

## BE-R series

Photoelectric sensor for detection of liquids



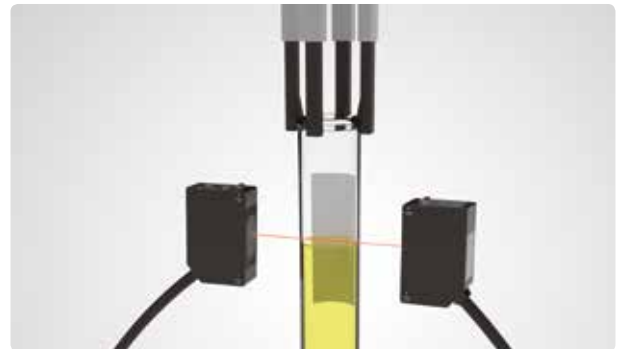
- › Reliable detection of liquids with a thru-beam type
- › No malfunctions caused by crystallization or corrosion
- › Non-contact detection of fluid media
- › Tanks can be exchanged without the need for re-adjusting the sensor
- › PNP and NPN output types available

### ■ Applications

The powerful light beam is able to penetrate containers and tanks made from thick material and is not negatively influenced by colored liquids.



Detection of the maximum level

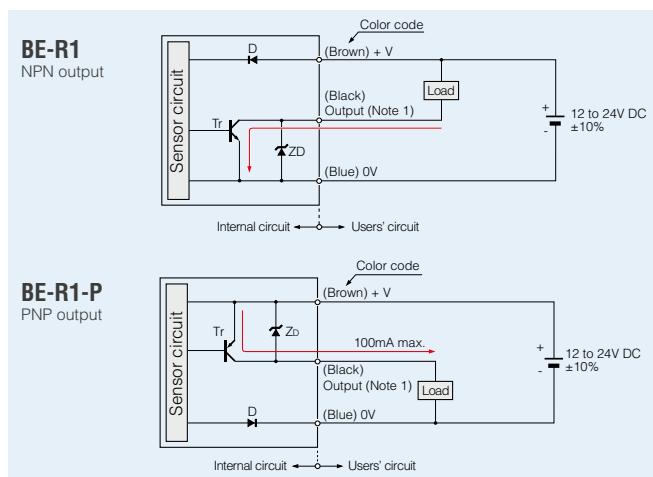


Detection of serum or plasma in a test tube

# Specifications

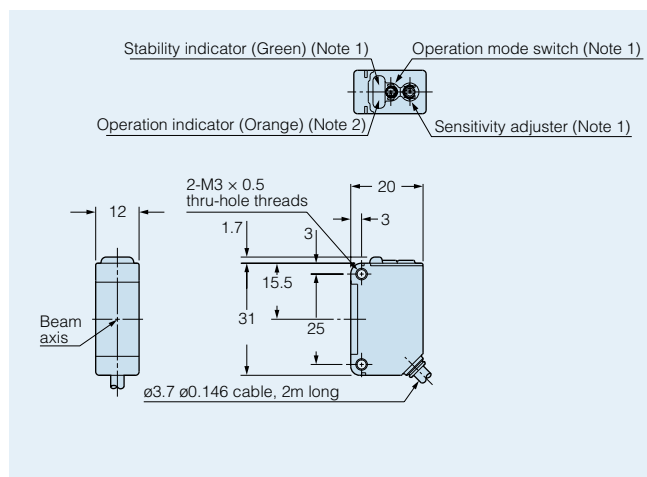
Item	Type	NPN output	PNP output
	Model No.	BE-R1	BE-R1-P
Sensing range	5m without container or pipe (the sensing range becomes shorter depending on the thickness, material, color, etc., of the container or pipe)		
Sensing object	Min. $\phi$ 12mm aqueous liquid or opaque object		
Supply voltage	12 to 24V DC $\pm$ 10% including ripple max. 10% (P-P)		
Current consumption	Emitter/receiver: max. 25mA		
Output	NPN open-collector transistor <ul style="list-style-type: none"> <li>• Maximum sink current: 100mA</li> <li>• Applied voltage: max. 30V DC (between output and 0V)</li> <li>• Residual voltage: max. 1.5V at 100mA sink current, max. 0.4V at 16mA sink current</li> </ul>		PNP open-collector transistor <ul style="list-style-type: none"> <li>• Maximum source current: 100mA</li> <li>• Applied voltage: max. 30V DC (between output and +V)</li> <li>• Residual voltage: max. 1.5V at 100mA source current, max. 0.4V at 16mA source current</li> </ul>
	Output operation	Light-ON or Dark-ON (switchable)	
	Short-circuit protection	Incorporated	
Response time	Max. 12ms		
Operation indicator	Orange LED on the receiver (lights up when the output is ON)		
Stability indicator	Green LED on the receiver (lights up under stable light received condition or stable dark condition)		
Power indicator	Orange LED on the emitter (lights up when the power is ON)		
Sensitivity adjuster	Continuously variable adjuster		
Pollution degree	3 (industrial environment)		
Degree of protection	IP67 (IEC)		
Ambient temperature	0 to +55°C (no dew condensation or icing allowed), storage: -30 to +70°C		
Ambient humidity	35 to 85% RH, storage: 35 to 85% RH		
Ambient light	Sunlight: 10,000lx at the light-receiving face, incandescent light: 3,000lx at the light-receiving face		
EMC	EN 50081-2, EN 50082-2, EN 60947-5-2		
Emitting element	Infrared LED (modulated)		
Material	Polycarbonate		
Cable	0.2mm <sup>2</sup> 3-core (emitter: 2-core) oil-resistant cab tire cable, 2m		
Cable extension	Extension up to 100m is possible for both emitter and receiver with a cable with min 0.3 mm <sup>2</sup>		
Weight	Emitter: 45g approx., receiver: 50g approx.		

## I/O circuit diagram



Symbols	D	Reverse supply polarity protection diode
	Z <sub>D</sub>	Surge absorption zener diode
	Tr	NPN respectively PNP output transistor

## Dimensions (unit: mm)



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