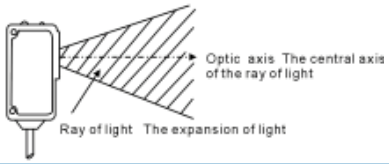
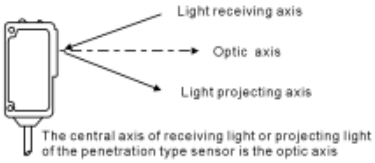
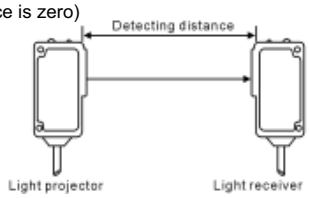
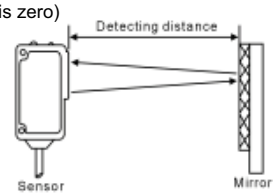
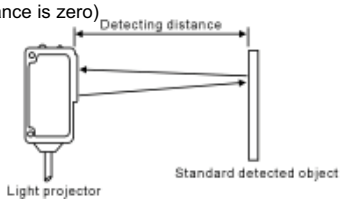
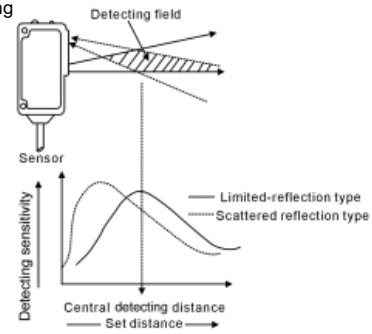
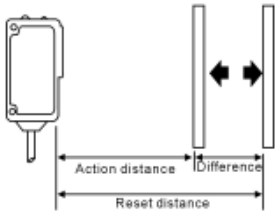
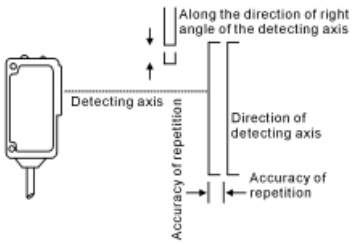
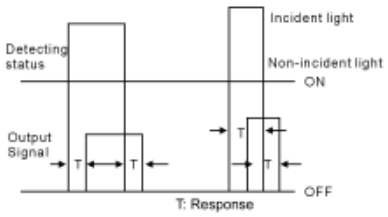
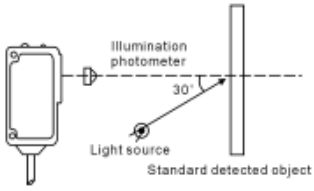
HONGHUA ELECTRIC

Photoelectric Sensor

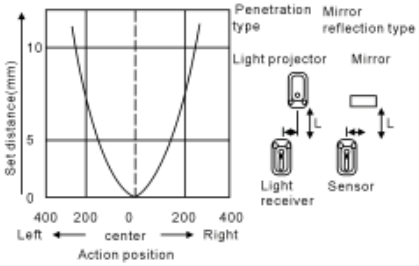
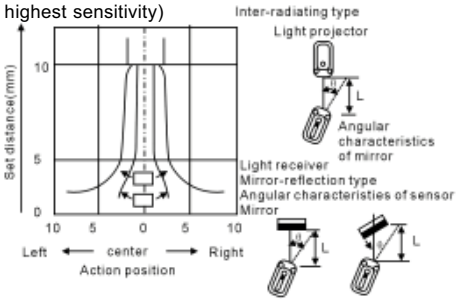
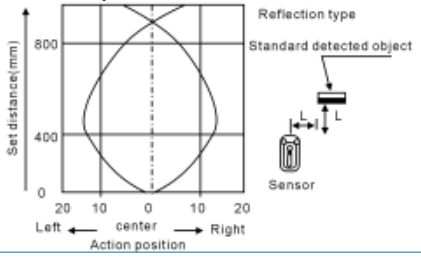
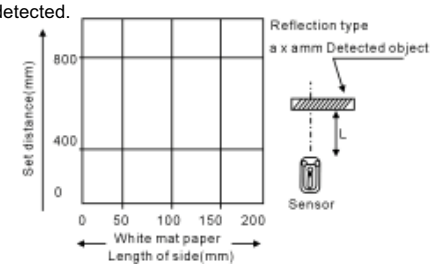
Explanation to terms

Terms	Explanations
Optic axis of ray of light	
Detecting axis	
Detecting distance	Inter-radiating type Stable in setting up the distance between the light projector and the light receiver (with 0 omitted when the distance is zero)  Mirror-reflection type The distance between the sensor and the mirror set up in accordance with the standard (with 0 omitted when the distance is zero)  Reflection type Stable in setting up the maximum distance at which the detected object can be detected stably (with 0 omitted when the distance is zero) 
Central detecting distance	For the limited-reflection type or mark sensor.the relation between the distance and the detecting sensitivity is not inverse proportion. The maximum position of the detecting sensitivity that is the central detecting distance is at the middle of the detecting distance where it is the most stable for detecting 

Terms	Explanations
Standard detected object	It is used as the standard detected object for determination of the basic specifications for reflection type sensor. It is generally white and mat.The special sensor requires the correspondent detected objecting. (For example: wafer)
The smallest detected object	The smallest object detected by the sensor under certain conditions. The object for the inter-radiating type or mirror-reflection type sensor is the opaque body(full light shield) while that of the inter-reflection type is the correspondent value of iron wire or copper wire.
Difference	For the reflection type of sensor. when the standard detected object approaches the sensor along the detecting axis.it is the difference between the initial distance (action distance) at which the ON signal is produced and the long distance(reset distance) at which the OFF signal is produced in (%) 
Accuracy of repetition	The error of response position resulted when the sensor operates repeatedly under certain conditions 
Response time	The delay time form the time the detecting status changes to the time the ON or OFF signal is produced 
Illuminance of service environment (Stray light resistant)	The ultimate illuminance does not make the sensor fail to false action.It is presented by the illuminance of the light surface of the light sensor. 

HONGHUA ELECTRIC

Photoelectric Sensor

Terms	Explanations
Parallel moving	For the penetration type or the mirror-reflection type sensor, within each of the set distances, the detected object app-roaches the sensor from the left and the right. The diagram presents the locus composed of the position points at which the sensor operates and responses. (with the highest sensitivity) The diagram is for determination of the allowed range of deflection of optic axis and the spacings between the sensors when they are used side by side. 
Angular character-istics	For the inter-radiating type or the mirror-reflection type sensor. within each of the set distances.the detected object moves to the central line from the left and the right to have the angle narrowed gradually. The diagram presents the locus composed of the angle at which the sensor operates and responses. (with the highest sensitivity) 
Characteristics of detecting field	The reflection type sensor approaches the standard detected object from the right and the left respectively within the set distance. The diagram presents the locus composed of the position points at which the sensor operates. (with the highest sensitivity). The diagram is for setting of the position of the detected object and the spacing between the sensors when they are used side by side. 
Size of the detected object and charac-teristics of the detecting distance	The diagram presents the law how the detecting distance is influenced by the size of the object. The diagram is for determination of the distance for stable detecting according to the size of the object. For the sensor provided with a sensitivity button, adjust the sensitivity to the response position of the maximum detecting distance at which the standard object is just detected. 

Operation Instructions

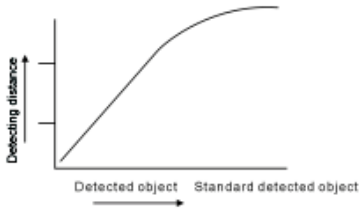
Setting of distance

Inter-radiating type & Mirror-reflection type

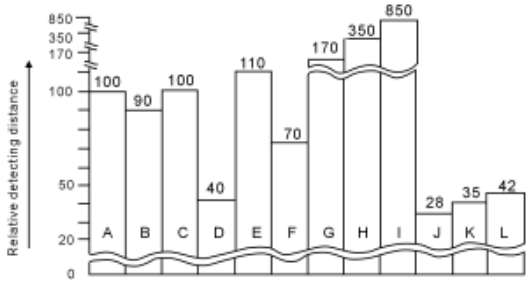
The set distance should be shorter than the detecting distance specified in the instruction manual. If it is longer than the specified distance, the sensor is still capable of working for there are surplus distance remained but the performance cannot be guaranteed In addition, when the sensor is used in harsh conditions with dirt and dust, the distance should be set up with a certain surplus.

Reflection type

The detecting distance specified in the specifications is made according to the standard detected object. The actual detecting distance will varies according to the different sizes, colors, and surface conditions of objects. The distance should be set up with a certain surplus. According to the different sizes of objects, the law of variation of the detecting distance is that the larger the detected object is, the more the reflecting amount is and the longer the detecting distance is, But when the light-receiving surface of the object larger than the light-receiving visual field, the detecting distance will not be lengthened with the size of the object enlarged.



The differences of the detected object at different detecting distances (Suitable for scattered reflection type)

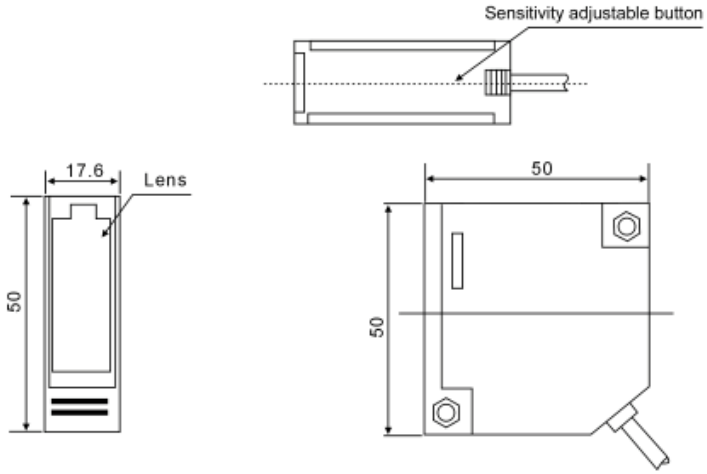


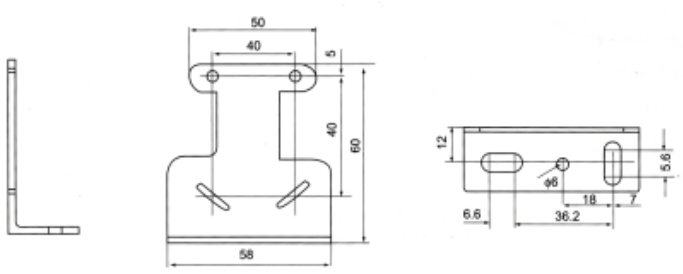
A White mat paper (standard)
B Natural color carton
C Laminated wood
D Black mat paper
E Gloss laminated wood
F Gray ethylene synthetic leather
G Green gloss sheet rubber
H Aluminium plate
I Reflector or baffle-board
J Φ10 Rusty iron stick
K Black cloth
L Mazarine cloth

(Note 1) The above relative detecting distances are obtained with the detecting distance of white mat paper of l00 to which the proportion of each value of various objects is standard. The actual values may be a little different according to the types of the photoelectric sensors and the sizes of the detected objects.

HONGHUA ELECTRIC

Built-in Photoelectric Sensor for G50 Amplifier



Detection mode		Scattered reflection type		Mirror-reflection type		Inter-radiating type	
Output mode		NPN	PNP	NPN	PNP	NPN	PNP
DC power	NO	G50-D30NK	G50-D30PK	G50-R35NK	G50-R35PK	G50-T5NK	G50-T5PK
	NC	G50-D30NB	G50-D30PB	G50-R35NB	G50-R35PB	G50-T5NB	G50-T5PB
	NO+NC	G50-D30NH	G50-D30PH	G50-R35NH	G50-R35PH	G50-T5NH	G50-T5PH
	Relay contact	G50-D30RH		G50-R3RH		G50-T5RH	
AC power	Relay contact	G50-D30AR		G50-R3AR		G50-T5AR	
	Two-wire system NO						
	Two-wire system NC						
Detecting distance		10-30cm		3.5m		5m	
Output current		The transistor output current is 200mA,and 3A for relay.					
Supply voltage		DC10-30V+10%pulsating(P-P) below 10% ,AC24-240V+10%50..60Hz					
Current consumption		below 40mA				below 70mA	
Detected objects		Translucent body and transparent body		Translucent body with the width of above 35mm		Opaque body with the width of above 16mm	
Angle of direction		Body:1-5° Reflecting plate:25°				3-10°	
Response time		Below 2ms for(DC power), and below 20ms for(AC power)					
Sensitivity adjustment		The adjustable button is offered					
Light source		Infrared					
Ambient illumination		The illumination of lighted side is below 3000IX(electric incandescent lamp)					
Ambient temperature		In the operation:-25℃-+55℃(unfrozen),while in the state of rest:-30℃-+70℃					
Housing material		ABS resin					
Cable length		2m (can be added to 100m)					
Protection degree		IP67					
Installation accessory							

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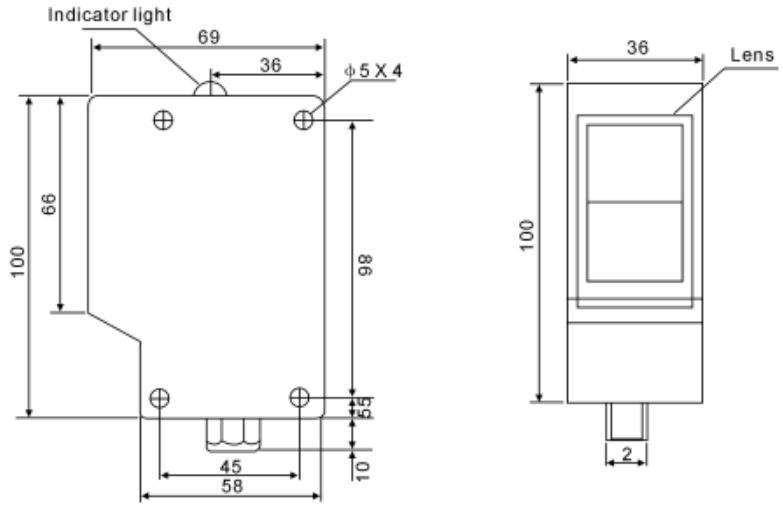
Built-in Photoelectric Sensor for G100 Amplifier



Detection mode		Scattered reflection type		Mirror-reflection type		Inter-radiating type	
Output mode		NPN	PNP	NPN	PNP	NPN	PNP
DC power	NO	G100-D150NK	G100-D150PK	G100-R7NK	G100-R7PK	G100-T12NK	G100-T12PK
	NC	G100-D150NB	G100-D150PB	G100-R7NB	G100-R7PB	G100-T12NB	G100-T12PB
	NO+NC	G100-D150NH	G100-D150PH	G100-R7NH	G100-R7PH	G100-T12NH	G100-T12PH
	Relay contact	G100-D150RH		G100-R7RH		G100-T12RH	
AC power	Relay contact	G100-D150AR		G100-R7AR		G100-T12AR	
	Two-wire system NO	G100-D150AH		G100-R7NK		G100-T12AK	
	Two-wire system NC	G100-D15AB		G100-R7AB		G100-T12AB	
Detecting distance		20-200cm		7m		12m	
Output current		The transistor output current is 200mA.200mA for SCR and 3A for relay.					
Supply voltage		DC10-30V+10%pulsating(P-P) below 10% ,AC24-240V+10%50..60HZ					
Current consumption		below 40mA below 3W					
Detected objects		Translucent body and transparent body		Translucent body with the width of above 50mm		Opaque body with the width of above 25mm	
Angle of direction		Body:1-5° Reflecting plate:25°				3-10°	
Response time		Below 2ms for(DC power), and below 20ms for(AC power)					
Sensitivity adjustment		The adjustable button is offered					
Light source		Infrared					
Ambient illumination		The illumination of lighted side is below 3000IX(electric incandescent lamp)					
Ambient temperature		In the operation:-25℃-+55℃(unfrozen),while in the state of rest:-30℃-+70℃					
Housing material		aluminum casting					
Cable length		2m (can be added to 100m)					
Protection degree		IP67					

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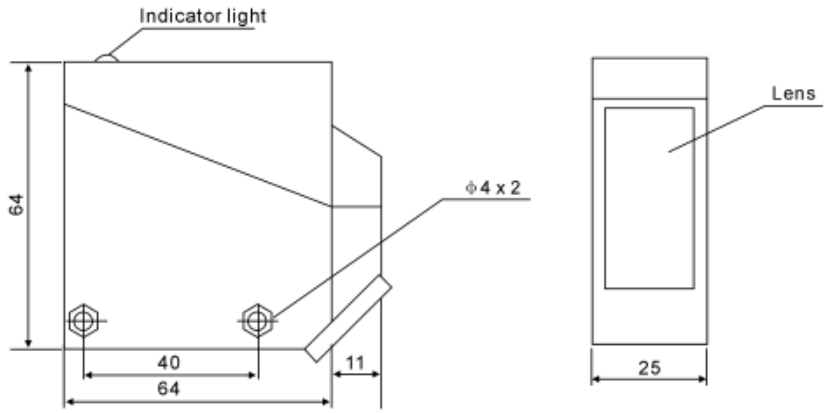
Built-in Photoelectric Sensor for G64 Amplifier



Detection mode		Scattered reflection type		Mirror-reflection type		Inter-radiating type	
Output mode		NPN	PNP	NPN	PNP	NPN	PNP
DC power	NO	G64-D50NK	G64-D50PK	G64-R5NK	G64-R5PK	G64-T8NK	G64-T8PK
	NC	G64-D50NB	G64-D50PB	G64-R5NB	G64-R5PB	G64-T8NB	G64-T8PB
	NO+NC	G64-D50NH	G64-D50PH	G64-R5NH	G64-R5PH	G64-T8NH	G64-T8PH
	Relay contact	G64-D50RH		G64-R5RH		G64-T8RH	
AC power	Relay contact	G64-D50AR		G64-R5AR		G64-T8AR	
	Two-wire system NO						
	Two-wire system NC						
Detecting distance		10-50cm		5m		8m	
Output current		The transistor output current is 200mA,and 3A for relay.					
Supply voltage		DC10-30V+10%pulsating(P-P) below 10% , AC90-240V+10%50..60HZ					
Current consumption		below 40mA				below 70mA	
Detected objects		Translucent body and transparent body		Translucent body with the width of above 10mm		Opaque body with the width of above 16mm	
Angle of direction		Body:1-5° Reflecting plate:25°				3-10°	
Response time		Below 2ms for(DC power), and below 20ms for(AC power)					
Sensitivity adjustment		The adjustable button is offered					
Light source		Infrared					
Ambient illumination		The illumination of lighted side is below 3000IX(electric incandescent lamp)					
Ambient temperature		In the operation:-25℃-+55℃(unfrozen),while in the state of rest:-30℃-+70℃					
Housing material		ABS resin					
Cable length		2m (can be added to 100m)					
Protection degree		IP66					

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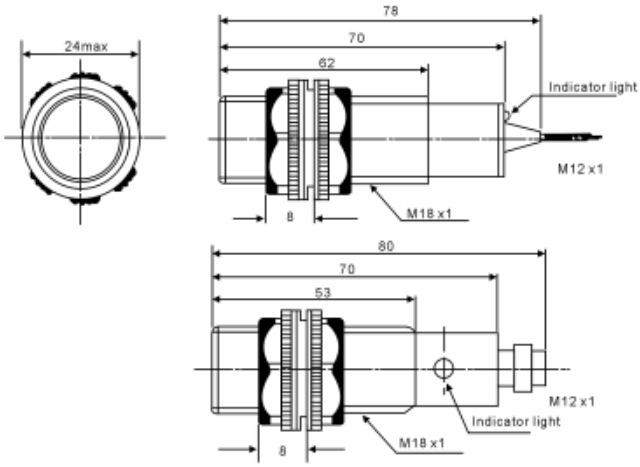
Built-in Photoelectric Sensor for G18 Amplifier



Detection mode		Scattered reflection type		Mirror-reflection type		Inter-radiating type	
Output mode		NPN	PNP	NPN	PNP	NPN	PNP
DC power	NO	G18-D10NK	G18-D10PK	G18-R2NK	G18-R2PK	G18-T50NK	G18-T50PK
	NC	G18-D10NB	G18-D10PB	G18-R2NB	G18-R2PB	G18-T50NB	G18-T50PB
	NO+NC	G18-D10NH	G18-D10PH	G18-R2NH	G18-R2PH	G18-T50NH	G18-T50PH
	Relay contact						
AC power	Relay contact						
	Two-wire system NO	G18-D10AK		G18-R2AK			
	Two-wire system NC	G18-D10AB		G18-R2AB			
Detecting distance		10cm		2m		Infrared 3m,laser 50m	
Output current		The transistor output current is 200mA and 200mA for SCR.					
Supply voltage		DC10-30V+10%pulsating(P-P) below 10% , AC24-240V+10%50..60Hz					
Current consumption		DC power below 35mmA below 3W for SCR					
Detected objects		Translucent body and transparent body		Translucent body with the width of above 15mm		Opaque body with the width of above 25mm	
Angle of direction		Body:1-5° Reflecting plate:25°				3-10°	
Response time		Below 2ms for(DC power), and below 20ms for(AC power)					
Sensitivity adjustment		-					
Light source		Infrared					
Ambient illumination		The illumination of lighted side is below 3000IX(electric incandescent lamp)					
Ambient temperature		In the operation:-25℃-+55℃(unfrozen),while in the state of rest:-30℃~+70℃					
Housing material		ABS resin (we can supply metal also)					
Cable length		2m (can be added to 100m)					
Protection degree		IP66					

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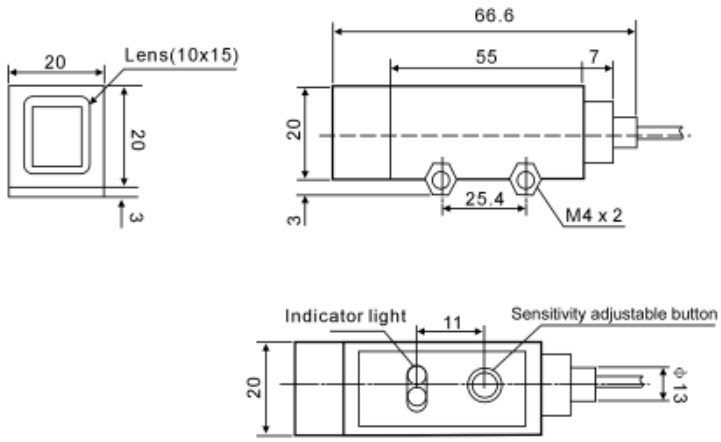
Built-in Photoelectric Sensor for G20 Amplifier



Detection mode		Scattered reflection type		Mirror-reflection type		Inter-radiating type	
Output mode		NPN	PNP	NPN	PNP	NPN	PNP
DC power	NO	G20-D30NK	G20-D30PK	G20-R1NK	G20-R1PK	G20-T5NK	G20-T5PK
	NC	G20-D30NB	G20-D30PB	G20-R1NB	G20-R1PB	G20-T5NB	G20-T5PB
	NO+NC	G20-D30NH	G20-D30PH	G20-R1NH	G20-R1PH	G20-T5NH	G20-T5PH
	Relay contact						
AC power	Relay contact						
	Two-wire system NO						
	Two-wire system NC						
Detecting distance		5-30cm		1m		5m	
Output current		The transistor output current is 200mA					
Supply voltage		DC10-30V+10%pulsating(P-P) below 10%					
Current consumption		below 40mA				below 65mA	
Detected objects		Translucent body and transparent body		Translucent body with the width of above 15mm		Opaque body with the width of above 8mm	
Angle of direction		Body:1-15° Reflecting plate:25°				3-10°	
Response time		below 1ms					
Sensitivity adjustment		The adjustable button is offered					
Light source		Infrared					
Ambient illumination		The illumination of lighted side is below 3000IX(electric incandescent lamp)					
Ambient temperature		In the operation:-25℃-+55℃(unfrozen),while in the state of rest:-30℃-+70℃					
Housing material		zinc casting					
Cable length		2m (can be added to 100m)					
Protection degree		IP67					

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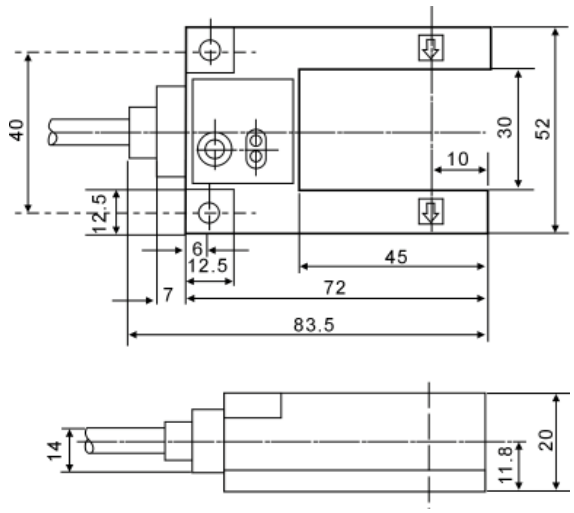
Built-in Photoelectric Sensor for G52-U Amplifier



Detection mode		slot model (slot width:30mm)		slot model (slot width:10mm)	
Output mode		NPN	PNP	NPN	PNP
DC power	NO	G52-U30NK	G52-U30PK	G52-U10NK	G52-U10PK
	NC	G52-U30NB	G52-U30PB	G52-U10NB	G52-U10PB
	NO+NC	G52-U30NH	G52-U30PH	G52-U10NH	G52-U10PH
	Relay contact				
AC power	Relay contact				
	Two-wire system NO				
	Two-wire system NC				
Detecting distance					
Output current		The output current of the transistor is 200mA			
Supply voltage		DC10-30V+10%pulsating(P-P) below 10%			
Current consumption		below 40mA			
Detected objects		Above 2 × 3 of the black mark on transparent body,opaque body.			
Angle of direction		-			
Response time		Below 1ms for(DC power)			
Sensitivity adjustment		The adjustable button is offered			
Light source		Infrared,red,green.			
Ambient illumination		The illumination of lighted side is below 3000IX(electric incandescent lamp)			
Ambient temperature		In the operation:-25℃~+55℃(unfrozen),while in the state of rest:-30℃~+70℃			
Housing material		Metal			
Cable length		2m (can be added to 100m)			
Protection degree		IP67			