INDUSTRIAL CONTROL

PRESENSE PHOTOELECTRIC SENSORS

V5 GROUP

Machine Vision · Industrial Automation · Safety

VLP36 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 2.5 m
- Response times < 1 ms
- Axial optics
- 2 screws holes for easy installation
- Compact body for space saving
- AC and DC option types
- Integrated relay type

Retro-reflective sensors

- Visible and Infrared LED
- Range of up to 12 m
- Response times < 1 ms
- Detection of transparent objects
- Axial optics
- 2 screws holes for easy installation
- Compact body for space saving
- AC and DC option types
- Integrated relay type

Through beam sensors

- Infrared light source
- Range of up to 30 m
- Regulation of transmit power via potentiometer
- Axial optics
- Compact body for space saving
- AC and DC option types
- Integrated relay type

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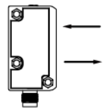
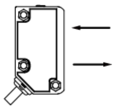
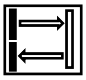
Diffuse photoelectric proximity sensors series



PRODUCT HIGHLIGHTS

- Extremely long distance, excellent performance
  - ✓ Through-beam radial type: up to 30m
  - ✓ Retroreflection radial type: up to 12m
  - ✓ Diffuse reflection radial type: up to 2.5m
- 220v AC and 24v DC type
- Beautiful and solid shell
- Robust plastic housings (IP 65)
- Powerful complementary push-pull output(4-in-1)
- 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 °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 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 type	0 … 2.5 m	Red light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-PZD-2.5CR
Diffuse type	0 … 2.5 m	Red light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-NZD-2.5CR
Diffuse type	0 … 2.5 m	Red light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-PZD-2.5YR
Diffuse type	0 … 2.5 m	Red light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-NZD-2.5R
Diffuse type	0 … 2.5 m	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-PZD-2.5CI
Diffuse type	0 … 2.5 m	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-NZD-2.5CI
Diffuse type	0 … 2.5 m	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-PZD-2.5YI
Diffuse type	0 … 2.5 m	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-NZD-2.5YI
Diffuse type	0 … 2.5 m	Infrared light	24 ～240V/AC	Relay	NO\NC	Plastic plug, M12, 5-pin	Plastic	VLP36-AD-WRD-2.5CI
Diffuse type	0 … 2.5 m	Infrared light	24 ～240V/AC	Relay	NO\NC	Cable, 2 m, 5-wire	Plastic	VLP36-AD-WRD-2.5YI

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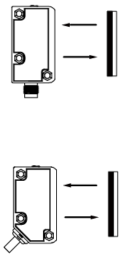
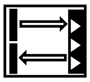
Retroreflective photoelectric proximity sensors series





PRODUCT HIGHLIGHTS

- Extremely long distance, excellent performance
  - ✓ Through-beam radial type: up to 30m
  - ✓ Retroreflection radial type: up to 12m
  - ✓ Diffuse reflection radial type: up to 2.5m
- 220v AC and 24v DC type
- Beautiful and solid shell
- Robust plastic housings (IP 65)
- Powerful complementary push-pull output(4-in-1)
- 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, UB / 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 type	0 … 12 m	Red light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-PZM-12CR
Retroreflective type	0 … 12 m	Red light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-NZM-12CR
Retroreflective type	0 … 12 m	Red light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-PZM-12YR
Retroreflective type	0 … 12 m	Red light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-NZM-12YR
Retroreflective type	0 … 12 m	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-PZM-12CI
Retroreflective type	0 … 12 m	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-NZM-12CI
Retroreflective type	0 … 12 m	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-PZM-12YI
Retroreflective type	0 … 12 m	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-NZM-12YI
Retroreflective type	0 … 12 m	Infrared light	24 ～240V/AC	Relay	NO\NC	Plastic plug, M12, 5-pin	Plastic	VLP36-AD-WRM-12CI
Retroreflective type	0 … 12 m	Infrared light	24 ～240V/AC	Relay	NO\NC	Cable, 2 m, 5-wire	Plastic	VLP36-AD-WRM-12YI

(Note 2): The detection distance of the retroreflective sensor is a value relative to the mirror TD-05. Further, the detection distance indicates the detectable range of the detected object.

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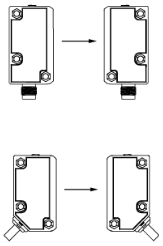
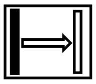
Through-beam photoelectric proximity sensors series





PRODUCT HIGHLIGHTS

- Extremely long distance, excellent performance
  - ✓ Through-beam radial type: up to 30m
  - ✓ Retroreflection radial type: up to 12m
  - ✓ Diffuse reflection radial type: up to 2.5m
- 220v AC and 24v DC type
- Beautiful and solid shell
- Robust plastic housings (IP 65)
- Powerful complementary push-pull output(4-in-1)
- 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 °C
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	**Weight (plug device)**	Approx. 60 g
Response time	≤ 1 ms	**Weight (2M cable device)**	Approx. 120 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 type	0 … 30m	Red light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-PZT-30CR
Through-beam type	0 … 30m	Red light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-NZT-30CR
Through-beam type	0 … 30m	Red light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-PZT-30YR
Through-beam type	0 … 30m	Red light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-NZT-302YR
Through-beam type	0 … 30m	Infrared light	10 ～30V/DC	PNP	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-PZT-30CI
Through-beam type	0 … 30m	Infrared light	10 ～30V/DC	NPN	NO\NC	Plastic plug, M12, 4-pin	Plastic	VLP36-D-NZT-30CI
Through-beam type	0 … 30m	Infrared light	10 ～30V/DC	PNP	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-PZT-30YI
Through-beam type	0 … 30m	Infrared light	10 ～30V/DC	NPN	NO\NC	Cable, 2 m, 4-wire	Plastic	VLP36-D-NZT-30YI
Through-beam type	0 … 30m	Infrared light	24 ～240V/AC	Relay	NO\NC	Plastic plug, M12, 5-pin	Plastic	VLP36-AD-NZT-C30CI
Through-beam type	0 … 30m	Infrared light	24 ～240V/AC	Relay	NO\NC	Cable, 2 m, 5-wire	Plastic	VLP36-AD-NZT-C30YI

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

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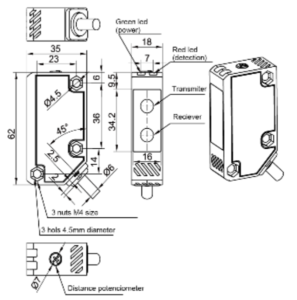
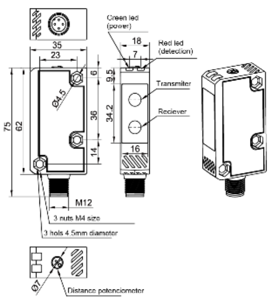
Mechanical dimensions (mm)

Sensor with M12 connector and intagrated cable type

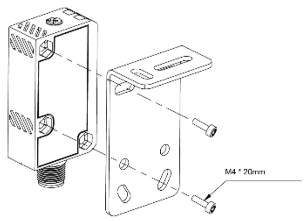


(Note 1): On the emitter the power indicator is (green).

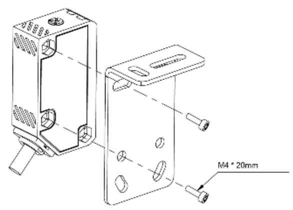


The tightening torque should be below 0.5 N·m.

Plug-in type

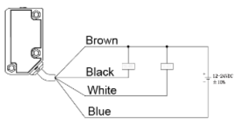


Lead type

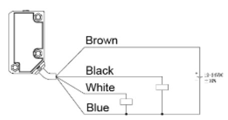


Wiring Diagram

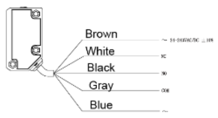
NPN Output type

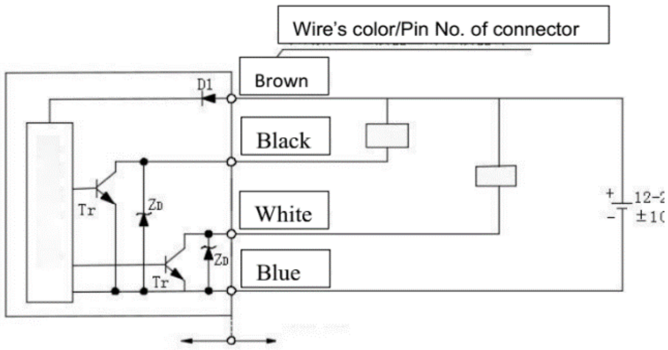


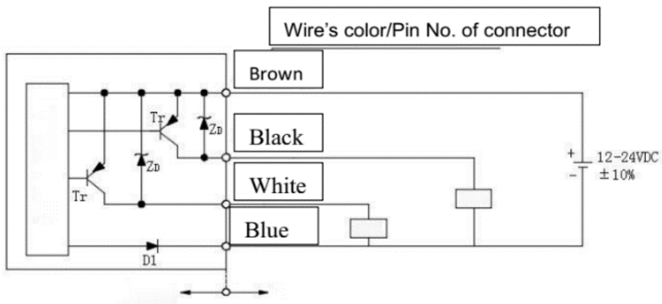
PNP Output type



Relay output type





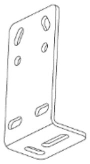
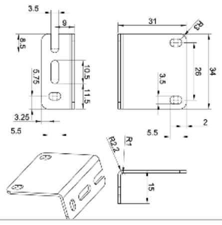
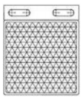
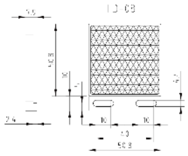
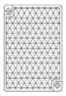
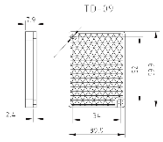
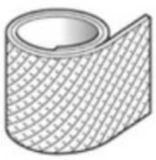


D1: Power supply reverse protection diode
D2: Output connection protection diode
ZD: Zener diode for surge voltage absorption
Tr: PNP \ NPN output transistor

Options

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

Type	Model	Description		
Suitable for M12 plug-in connector type	Straight type 	V5-SM12-24-C2	Length: 2m	Clamping ring: φ14 mm
		V5-SM12-24-C5	Length: 5m	
	L-shaped type 	V5-SM12-24L-C2	Length: 2m	Cable outer: φ5.3 mm
		V5-SM12-24L-C5	Length: 5m	

Item	Model	Description
Sensor mounting bracket	VLP36-ZJ-1  VLP36-ZJ-2 	Material: Stainless steel
Reflector	TD-08  	50 x 50mm
	TD-09  	60 x 40mm
Reflective tape	FZ-12 	76 x 2800mm

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