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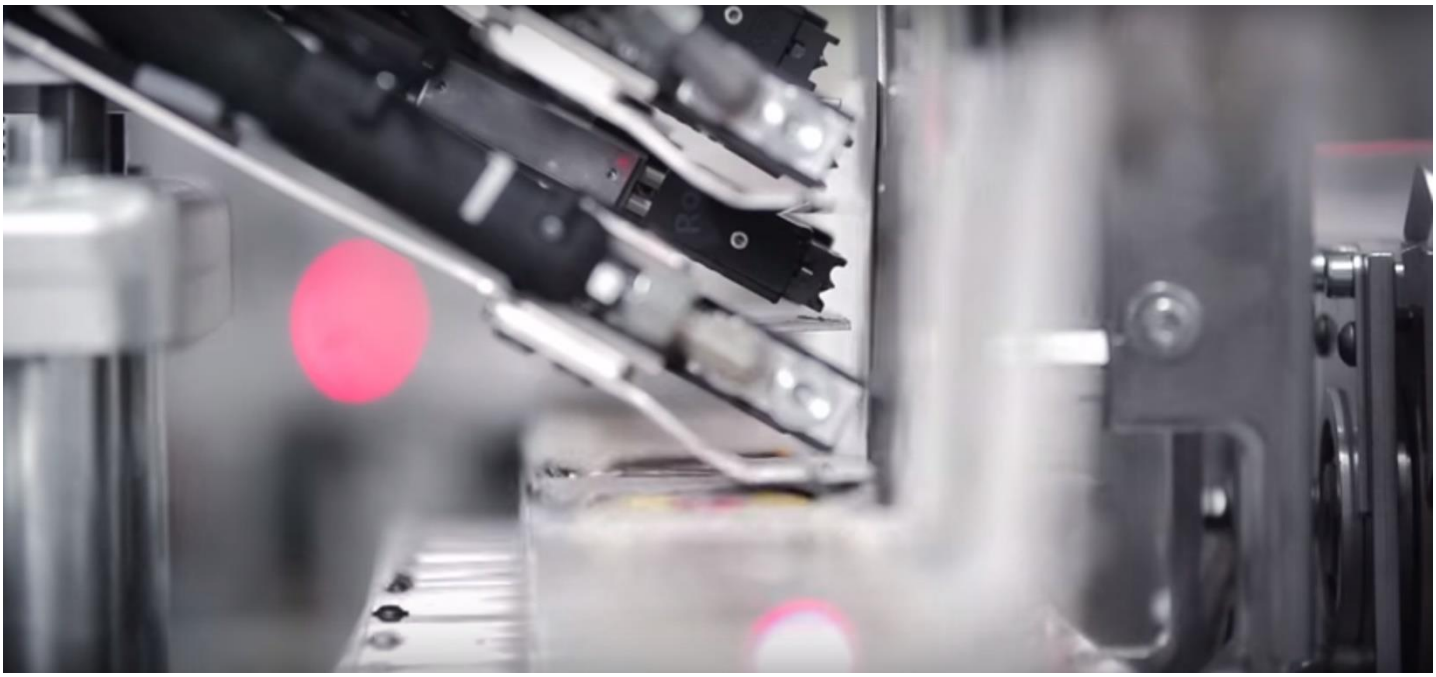

INDUSTRIAL CONTROL

PRESENSE PHOTOELECTRIC SENSORS

V5 GROUP

Machine Vision · Industrial Automation · Safety

VLP18s Series

Benefits

- Comfortable and fast teaching procedure
- Comfortable thanks to display LEDs visible from all sides
- Maximum flexibility thanks to uniform housing design
- Sealed housing for absolute impermeability
- Exact positioning and detection of small parts
- Long detection distance
- Excellent performance
- Wide range of models for different applications type

Diffuse sensor -

- Precise detection
- Detects objects with various shapes and surfaces even more reliably
- Visible or Infrared LED for all accuracy requirements
- Range of up to 1 m
- Response times < 1 ms
- Axial optics
- Flush installation
- Compact body for space saving

Retro-reflective sensors

- Visible and Infrared LED
- Range of up to 12 m
- Response times < 1 ms
- Detection of transparent objects
- Axial optics
- Flush installation
- Compact body for space saving

Through beam sensors

- Infrared light source
- Range of up to 12 m
- Regulation of transmit power via potentiometer
- Axial optics
- Compact body for space saving

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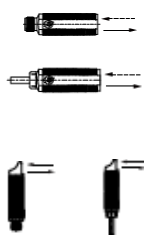
Diffuse photoelectric proximity sensors series



PRODUCT HIGHLIGHTS

- Excellent performance for numerous applications
  - ✓ Through-beam type: up to 22m
  - ✓ Retroreflection type: up to 5m
  - ✓ Diffuse reflection type: up to 800mm
  - ✓ Diffuse reflection radial type: up to 450mm
- 24v DC type
- Ultra-small sensor: Tubular short M18 size body
- Robust plastic housings (IP 65)
- High device availability in industrial environments, using integrated IC manufacturing, strong anti-jamming performance.
- Range between –25 °C ... +55 °C

Optical data		Functions	
Sensing distance	See Selection Table	**Indicator LED, green**	Operating voltage indicator
Type of light	See Selection Table	**Indicator LED, yellow**	Switching output indicator
Light spot size	See Selection Table	**Sensitivity adjustment**	Via potentiometer
Emitting element	Red LED (peak emission wavelength 630nm, modulated) Infrared LED (peak emission wavelength 850 nm, modulated)	**Adjustment possibilities**	N.O./N.C. via control input (IN)
Minimum sensing object	• Through-beam type: Ø18mm or more opaque object (Setting distance between emitter and receiver is 12m) • Retroreflective type: Ø54mm or more opaque, translucent or transparent object(note2,4) • Diffuse type: Opaque, translucent or transparent object (note 1)	**Default settings**	Max. scanning distance and N.O.
Electrical data		**Mechanical data**	
Operating voltage, +U_B	10 ～30V/DC	**Dimensions**	See dimensional drawings
No-load current, I_0	≤ 30 mA	**Enclosure rating**	IP 65
Output current, Ie	≤ 100 mA	**Material, housing**	ABS
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection, 500V AC for one min. between all supply terminals connected together and enclosure	**Material, front screen**	PMMA
Switching output, Q	PNP/NPN	**Type of connection**	See Selection Table
Output function	N.O./N.C	**Ambient temperature: operation**	-25 … +55 ℃
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	**Weight (plug device)**	Approx. 20 g
Response time	≤ 1 ms	**Weight (2M cable device)**	Approx. 60 g
Control input: Potentiometer	+ = NC - = NO	**Distance Control: Potentiometer**	0…...Distance
Environmental resistance			
Population degree	3 (industrial environment)	**EMC**	EN60947-5-2
Protection	IP65(IEC)	**Vibration resistance**	10~55Hz frequency,0.5mm amplitude in X,Y and Z directions for 1.5 hours each
Temperature	-25 ～+55℃(No dew condensation or icing allowed), Storage: -40 ～+70℃	**Shock resistance**	294m/s acceleration (30G approx.) in X, Y and Z directions for three times each
Humidity	50% RH (70℃)		
Light intensity	Incandescent light: less than 5,000Lux/Sunlight: less than 10,000Lux		

(1) With connected IP65 plug
(2) The default measure temperature conditions is +23 ℃, when didn't specify measure condition.
(3) Detection range and objects of Retroreflective type sensor apply to TD-08 reflector.
(4) Detection range and hysteresis of diffuse reflective type sensor apply to detection objects of gloss white paper (200×200mm).
(5) Please use actual sensor to validate testing effect, before testing transparent or translucent object.

Type	Sensing distance (Sn:)	Light source	Power supply	Switching output	Switching mode	Connectio type	Housing Material	Part Number
Diffuse axial type	0 … 800 mm	Red light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-PZD-800CR
Diffuse axial type	0 … 800 mm	Red light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-NZD-800CR
Diffuse axial type	0 … 800 mm	Red light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZD-800YR
Diffuse axial type	0 … 800 mm	Red light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZD-800YR
Diffuse axial type	0 … 800 mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-PZD-800CI
Diffuse axial type	0 … 800 mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-NZD-800CI
Diffuse axial type	0 … 800 mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZD-800YI
Diffuse axial type	0 … 800 mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZD-800YI
Diffuse radial type	0 … 450 mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-PZD-C450CI
Diffuse radial type	0 … 450 mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-NZD-C450CI
Diffuse radial type	0 … 450 mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZD-C450YI
Diffuse radial type	0 … 450 mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZD-C450YI

V5 GROUP

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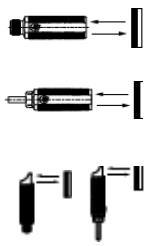
Retroreflective photoelectric proximity sensors series



PRODUCT HIGHLIGHTS

- Excellent performance for numerous applications
  - ✓ Through-beam type: up to 22m
  - ✓ Retroreflection type: up to 5m
  - ✓ Diffuse reflection radial type: up to 800mm
  - ✓ Diffuse reflection radial type: up to 450mm
- 24v DC type
- Ultra-small sensor: Tubular short M18 size body
- Robust plastic housings (IP 65)
- High device availability in industrial environments, using integrated IC manufacturing, strong anti-jamming performance.
- Range between –25 °C ... +55 °C

Optical data		**Functions**	
Sensing distance	See Selection Table	**Indicator LED, green**	Operating voltage indicator
Type of light	See Selection Table	**Indicator LED, yellow**	Switching output indicator
Light spot size	See Selection Table	**Sensitivity adjustment**	Via potentiometer
Emitting element	Red LED (peak emission wavelength 630nm, modulated) Infrared LED (peak emission wavelength 850 nm, modulated)	**Adjustment possibilities**	N.O./N.C. via control input (IN)
Minimum sensing object	• Through-beam type: Ø18mm or more opaque object (Setting distance between emitter and receiver is 12m) • Retroreflective type: Ø54mm or more opaque, translucent or transparent object(note2,4) • Diffuse type: Opaque, translucent or transparent object (note 5)	**Default settings**	Max. scanning distance and N.O.
Electrical data		**Mechanical data**	
Operating voltage, +U_B	10 ～30V/DC	**Dimensions**	See dimensional drawings
No-load current, I_0	≤ 30 mA	**Enclosure rating**	IP 65
Output current, Ie	≤ 100 mA	**Material, housing**	ABS
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection, 500V AC for one min. between all supply terminals connected together and enclosure	**Material, front screen**	PMMA
Switching output, Q	PNP/NPN	**Type of connection**	See Selection Table
Output function	N.O./N.C	**Ambient temperature: operation**	-25 … +55 °C
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	**Weight (plug device)**	Approx. 20 g
Response time	≤ 1 ms	**Weight (2M cable device)**	Approx. 60 g
Control input: Potentiometer	+ = NC - = NO	**Distance Control: Potentiometer**	0…...Distance
Environmental resistance			
Population degree	3 (industrial environment)	**EMC**	EN60947-5-2
Protection	IP65(IEC)	**Vibration resistance**	10~55Hz frequency,0.5mm amplitude in X, Y and Z directions for 1.5 hours each
Temperature	-25 ～+55℃(No dew condensation or icing allowed), Storage: -40 ～+70℃	**Shock resistance**	294m/s acceleration (30G approx.) in X, Y and Z directions for three times each
Humidity	50% RH (70℃)		
Light intensity	Incandescent light: less than 3,000Lux/Sunlight: less than 10,000Lux		

(1) With connected IP 65 plug
(2) The default measure temperature conditions is +23 ℃, when didn't specify measure condition.
(3) Detection range and objects of Retroreflective type sensor apply to TD-08 reflector.
(4) Detection range and hysteresis of diffuse reflective type sensor apply to detection objects of gloss white paper (200×200mm).
(5) Please use actual sensor to validate testing effect, before testing transparent or translucent object.

Type	Sensing distance (Sn:)	Light source	Power supply	Switching output	Switching mode	Connectio type	Housing Material	Part Number
Retroreflective axial type	0 … 5000mm	Red light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-PZM-5CR
Retroreflective axial type	0 … 5000mm	Red light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-NZM-5CR
Retroreflective axial type	0 … 5000mm	Red light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZM-5YR
Retroreflective axial type	0 … 5000mm	Red light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZM-5YR
Retroreflective axial type	0 … 5000mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-PZM-5CI
Retroreflective axial type	0 … 5000mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-NZM-5CI
Retroreflective axial type	0 … 5000mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZM-5YI
Retroreflective axial type	0 … 5000mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZM-5YI
Retroreflective radial type	0 … 5000mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-PZM-C5CI
Retroreflective radial type	0 … 5000mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-NZM-C5CI
Retroreflective radial type	0 … 5000mm	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-PZM-C5YI
Retroreflective radial type	0 … 5000mm	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M8, 4-pin	Plastic	VLP18S-D-NZM-C5CI

(1): The sensing distance of the Retroreflection type is referring to the reflector TD-08. The sensing distance represents the detectable range of the detection object.

V5 GROUP

Machine Vision · Industrial Automation · Safety

Through-beam photoelectric proximity sensors series

PRODUCT HIGHLIGHTS

- Excellent performance for numerous applications
- Excellent performance for numerous applications
  - ✓ Through-beam type: up to 22m
  - ✓ Retroreflection type: up to 5m
  - ✓ Diffuse reflection radial type: up to 800mm
  - ✓ Diffuse reflection radial type: up to 450mm
- 24v DC type
- Ultra-small sensor: Tubular short M18 size body
- Robust plastic housings (IP 65)
- High device availability in industrial environments, using integrated
- IC manufacturing, strong anti-jamming performance.
- Range between –25 °C ... +55 °C

Optical data		**Functions**	
Sensing distance	See Selection Table	**Indicator LED, green**	Operating voltage indicator
Type of light	See Selection Table	**Indicator LED, yellow**	Switching output indicator
Light spot size	See Selection Table	**Sensitivity adjustment**	Via potentiometer
Emitting element	Red LED (peak emission wavelength 630nm, modulated) Infrared LED (peak emission wavelength 850 nm, modulated)	**Adjustment possibilities**	N.O./N.C. via control input (IN)
Minimum sensing object	• Through-beam type: Ø18mm or more opaque object (Setting distance between emitter and receiver is 12m) • Retroreflective type: Ø54mm or more opaque, translucent or transparent object(note2,4) • Diffuse type: Opaque, translucent or transparent object (note 5)	**Default settings**	Max. scanning distance and N.O.
Electrical data		**Mechanical data**	
Operating voltage, +UB	10 ～30V/DC	**Dimensions**	See dimensional drawings
No-load current, I0	≤ 30 mA	**Enclosure rating**	IP 65
Output current, Ie	≤ 100 mA	**Material, housing**	ABS
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection, 500V AC for one min. between all supply terminals connected together and enclosure	**Material, front screen**	PMMA
Switching output, Q	PNP/NPN	**Type of connection**	See Selection Table
Output function	N.O./N.C.	**Ambient temperature: operation**	-25 … +55 ℃
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	**Weight (plug device)**	Approx. 20 g
Response time	≤ 1 ms	**Weight (2M cable device)**	Approx. 60 g
Control input: Potentiometer	+ = NC - = NO	**Distance Control: Potentiometer**	0……Distance
Environmental resistance			
Population degree	3(industrial environment)	**EMC**	EN60947-5-2
Protection	IP65(IEC)	**Vibration resistance**	10~55Hz frequency,0.5mm amplitude in X, Y and Z directions for 1.5 hours each
Temperature	-25 ～+55℃(No dew condensation or icing allowed), Storage: -40 ～+70℃	**Shock resistance**	294m/s acceleration (30G approx.) in X, Y and Z directions for three times each
Humidity	50% RH (70℃)		
Light intensity	Incandescent light: less than 3,000Lux/Sunlight: less than 10,000Lux		

(1) With connected IP 65 plug
(2) The default measure temperature conditions is +23 ℃, when didn't specify measure condition.
(3) Detection range and objects of Retroreflective type sensor apply to TD-08 reflector.
(4) Detection range and hysteresis of diffuse reflective type sensor apply to detection objects of gloss white paper (200×200mm).
(5) Please use actual sensor to validate testing effect, before testing transparent or translucent object.

Type	Sensing distance (Sn:)	Light source	Power supply	Switching output	Switching mode	Connectio type	Housing Material	Part Number
Through-beam axial type	0 … 22m	Red light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-PZT-22CR
Through-beam axial type	0 … 22m	Red light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-NZT-22CR
Through-beam axial type	0 … 22m	Red light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZT-22YR
Through-beam axial type	0 … 22m	Red light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZT-22YR
Through-beam axial type	0 … 22m	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-PZT-22CI
Through-beam axial type	0 … 22m	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-NZT-22CI
Through-beam axial type	0 … 22m	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZT-22YI
Through-beam axial type	0 … 22m	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZT-22YI
Through-beam radial type	0 … 22m	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-PZT-C22CI
Through-beam radial type	0 … 22m	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP18S-D-NZT-C22CI
Through-beam radial type	0 … 22m	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-PZT-C22YI
Through-beam radial type	0 … 22m	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP18S-D-NZT-C22YI

(1): Model marked on the Through-beam type with “E” for the emitter, with “D” for the receiver.

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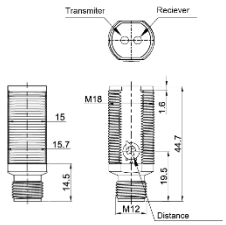
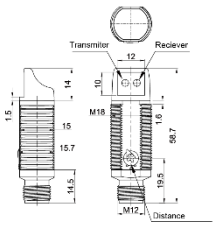
Mechanical dimensions (mm)

Sensor with M8 connector and intagrated cable type

Axial connector type

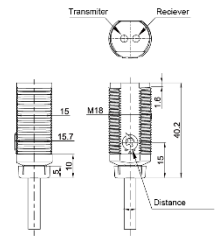


Radial connector type

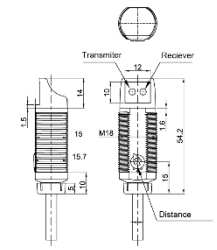


Note 1. On the emitter the power indicator is (green).

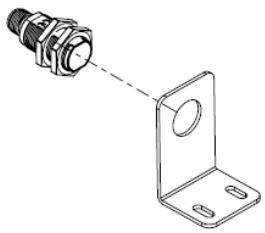
Axial cable type



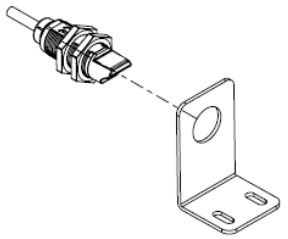
Radial cable type



Axial type

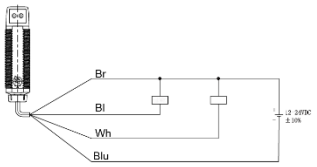


Radial type

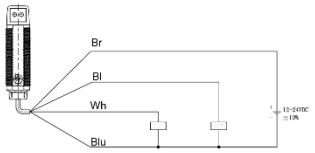


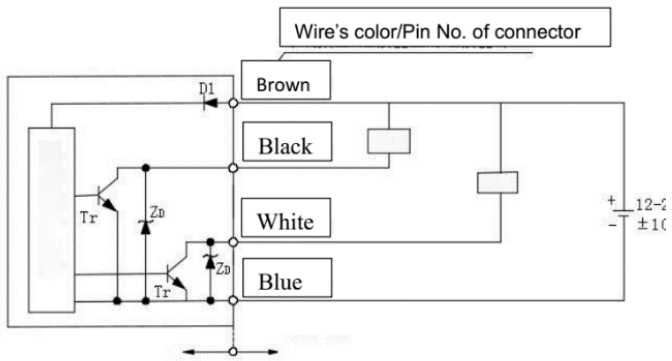
Wiring Diagram

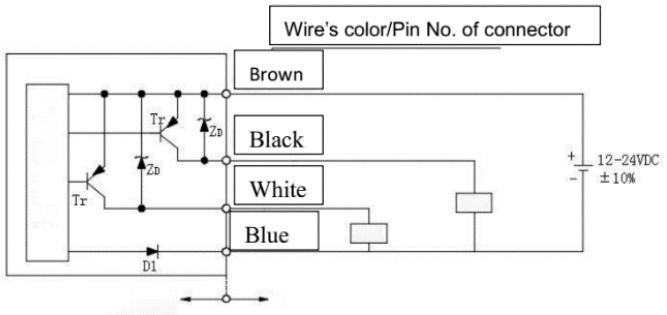
NPN Output



PNP Output







Main circuit of sensor

Symbol···D1: Diode for power reverse connection protection
ZD: Zen-er diodes for surge voltage absorption
T r: NPN output transistor

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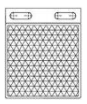
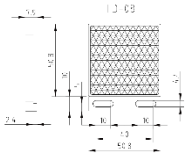
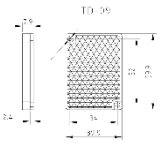
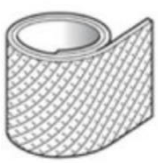
Options

Connect cable (2 cables are required for the Through-beam type)

Type	Model	Description		
Suitable for M8 plug-in connector type	Straight type 	V5-SM12-24-C2	Length: 2m	Clamping ring: φ9 mm
		V5-SM12-24-C5	Length: 5m	
	L-shaped type 	V5-SM12-24L-C2	Length: 2m	Cable outer: φ4 mm
		V5-SM12-24L-C5	Length: 5m	

Item	Model	Description
Sensor mounting bracket	VLP18-ZJ-1 	Material: Stainless steel
Reflector	TD-08  	50 x 50mm
	TD-09  	60 x 40mm
Reflective tape	FZ-12 	76 x 2800mm

CONTACT US

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