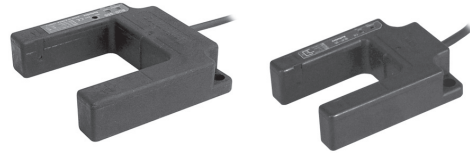## Reinforced Plastic Case U-shaped Type

◼ Features

- Improved noise resistance to disturbance light
- Max. 1ms high speed response type
- Built-in reverse polarity protection circuit and output short overcurrent protection circuit
- Light ON / Dark ON Selectable by control wire
- Protection structure IP66 (IEC standard)
  : BUP-30, BUP-50

⚠	Please read "Safety Considerations" in the instruction manual before using.

CE

SENSORS

CONTROLLERS

MOTION DEVICES

SOFTWARE

◼ Specifications

Model	NPN open collector output	BUP-30	BUP-30S	BUP-50	BUP-50S
	PNP open collector output	BUP-30-P	BUP-30S-P	BUP-50-P	BUP-50S-P
Sensing type		Through-beam			
Sensing target		Opaque materials of min. Ø4mm	Opaque materials of min. Ø1.5mm	Opaque materials of min. Ø4mm	Opaque materials of min. Ø1.5mm
Operation mode		Selectable Light ON or Dark ON by control wire			
Sensing distance		30mm		50mm	
Response speed		Max. 1ms			
Power supply		12-24VDC ±10% (ripple P-P: max. 10%)			
Current consumption		Max. 30mA			
Light source		Infrared LED (940nm)			
Sensitivity adjustment		Fixed	Sensitivity adjuster	Fixed	Sensitivity adjuster
Control output		NPN or PNP open collector output ●Load voltage: max. 30VDC ●Load current: max. 200mA ●Residual voltage - NPN: max. 1VDC, PNP: max. 2.5VDC			
Protection circuit		Reverse polarity protection circuit, output short overcurrent protection circuit			
Indication		Power indicator: green LED, operation indicator: red LED			
Insulation resistance		Over 20MΩ (at 500VDC megger)			
Noise immunity		±240V the square wave noise (pulse width: 1μs) by the noise simulator			
Dielectric strength		1,000VAC 50/60Hz for 1 minute			
Vibration		1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours			
Shock		500m/s² (approx. 50G) in each X, Y, Z direction for 3 times			
Environment	Ambient illumination	Sunlight: max. 11,000lx, incandescent lamp: max. 3,000lx (receiving illumination)			
	Ambient temperature	-25 to 65℃[BUP-30S (-P) & BUP-50S (-P): -10 to 60℃], storage: -25 to 70℃			
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH			
Protection structure		IP66 (IEC standard)	IP50 (IEC standard)	IP66 (IEC standard)	IP50 (IEC standard)
Material		Case: acrylonitrile butadiene styrene, cap: polycarbonate			
Cable		Ø4mm, 4-wire, 2m (AWG22, core diameter: 0.08mm, number of cores: 60, insulation out diameter: Ø1.25mm)			
Accessory		—	Adjuster driver	—	Adjuster driver
Approval		CE			
Unit weight		Approx. 90g		Approx. 140g	

※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

◼ Operation Mode

Operation mode	Light ON	Dark ON
Receiver operation	Received light / Interrupted light	Received light / Interrupted light
Operation indicator (red LED)	ON / OFF	ON / OFF
Transistor output	ON / OFF	ON / OFF

BUP Series

◾ Control Output Diagram

● NPN open collector output

Photoelectric sensor circuit	Connection

(brown)+V
Light ON
Load
(black) Output
Max. 200mA
12-24VDC
Main circuit
Output short overcurrent protection circuit
1.5Ω
(blue)0V
Dark ON
(white) Control

● PNP open collector output

Photoelectric sensor circuit	Connection

(brown)+V
Light ON
1.5Ω
Max. 200mA
12-24VDC
Main circuit
Output short overcurrent protection circuit
(black) Output
Load
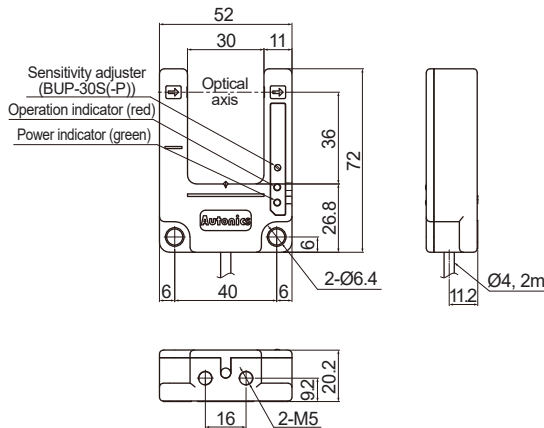(blue)0V
Dark ON
(white) Control
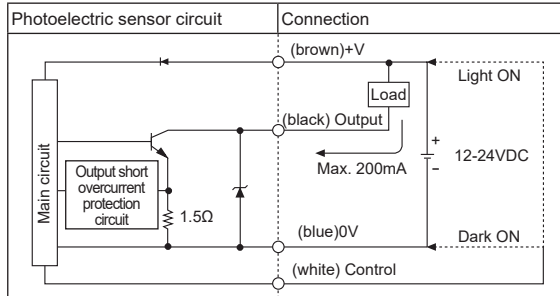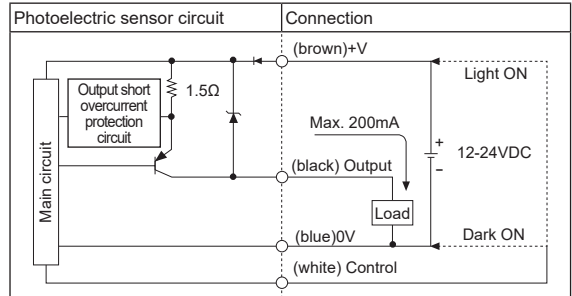
※Select Light ON / Dark ON by control wire.　　- Light ON: Connect control wire to +V / Dark ON: Connect control wire to 0V
※If short-circuit the control output terminal or supply current over the rated specification, normal control signal is not output due to the output short over current protection circuit.
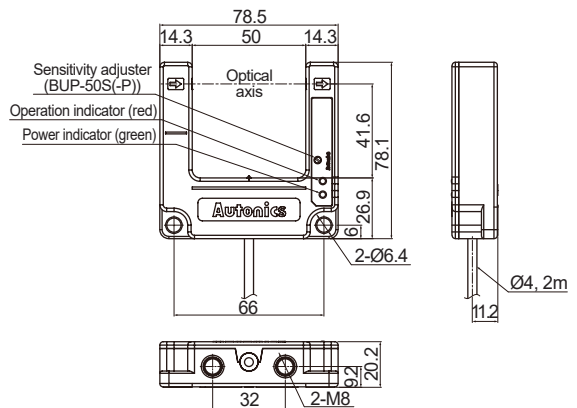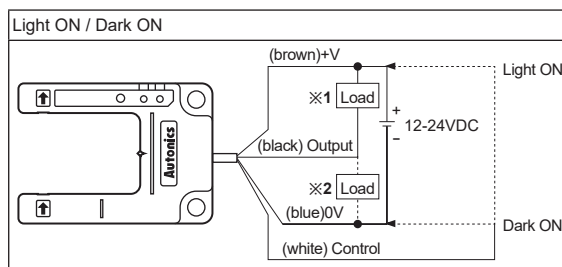
◾ Dimensions

(unit: mm)

● BUP-30, BUP-30-P, BUP-30S, BUP-30S-P

● BUP-50, BUP-50-P, BUP-50S, BUP-50S-P

◾ Connections

Light ON / Dark ON

(brown)+V
Light ON
※1 Load
12-24VDC
(black) Output
※2 Load
Dark ON
(blue)0V
(white) Control

※1: Load connection for NPN open collector output
※2: Load connection for PNP open collector output

◾ Mounting and Sensitivity Adjustment

Check the position where the photoelectric sensor will be used and the connection then supply the power and set sensitivity as below.
※BUP-30□-□: When installing the product, tighten the screw with a tightening torque of 1.96N·m.
BUP-50□-□: When installing the product, tighten the screw with a tightening torque of 4.9N·m.

● Sensitivity adjustment

When placing a target within sensing range of sensor, turn the sensitivity adjuster from the minimum position and check the position 'A' where the operation indicator is turned on (dark on) or turned off (light on). Turn the sensitivity adjuster to 'B' in the middle between 'A' and 'C' which is the maximum sensitivity position, this will be the optimal sensitivity position. (the operation indicator can be operated at the lowest sensitivity position.)

● BUP-30S, BUP-30S-P
BUP-50S, BUP-50S-P
Sensing area
Optimal position
B
A
Non sensing area
Min.　Max. C