

Terminal block type

**V** series



# Multi-voltage Type with Screw-terminal Connections

- Long range through-beam detection, 40 m distance
- Includes SPDT relay output types with optional ON/OFF delay timer

**V series will be discontinued on Dec. 31, 2024**



Related products

Longer range detection  
**V3, V4**

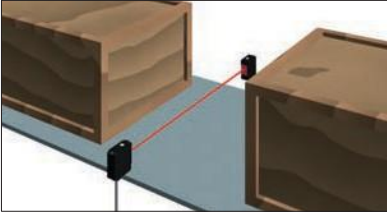


Cable type

**V2**



Detection of large package passage



Detection of metal can passage



Object detection when opening and closing roller shutters



## Selection table

		Type	Shape	Sensing distance	Model (Types with timer functions shown in parentheses)
Universal voltage		Through-beam		40 m	<b>VT-4000</b> ( <b>VT-4000T</b> )
		Retro-reflective		0.01 to 10 m	<b>VR-1000</b> ( <b>VR-1000T</b> )
		Diffuse-reflective		1.3 m	<b>VD-130</b> ( <b>VD-130T</b> )
3 m (infrared light)	<b>VD-300</b> ( <b>VD-300T</b> )				

		Type	Shape	Sensing distance	Model (Types with timer functions shown in parentheses)	
					NPN type	PNP type
DC power		Through-beam		30 m	<b>VT-3000N</b>	<b>VT-3000P</b>
		Retro-reflective		0.01 to 8 m	<b>VR-800N</b>	<b>VR-800P</b>
		Diffuse-reflective		1 m	<b>VD-100N</b>	<b>VD-100P</b>
2.5 m (infrared light)	<b>VD-250N</b>			<b>VD-250P</b>		

## Options/Accessories

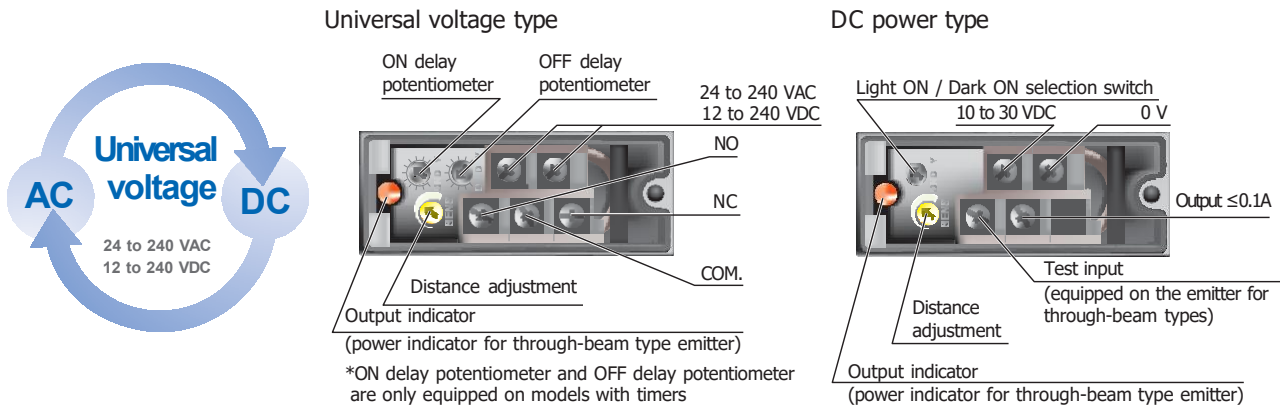
**Reflector**  
Standard (included)

**V-61**  
Sensing distance VR-800□: 0.01 to 8 m  
VR-1000□: 0.01 to 10 m



## Universal voltage/Terminal block type

Universal voltage types are also available, eliminating the need to choose between voltages. Can be used with voltages around the world.



## Equipped with timer function (Universal voltage type model equipped with timer)

Equipped with two timer functions. The OFF delay for extending the time until OFF and the ON delay for switching ON when detecting after more than a set period of time. The timer time can be set for between 0.1 and 10 seconds and the ON delay and OFF delay can be set at the same time.

## Mirror surface detection (retro-reflective type)

Built-in polarizing filter for optical surfaces. Clearly differentiates between reflected light from the reflector and reflected light from the workpiece. Allows stable detection of mirror surfaces such as for plating and metal objects.



## 2-direction cable connection

On types with one-direction cable connections, it is necessary to be careful about the routing of the cable. With the V series, routing is possible from both the bottom and rear. This is a logical design that not only makes routing easy, but removes cable stress.



## Specifications

Type			DC power type			
			Through-beam type	Retro-reflective type	Diffuse-reflective type	
Model	NPN	No timer function	<b>VT-3000N</b>	<b>VR-800N</b>	<b>VD-100N</b>	<b>VD-250N</b>
		With timer function	—			
	PNP	No timer function	<b>VT-3000P</b>	<b>VR-800P</b>	<b>VD-100P</b>	<b>VD-250P</b>
		With timer function	—			
Sensing distance			30 m	0.01 to 8 m*1	1 m*2	2.5 m*3
Light source			Red LED			Infrared LED
Response time			1.5 ms or less			5 ms or less
Hysteresis			—		20% or less	
Distance adjustment			1-turn potentiometer (240°)			
Indicators			Output indicator (orange LED), Power indicators for through-beam type emitters (red LED)			
Control output			NPN/PNP Open collector Max. 100 mA/30 VDC			
Output mode			Light ON / Dark ON selection switch			
Test input			Equipped			
Connection type			Terminal block type (applicable cable outer diameter: ø6 to ø10 mm), Conduit : PF1/2 (JIS B0202)			
Insulation resistance			20 MΩ or more (500 VDC)			
Rating	Supply voltage		10 to 30 VDC, including 10% ripple (p-p)			
	Current consumption		35 mA or less			
Applicable regulations			EMC directive (2004/108/EC)			
Applicable standards			EN 60947-5-2			
Company standards			Noise resistance: Feilen Level 3 cleared			
Environmental resistance	Ambient temperature/humidity		-25 to +55°C (no freezing) / 35 to 85% RH (no condensation)			
	Ambient illuminance		Sunlight: 10,000 lx or less, Incandescent lamp: 3,000 lx			
	Vibration resistance		10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions			
	Shock resistance		Approx. 50 G (500 m/s <sup>2</sup> ); 3 times in each of the X, Y, and Z directions			
	Degree of protection		IP67			
Material			Housing/Cover: ABS (glass fiber filled), Lens/Lens cover: PMMA			
Weight without cable			Emitter: 70g Receiver: 90g	95 g		
Included accessories			Mounting bracket BEF-W260	Mounting bracket BEF-W260 Reflector: V61	Mounting bracket BEF-W260	

\*1. With the V-61 reflector

\*2. Using a 200 × 200 mm white sheet of paper.

\*3. Using a 400 × 400 mm white sheet of paper.

● Specifications are subject to change without prior notice for product improvement purposes.

Type		Universal voltage type			
		Through-beam type	Retro-reflective type	Diffuse-reflective type	
Model	No timer function	<b>VT-4000</b>	<b>VR-1000</b>	<b>VD-130</b>	<b>VD-300</b>
	With timer function	<b>VT-4000T</b>	<b>VR-1000T</b>	<b>VD-130T</b>	<b>VD-300T</b>
Sensing distance		40 m	0.01 to 10 m <sup>*1</sup>	1.3 m <sup>*2</sup>	3 m <sup>*3</sup>
Light source		Red LED			Infrared LED
Response time		20 ms or less			
Hysteresis		—		20% or less	
Distance adjustment		1-turn potentiometer (240°)			
Indicators		Output indicator (orange LED), Power indicators for through-beam type emitters (red LED)			
Only types with timer functions		ON and OFF delay: 0.1 to 10 seconds			
Control output		Relay 1C <sup>*4</sup> 250 VAC 3 A or less, 30 VDC 3 A or less			
Output mode		Fixed to Light ON			
Connection type		Terminal block type (applicable cable outer diameter: $\phi$ 6 to $\phi$ 10 mm), Conduit : PF1/2 (JIS B0202)			
Insulation resistance		20 M $\Omega$ or more (500 VDC)			
Rating	Supply voltage	12 to 240 VDC, 24 to 240 VAC 50/60Hz			
	Power consumption	8.5 VA	5 VA		
Applicable regulations		EMC directive (2004/108/EC), Low voltage directive (2006/95/EC)			
Applicable standards		EN 60947-5-2			
Company standards		Noise resistance: Feilen Level 3 cleared			
Environmental resistance	Ambient temperature/humidity	-25 to +55°C (no freezing) / 35 to 85% RH (no condensation)			
	Ambient illuminance	Sunlight: 10,000 lx or less, Incandescent lamp: 3,000 lx			
	Voltage resistance	2700 VAC / minute			
	Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions			
	Shock resistance	Approx. 50 G (500 m/s <sup>2</sup> ); 3 times in each of the X, Y, and Z directions			
	Degree of protection	IP67			
Material		Housing/Cover: ABS (glass fiber filled), Lens/Lens cover: PMMA			
Weight without cable		Emitter: 70g Receiver: 90g	95 g		
Included accessories		Mounting bracket BEF-W260	Mounting bracket BEF-W260 Reflector: V61	Mounting bracket BEF-W260	

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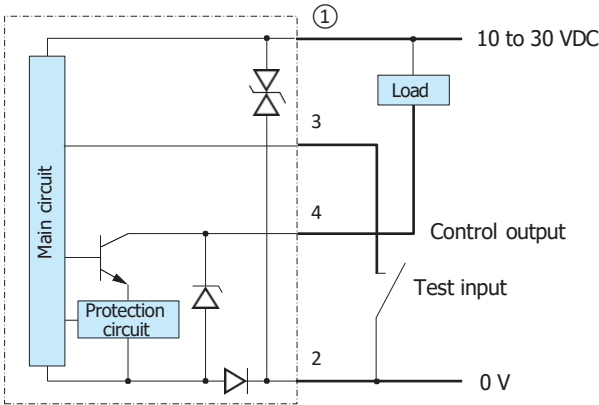
\*4. When driving the inductive load (with an induction valve, electromagnetic contactor, etc.) through the relay connection point, please use a noise absorption device (surge absorber).

- Specifications are subject to change without prior notice for product improvement purposes.
- Products certified for the Chinese CCC compulsory certification system also available. Contact us for details.

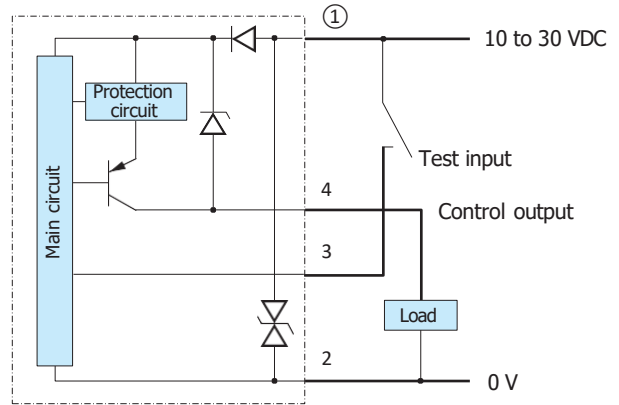
Terminal block type V series

I/O circuit diagram

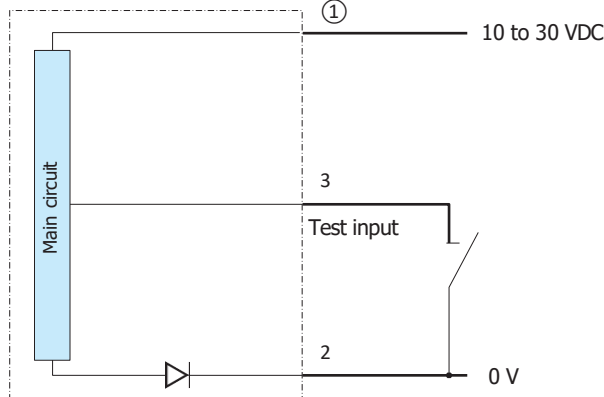
NPN output type (DC power type)



PNP output type (DC power type)



Through-beam type emitter (NPN. DC power type)



\*PNP/DC power type emission stoppage is shorted with 10 to 30 VDC.

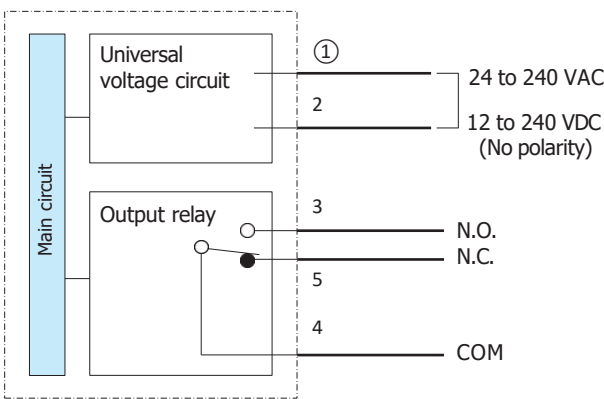
Connecting

■ 1 to 4 are connector pin No.

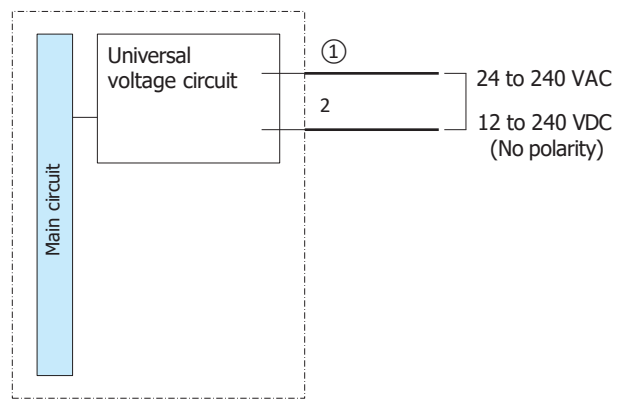
Notes

- When using a switching regulator for the power supply, be sure to ground the frame ground terminal.
- Avoid wiring in parallel with or in the same piping as high-voltage wires or power lines. Doing so may lead to malfunctions caused by noise. Also, shorten the power supply and signal wires as much as possible.
- Avoid using the transient state while the power is on (approx. 100 ms).

Universal voltage type



Through-beam type emitter (universal voltage type)

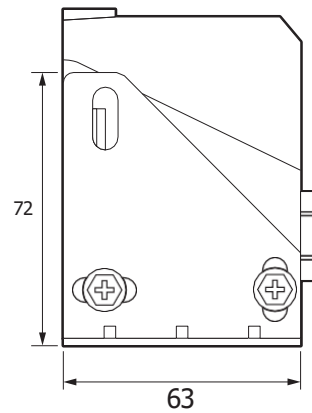
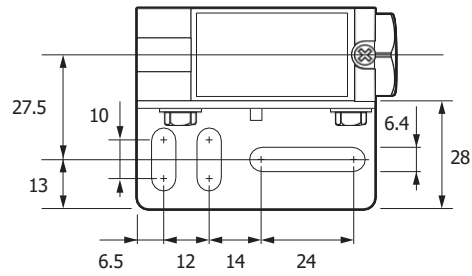
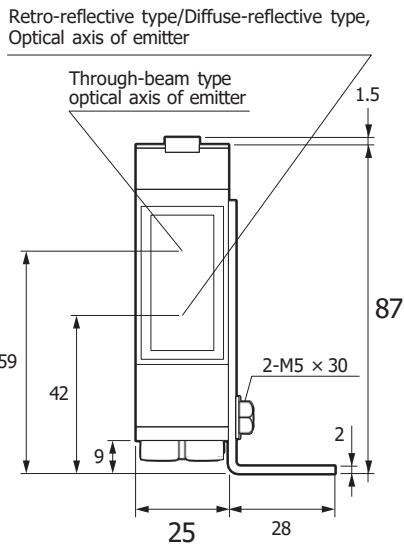


## Dimensions

### Sensor with mounting bracket

(Unit: mm)

■ Floor-mounted



■ Wall-mounted

