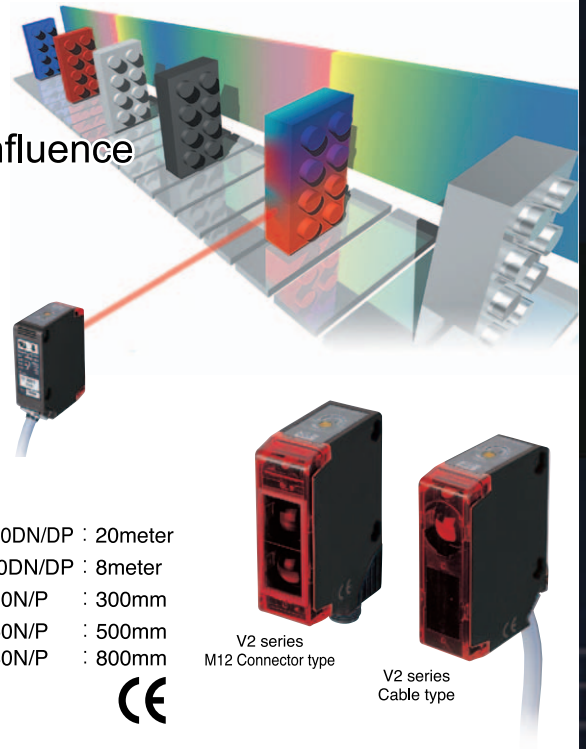


Reliable sensing with minimal background influence

# V2 series

V2 series features its "BGS-V" type products with perfect BGS functions (Background Suppression). This technology gives stable sensing of black or dark object even with white or reflecting background.



- |  |   |
|--|---|
| <p>■ Relay output</p> <p>Through-Beam type : V2T-2000 : 20meter</p> <p>Retro with polarizing Filter : V2R-800 : 8meter</p> <p>BGS type : BGS-V30 : 300mm</p> <p>: BGS-V50 : 500mm</p> <p>: BGS-V80 : 800mm</p> | <p>■ NPN / PNP output</p> <p>Through-Beam type : V2T-2000DN/DP : 20meter</p> <p>Retro with polarizing Filter : V2R-800DN/DP : 8meter</p> <p>BGS type : BGS-V30N/P : 300mm</p> <p>: BGS-V50N/P : 500mm</p> <p>: BGS-V80N/P : 800mm</p> |
|--|---|

■ M12 4-pin Connector versions are available for NPN / PNP type

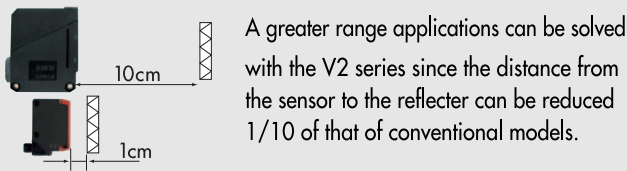


## Features

### What is BGS?

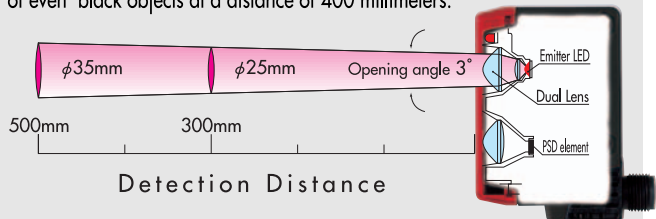
Conventional diffused reflection sensors work by detecting the quantity of incoming light. OPTEX's BGS senses the distance to the object in the same manner as an Auto-focus camera. The PSD element in the sensor detects the angle of the light entering the lens and thus the distance to the reflecting object.

### A reflector can be installed down to 1 centimeter



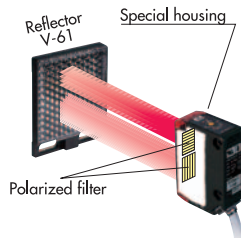
### Big lens(vertically) the best way to secure stable sensing even in misty condition

OPTEX employs a condenser lens which enables the maximum LED light possible at the emitter's large diameter lens. The large lens reconverges the beam to be similar to parallel light, creating a long range small spot. This innovation allows the detection of even black objects at a distance of 400 millimeters.



### Shiny objects can be detected at a distance of 800mm

The optical axis housing contains polarized filters which allow only polarized light from the reflector to reach the receiving element; reflected light from shiny objects cannot produce a false signal.



### Exclusive Connector makes these sensors easier to use (DC Power Connector)

OPTEX's new pivoting connector allows vertical or horizontal cable installation by a simple rotation. Even though the connector rotates  $180^\circ$ , it still maintains IP67 enclosure rating.



## Specifications

	Types	Detecting distance	light ON Dark ON	Sensitivity adjustment	Red LED	Test input	Supply voltage	Output	Model number	
Cable	Through-beam	20m	●	●	●	—	24 to 240V AC $\pm 10\%$ 12 to 240V DC $\pm 10\%$	Relay 1c	V2T-2000	
	Retro-reflection	0.01~8m	●	●	●	—			V2R-800	
	BGS longer	20~500mm	●	●	●	—			BGS-V50	
	BGS shorter	10~300mm	●	●	●	—			BGS-V30	
	BGS longest	20~800mm	●	●	●	—			BGS-V80N/P	
	Connector	Through-beam	20m	●	—	●	●	10 to 30V DC	NPN/PNP	V2T-2000DN/P
		Retro-reflection	0.01~8m	●	●	●	—			V2R-800DN/P
		BGS longer	20~500mm	●	●	●	—			BGS-V50N/P
		BGS shorter	10~300mm	●	●	●	—			BGS-V30N/P
		BGS longest	20~800mm	●	●	●	—			BGS-V80N/P
Connector		Through-beam	20m	●	—	●	●	10 to 30V DC	NPN/PNP	V2T-2000CDN/P
		Retro-reflection	0.01~8m	●	●	●	—			V2R-800CDN/P
		BGS longer	20~500mm	●	●	●	—			BGS-V50CN/P
		BGS shorter	10~300mm	●	●	●	—			BGS-V30CN/P
		BGS longest	20~800mm	●	●	●	—			BGS-V80CN/P

# Specifications

Model	Relay Output Type					Transistor Output Type				
	Through-beam	Retro-reflection	BGS			Through-beam	Retro-reflection	BGS		
Cable type (NPN)	V2T-2000	V2R-800	BGS-V80	BGS-V50	BGS-V30	V2T-2000DN	V2R-800DN	BGS-V80N	BGS-V50N	BGS-V30N
(PNP)	(Relay output types of above does not matter NPN/PNP)					V2T-2000DP	V2R-800DP	BGS-V80P	BGS-V50P	BGS-V30P
Connector type (NPN)	—	—	—	—	—	V2T-2000DN	V2R-800DCN	BGS-V80CN	BGS-V50CN	BGS-V30CN
(PNP)	—	—	—	—	—	V2T-2000DP	V2R-800DCP	BGS-V80CP	BGS-V50CP	BGS-V30CP
Sensing range	20m	8m	80cm	50cm	30cm	20m	8m	80cm	50cm	30cm
Supply voltage	24-240V AC, or 12-240V DC +/-10%					10 to 30 V DC including 10% of ripple				
Indicator	Single LED									
Power consumption	2VA Max					35mA Max		25mA Max		
Sensitivity adjustment	2-turn potentiometer									
Response time	15msec Max					1m sec	0.7m sec	2m sec		
Control output	Relay output 1C, 250V AC, 0.3A / 30V DC 2A					NPN or PNP open collector (total 100mA 30V DC)				
Hysteresis	NIL	NIL	—	5% Max	—	NIL	NIL	5% Max		
Operation Mode	—					Light ON / Dark ON switchover				
Light source	Red LED									
Noise resistance	IEC 1000-4-2, Level 4, IEC 1000-4-3, Level 3, C4525 1000V JIS									
Ambient Temp/Humid	-25 to 55 C / 35 to 85%RH									
Environment illuminance	Sunlight:10,000lux max., Incandescent lamp:3,000 lux max.									
Shock resistance	50G(500m/S <sup>2</sup> ),X-Y-Z axis 3 times									
Protection category	IP67									
Housing Material	Housing:ABS Glassfiber reinforced. Front lens:PC(PMMA for retro-reflection)									

## Components

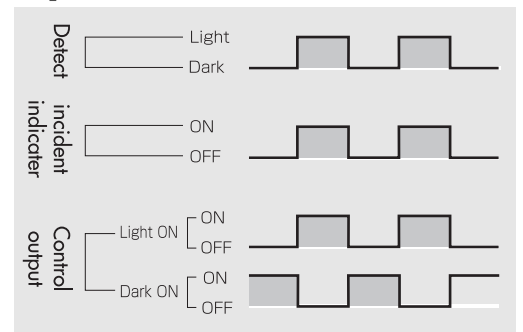


## Mode(AC/DC)

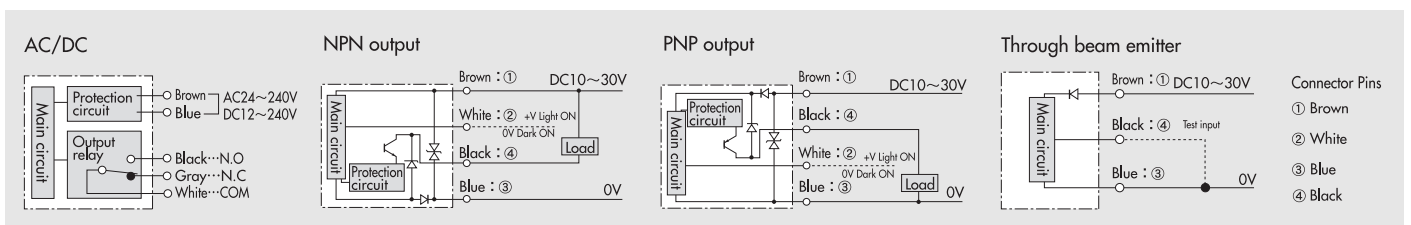
Types	T-Beam/Retro	BGS			
	Light ON				
Output	N.O. Black cable	N.O. Gray cable	N.O. Black cable	N.O. Gray cable	
Output Mode	Power OFF	Open	Close	Open	Close
	Light ON	Close	Open	Close	Open
	Dark ON	Open	Close	Open	Close

※ Operation Mode is common for NPN and PNP

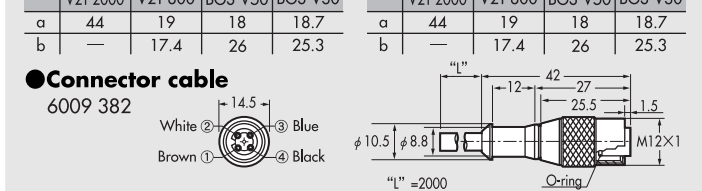
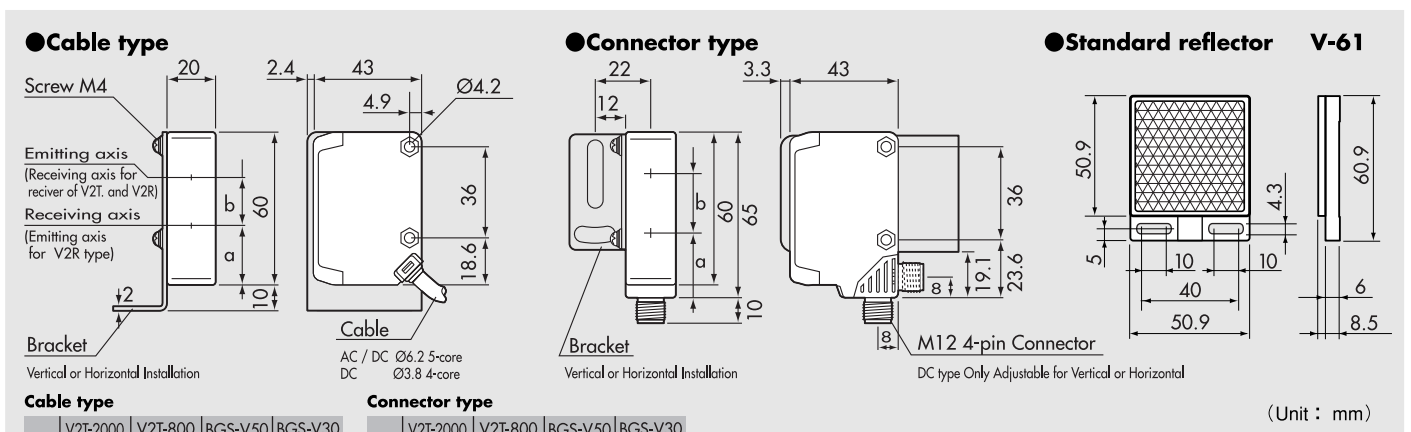
## Operation Mode(DC)



## Circuit



## Dimensions



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