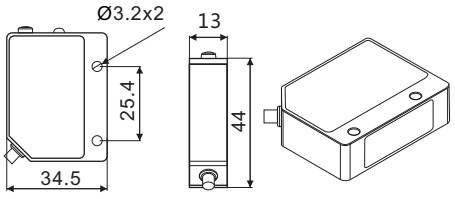
The linear light spot laser switches off the sensor

- Suitable for detecting small holes or bumps
- High power red laser light source, linear light spot
- One-click operation, all operations and functions are implemented by a button
- Metal shell packaging, beautiful and generous
- We can customize the software functions according to the customers' needs, and the operation and function are customized according to the customers' needs

Type		A
Sensing distance		10cm
Item	NPN Light-ON/Dark-ON	JGB-100N
	PNP Light-ON/Dark-ON	JGB-100P
	Push-pull output	JGB-100S

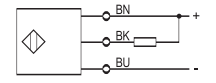
Technical Parameter	
Sensing method	Linear light-spot
Sensing distance (white matt material)	20-100mm
Light-spot width	2mm (At 100mm)
Response time	1ms
Light source	Red laser
Sensitivity adjustment	Button to set
Operation mode	LIGHT-ON/DARK-ON (button automatically adjusts, long press for 15 seconds, automatic conversion)
Indicator	Output and power: red LED, stable operation: green LED
Control output	NPN or PNP: up to 100mA , residual voltage: up to 1V
Protection circuit	Reverse current protection, overcurrent protection, overvoltage protection
Power	12 to 24VDC ± 10%
Current consumption	Max. 30mA
IP Grade	IP-66
Ambient illumination	Incandescent lamp: maximum 5000lx, daylight: maximum 20000lx
Ambient temperature	"between -20 to +55 ° C no freeze"
Ambient humidity	35 to 85%, No condensation
Case	Metal case
Weight (including 2M connector cable)	85g

Dimensions

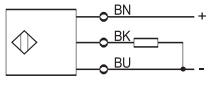


Wiring Diagram

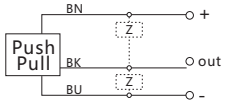
NPN Light-ON/Dark-ON



PNP Light-ON/Dark-ON



Push-pull output



Operation method :

Setting distance: After connecting the power according to the correct wiring method, firstly point the light point at the detected object, press the button for about 2-3 seconds, then release it. The indicator light flashes, and memory detects the position of the object.

Mode conversion: Press and hold the button for 15 seconds, then loosen it. If the color of the indicator light changes, the mode conversion is successful.

Wiring: Brown line --12 ~ 24VDC/ blue line --0VDC/ black line -- load output.

Tips for correct us:

1. Please do not directly shoot strong light into the sensor to receive and transmit the mirror, pay attention to safety protection and do not look directly at the beam.
2. This product is not suitable for testing mirrors.
3. In the process of use, if the sensor receives and emits condensation on the mirror or is contaminated with oil or dust, please wipe the mirror with a clean, dry and soft test paper to resume normal work.
4. If the sensor works in the working environment where oil pollution or dust is spreading, please keep the mirror of the sensor clean.

High Precision Laser Displacement Sensor

- High precision, high performance.
- Small volume, easy to install.
- Built-in display panel for easy parameter setting.
- The resolution is as high as 1 micron.

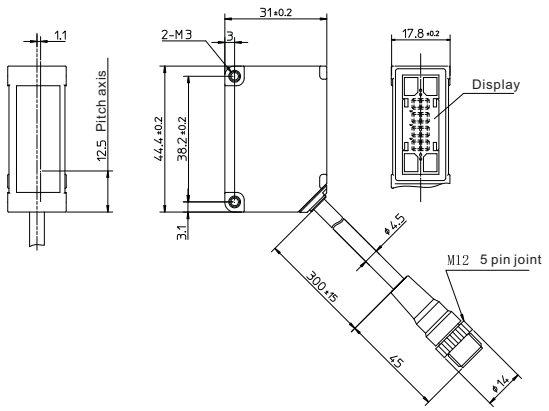
Mode No.	Category	Sensing distance adjust
JGC-15IV3	Current	qTeach
JGC-15UV3	voltage	qTeach
JGC-35IV3	Current	qTeach
JGC-35UV3	voltage	qTeach
JGC-100IV3	Current	qTeach
JGC-100UV3	voltage	qTeach

Junction and Connector	
MX1-M125-S2ZU	M12 connector , 5 pin , Straighter , 2M
MX1-M125-A2ZU	M12 connector , 5 pin , elbow , 2M

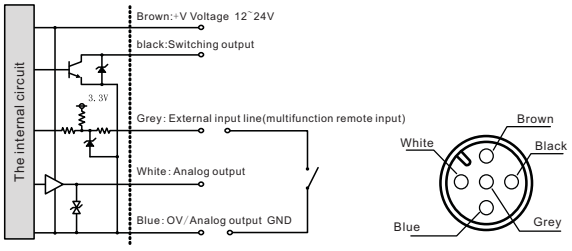
Technical Parameter

Item				
	Analog output current type	JGC-15IV3	JGC-35IV3	JGC-100IV3
	Analog output current type	JGC-15UV3	JGC-35UV3	JGC-100UV3
Sensing distance (center position)		15mm	35mm	100mm
Sensing range		±5mm	±15mm	±50mm
Full Scale (F.S.)		10mm	30mm	100mm
Light source	Medium · wavelength	Red semiconductor laser wavelength : 650mm		
	Max. Output Power	390uW		1mW
Laser Class	IEC/JIS	Class1		Class2 ※4
	FDA		Class II	
Spot size※1		0.5×0.7mm	0.45*0.8mm	0.6*0.7mm
Independent Linearity			±0.1% F.S.	
DPI※2		1um	6um	20um
Temperature drift characteristic (reference value)		±0.02%/℃ F.S.		±0.05%/℃ F.S.
Sampling period		500us/1000us/2000us/4000us/AUTO		
Indicating lamps and lanterns		Laser working indicator light (green)/return to zero setting indicator light (red)/light output indicator light (orange)/mode indicator light (red)		
External input function		Laser off, remote instruction, sample holding, single pulse trigger, return to zero, etc		
Analog output	Analog current type	4 ~ 20 mA output, allowable load resistance under 300 Ω		
	Analog voltage type	100 Ω 0 ~ 10 v, output impedance		
Digital output		Collector open-circuit output (NPN/PNP switchable) Max 100Ma/DC30V residual voltage 1.8V		
Voltage		Analog current /-485 communication type : DC12 ~ 24V±10% ; Analog voltage type : DC18 ~ 24V±10%		
Current consumption※3		Under 700 mA		
Socket joint		M12 5 pin connection (with 300mm cable)		
Protection circuit		Reverse connection protection, overcurrent protection		
Environmental parameter	Protection class	IP67(Including cable connections)		
	Ambient temperature/humidity	-10 ~ 50℃/ 35 ~ 85% RH (No ice/frost)		
	Ambient illumination	Sunlight: below 20,000 lx/incandescent: below 3,000 lx		
	Vibration resistance	10 ~ 55Hz double amplitude 1.5mm, X, Y, Z each direction 2 hours		
	Impact resistance	500m/s² (about 50 g) X, Y and Z go in each direction three times		
Material		Case: die-cast aluminum The lens board : PPSU Display board : PET Cable: oil-resistant PVC		
Weight		About 60g(including cable)		

Dimensions



Wiring Diagram



Description:
- Distance Measuring Sensor,Laser Source, Metal Case

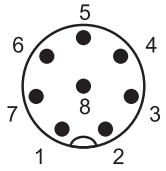
Features:
- LED Display+LED Indicator
- Display instruction key Settings
- Strong resistance to light intervention
- Analog quantity, switch volume double output
- Compact Size

Mode No.	Sensing distance	Light Source/ Facula	Output	Response Time	Measuring Accuracy	Repeatability
JGD-M20I2SE	0.2-20m	red laser	2×Push-Pull / Analog(mA/V)	15-30ms	± 7mm	≤ 2mm

Technical Parameter	
Voltage	24VDC±20%
Analog Output	Voltage 0-10V , Current 4-20mA
Digital Output	Push-pull
DPI	1mm
Response Time	Fast, medium and low speed adjustable
Series Interface	RS485
Green LED	Ready for work
Yellow LED	Object for testing, teaching
Case Material	Zinc alloy
Lens Material	PMMA
Weight	250g
Working Temperatur	-15°C...+50°C
Connector	M12 8-pole
IP Grade	Ip67
Laser Class	Second level , ED 60825-1 Standard 658nm
Standard	IEC/EN 60947-5-2
Dimensions	60×62×37mm

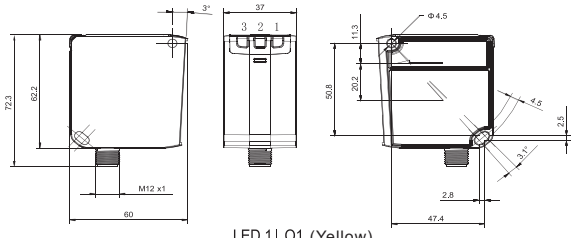
Dimensions

No.	Color	Function
1	White	RS485-
2	Brown	24V ± 20%
3	Green	ANALOG OUTPUT (Voltage or current)
4	Yellow	Q1
5	Grey	Q2
6	Pink	RS485+
7	Blue	0V
8	Red	MUL TIFUNCTION INPUT



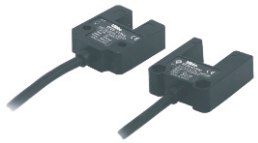
M12 8-pole connector

Wiring Diagram



LED 1 | Q1 (Yellow)
LED 2 | Q2 (Yellow)
LED 3 | POWER ON (Green), OUT OF RANGE (Red)

- High -speed response,1kHz
- Wide vane
- Better prevention of outside light



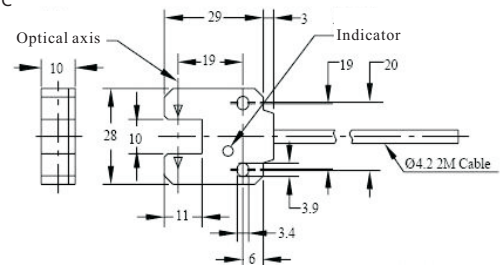
Sensing method	Appearance	Connection method	Sensing distance	Operation mode	model	
Grooved-type		Pre-wired	10mm	ON Dark-ON ON Light-ON (selectable)	NPN	PU-10NC
					PNP	PU-10PC
			15mm		NPN	PU-15NC
					PNP	PU-15PC

Technical Parameter

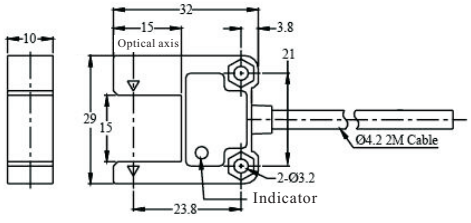
Sensing object		Opaque : 3mm
Minimum detectable		Opaque : 2mm
Light source(wavelength)		Infrared LED (950nm)
Voltage		12~24V DC pulse ±10% max.
Current consumption		40mA max.
Response Time		1ms max.
Comtrol output		Light-ON/Dark-ON mode selector
Protection cirtults		Power supply reverse polarity protection ,Output short-circuit protection
Ambient illumination		Sunlight : 10,000lx max. ; Incandescent lamp : 3,000lx max.
Ambient temperature		Operating : -25～+55°C 、Storage : -40～+70°C (with no icing or condensation)
Ambient humidity		Operating : 35～85%RH 、Storage : 35～90%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance	Destruction	10～55Hz double amplitude for 2 hours each in X、Y and Zdirections
Shock resistance	Destruction	500m/s^2 X、Y、Z 10 times each X、Y and Z directions
Degree of protection		IEC-IP65
Material	Case	ABS
	Lens	Polycarbonate
	Indicator window	Polycarbonate
Mode connection		Two meters cable (3×0. 75mm^2)

Dimensions

■ PU-10NC
■ PU-10PC

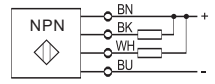


■ PU-15NC
■ PU-15PC

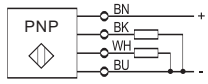


Wiring Diagram

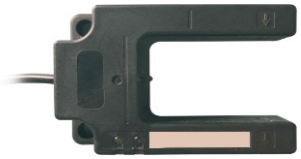
NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



- Grooved Head Sensor with Build-in DC Amplifiers
- Fast 1 ms maximum response time ideal for packaging applications
- 3 cm groove type detects edges,labels and marks
- Wire-selectable light-on/dark-on operation

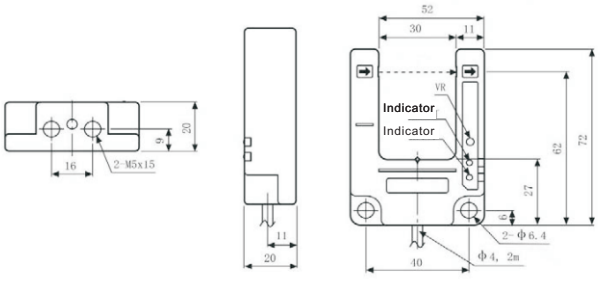


Sensing method	Connection method	Sensing distance	Operation mode	model	
Grooved-type	Pre-wired	30mm	ON Dark-ON ON Light-ON (selectable)	NPN	PD-30NC
				PNP	PD-30PC

Technical Parameter

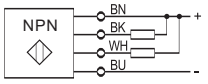
Sensing object		Opaque : 6mm
Minimum detectable		Opaque : 3mm
Light source(wavelength)		Infrared LED (950nm)
Voltage		12~24V DC pulse ±10% max.
Current consumption		40mA max.
Response Time		1ms max.
Comtrol output		Light-ON/Dark-ON mode selector
Protection cirtults		Power supply reverse polarity protection ,Output short-circuit protection
Ambient illumination		Sunlight : 10,000lx max. ; Incandescent lamp : 3,000lx max.
Ambient temperature		Operating : -25～+55°C 、Storage : -40～+70°C (with no icing or condensation)
Ambient humidity		Operating : 35～85%RH 、Storage : 35～90%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance	Destruction	10～55Hz double amplitude for 2 hours each in X、Y and Zdirections
Shock resistance	Destruction	500m/s^{2}X、Y、Z 10 times each X、Y and Z directions
Degree of protection		IEC-IP65
Material	Case	ABS
	Lens	Polycarbonate
	Indicator window	Polycarbonate
Mode connection		Two meters cable (3×0. 75mm^2)

Dimensions

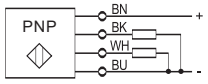


Wiring Diagram

NPN Light-ON+Dark-ON



PNP Light-ON+Dark-ON



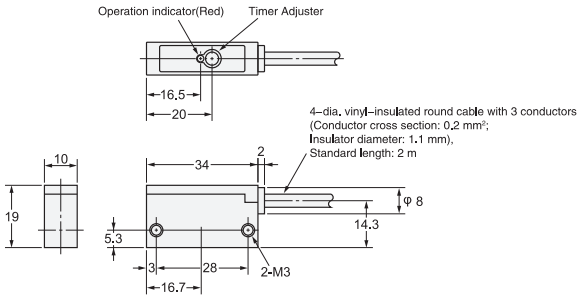
- Reliable Detection Unaffected by PCB Holes or Notches
- High-limit suitable for incorporation in devices

Sensing method	Appearance	Connection method	Sensing distance	Operation mode	Model NPN
Convergent-reflective		Pre-wired(2m)	30mm	Light-ON	PJ-30NA

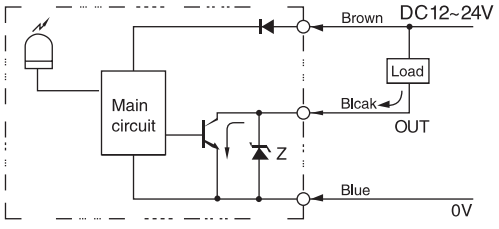
Technical Parameter

Sensing distance		30mm ±5mm (White paper : 10×10mm)
Light source(wavelength)		Infrared LED (890nm)
Voltage		12~24V DC pulse ±10% max.
Current consumption		40mA max.
Response Time		Operate : 3ms max. Reset : 100ms max.
Comtrol output		Load power supply voltage : 24V DC max. Load current : 30mA max. (Load current with a residual voltage : 1V max.)
Ambient illumination		Sunlight : 10,000 lx max. ; Incandescent lamp : 5,000 lx
Ambient temperature		Operating : -10 ~ +55°C Storage : -25 ~ +70°C (with no icing or condensation)
Ambient humidity		Operating : 35 ~ 85%RH Storage : 35 ~ 95%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance	Destruction	10 ~ 500Hz double amplitude for 2 hours each in X、Y and Zdirections
Shock resistance	Destruction	500m/s^2 X、Y、Z 10 times each X、Y and Z directions
Degree of protection		IEC-IP40
Material	Case	ABS
	Sensing surface	Polycarbonate
Accessories		Mounting Bracket、3×8 screws

Dimensions



Wiring Diagram



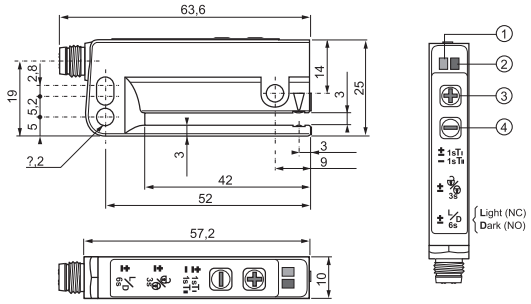
- High -speed response,10kHz
- Lable Non-transparent tape detectable
- Mark on transparent tape detectable

Sensing method	Appearance	Connection method	Sensing distance	Operation mode	Model	
Grooved-type		Connector	3mm	ON Dark-ON ON Light-ON (selectable)	NPN	PL-03NCV1
					PNP	PL-03PCV1

Technical Parameter

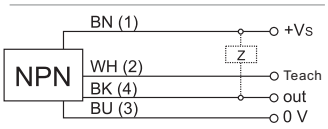
Sensing distance		3mm
Sensing object		Non-transparent
Light source(wavelength)		Infrared LED
Voltage		10~30V DC
Current consumption		40mA max.
Response frequency		10kHz
Comtrol output		Black wire:Output
Ambient illumination		Sunlight : 5000lx max. ; Incandescent lamp : 3000 lx
Ambient temperature		Operating : -20～+70℃ Storage : -25～+75℃ (with no icing or condensation)
Ambient humidity		Operating : 35～85%RH Storage : 35～85%RH (with no condensation)
Insulation resistance		20MΩ min. (DC500V)
Dielectric strength		AC500V 50/60Hz 1min
Vibration resistance	Destruction	10～500Hz double amplitude for 2 hours each in X、Y and Zdirections
Shock resistance	Destruction	500m/s^2 X、Y、Z 10 times each X、Y and Z directions
Degree of protection		IEC-IP64
Material	Case	PC
Weight		Approx : 65g

Dimensions

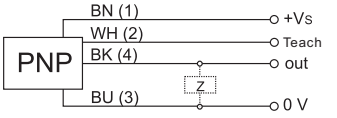


Wiring Diagram

NPN Light-ON+Dark-ON

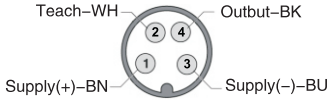


PNP Light-ON+Dark-ON



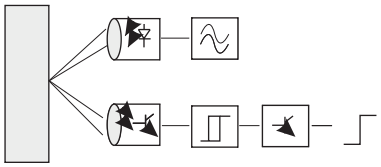
Junction and Connector

SL1-M84-S2ZU	M8 connector , 4 pin , Straighter , 2M
SL1-M84-A2ZU	M8 connector , 4 pin , elbow , 2M



Basic Concepts of Photoelectric Sensors

Photoelectric sensor is a generic name for sensors which detect an object by using light. The optical signal transmitted from the emitting part of the sensor is modified by being reflected, transmitted, absorbed, etc., by the sensing object and is then detected by the receiving part of the sensor to generate a corresponding output signal.



Features :

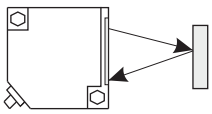
① Non-contact sensing ensures longer life for the sensor and absolutely no damage to the object.
②The long sensing range make the sensors suitable for a variety of applications.
③The sensors can detect objects of any material provided they affect the optical beam.
④ The use of an optical beam for detection and complete electronic circuitry makes the sensors respond so quickly that they can be easily used on a high-speed production line.
⑤High accuracy detection,various colors can be detected as the difference in optical intensity.

Diffuse-reflective photoelectric sensors :

In diffuse-reflective photoelectric sensors, the emitter and receiver are integrated in the same unit.The transmitter emits light which is reflected by the object to be detected and seen by the receiver. The light reflection from an object is evaluated.

Features :

①The junction alignment is not required for mounting and using
②String saves installation space
③Torque installation wiring is simple
④Superior testing area is large

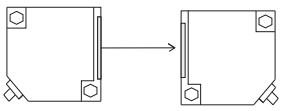


Through-beam photoelectric sensors:

Through-beam sensors are distinguished by a long range. The system consists of two separate components: a transmitter and a receiver. The light only travels one way (from the transmitter to the receiver). Adverse effects in the applications, such as dust in the air, dirt on the lenses, steam or mist do not immediately interfere with the system (high excess gain).

Features :

Long sensing range,high precisoin detection.
Be able to detact small target.
Stable performance regardless of target shape,color and material.

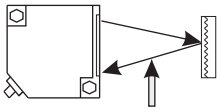


Retro-reflective photoelectric sensors:

For retro-reflective sensors the transmitter and receiver are incorporated into one housing. By means of a reflector the transmitted light is returned to the receiver. Retro-reflective sensors without polarisation filter operate in the infrared area, systems with polarisation filter with visible red light.

Features :

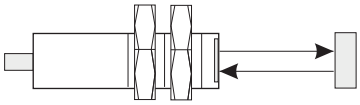
①The pins are aligned on the light path when they are used
②Compared to the opto-electronic sensor of the counter - directional photoelectric sensor, to save the installation space
③Easy to install and connect the bolts
④The shape, color and material of the object are unaffected



Installation of photoelectric sensor

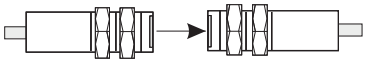
Diffuse installation and debugging:

1. Although the sensitivity is at its maximum, the adjustment should be made according to the reflected materials of the surrounding environment.
2. Put the detection object within the detection range, and adjust the regulating potentiometer to the middle of the maximum detection distancePosition.
3. The detection distance in the table is 100mm*100mm, 200mm*200mm, Measured under the condition of 300mm*300mm white matt paper.



Contrast-type installation and debugging:

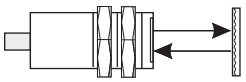
1.Install the transmitter and receiver face to face and connect the power supply.
2.Adjust the position of the transmitter and receiver to make the center right and the status of the indicator light change.
3.Install both reliably and proofread to detect the target.



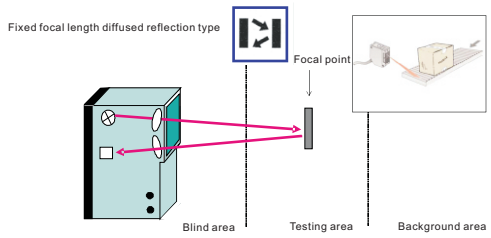
Regression reflection type installation:

1. Connect the power supply after the sensor and the reflector are installed face to face.
2. Adjust the top and bottom left positions of the reflector, and the status of the indicator light of the sensor changes.
3. Install both reliably and calibrate them to detect the target.

Note: If more than two photoelectric sensors are used in parallel, the distance between them should be greater than 30mm, if detectedThe object has a higher reflectance than the reflectance surface, and it will misbehave, so it will stay between the sensor and the object. There is plenty of room, either to place the object and axis at an Angle of 30-45 degrees, or to consider using a polarization reactionProjectile products.



Limited reflectance photoelectric sensor:



Adjust the lens angle so that the focal point of transmitter and receiver is in the same position, forming a certain range of regional detection, so as to effectively shield the influence of background.

Background inhibitory photoelectric switch:

Mechanical background suppressor: a shell contains a transmitter and receiver. The light sent by the transmitter is reflected back to the receiver by the detector. The receiver is composed of the proximal receiver and the distal receiver. The sensor compares the light intensity received by the two receivers. Switch function is triggered when the receiving light of the proximal receiver is stronger than that of the distal receiver.

Electrical background suppressor: unlike mechanical receivers, electrical receivers use PSD. Switch function is triggered when the conversion value exceeds the set threshold by comparing the position of the target object and the background object reflecting back to the light center. The detection distance of diffuse reflection photoelectric sensor with background suppression function is less affected by object color.

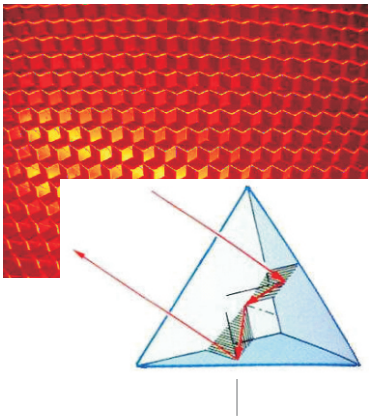
Reflection plate:

Injection of return after three times of light refraction parallel direction, and the light plane 90° deflection (longitudinal shear deformation).

The three faces at the end of the prism are orthogonal.

Plastic is cheap, but less accurate.

The glass material is high in precision but expensive.



Mibbo (Xiamen) Automation Technology Co,Ltd.

www.mibbo.cn

E803 Taiwan Technology Business Incubator,Torch(Xiang'an) Industrial Park,Xiamen, Fujian, China
ZIP Code:361100
Tel:0592-5651090
Fax:0592-5651085

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