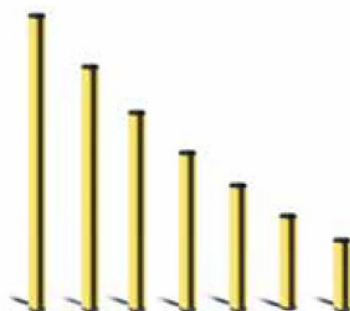
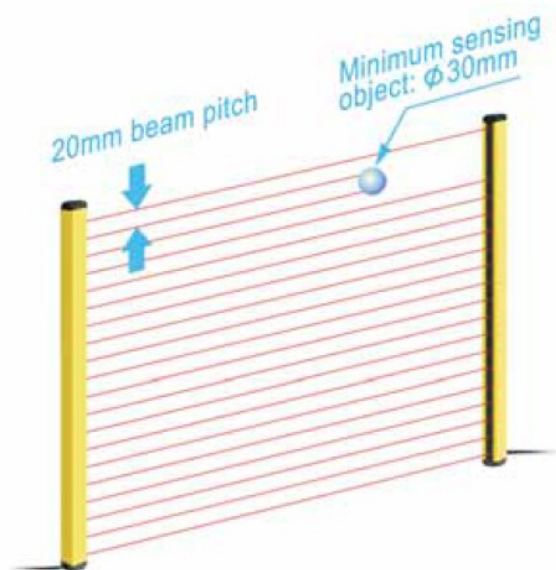


SL2 SERIES

Photoelectric Area Sensor



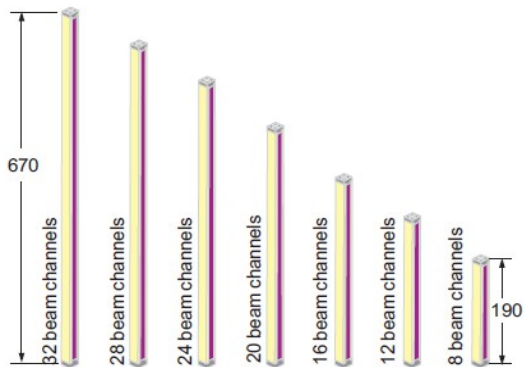
- 20mm beam pitch
- 8,12,16,20,24,28,32 beam channels
- Long sensing range: 8m
- NPN, PNP, Relay SPDT Output mode
- Supply Voltage: 12-24VDC
- Aluminum alloy shell
- CE Approvals

SL₂ SERIES PHOTOELECTRIC AREA SENSOR



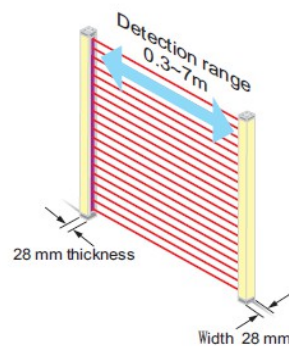
Wide variety

There are eight types of sensors having a sensing height ranging from 190mm(8 beam channels) to 670mm (32 beam channels).



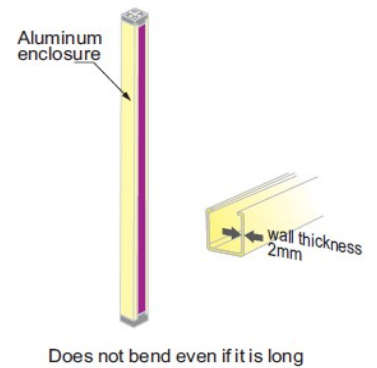
Space-saving design

With its 28 mm width and 28 mm thickness, it is small and requires the least installation space in the industry. It can be installed in small spaces incorporated within equipment.

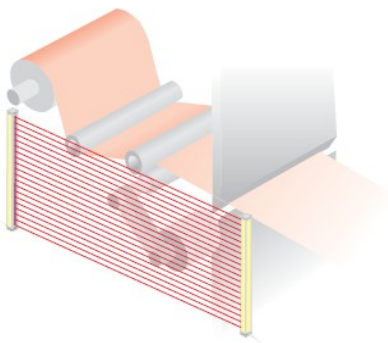


Robust Aluminum Enclosure

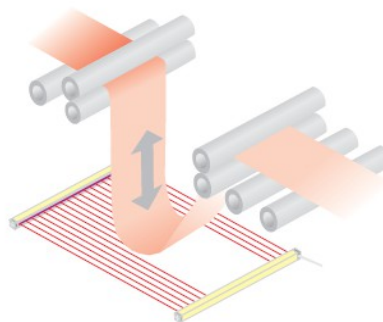
The modules are protected by a robust aluminum enclosure conforming to IP65 protection.



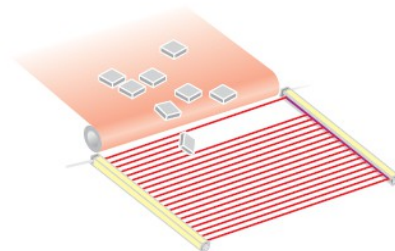
Guard against blade



Detecting a loop



detecting falling objects whose path is uncertain



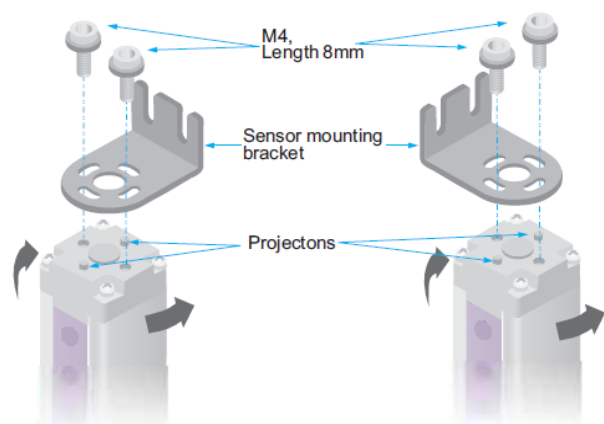
WARNING

Never use this product in any personnel safety application. It is a normal object detection sensor

SL2 SERIES PHOTOELECTRIC AREA SENSOR

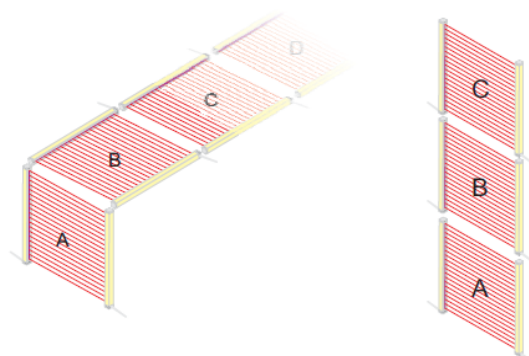
Mounting

Choose the mounting direction for the sensor mounting bracket based on the mounting direction (side or back), and temporarily tighten the brackets with the two hexagon-socket-head bolts for adjusting the mounting angle (M4 length 8mm). Tighten two hexagon-socket-head bolts securely, after beam alignment.



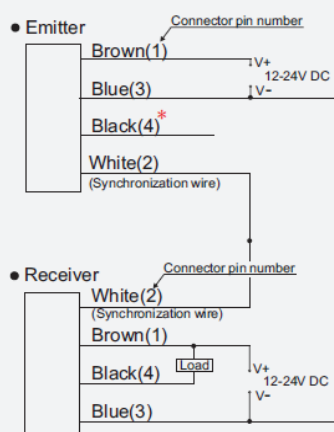
Interference Prevention Function

By synchronous sampling of software and hardware, two or more units of SL2 can be mounted close together, as shown in the figures below.

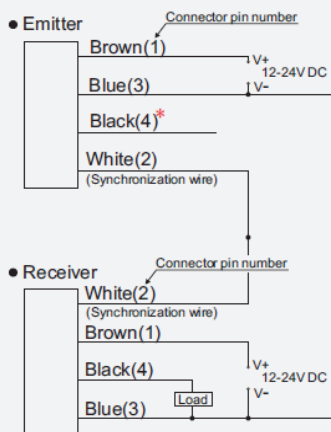


Wiring Diagram

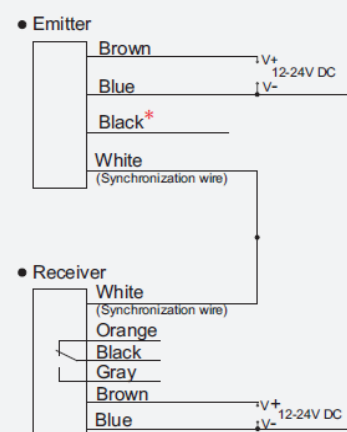
NPN output type



PNP output type



Relay SPDT output type



Pigtail Wiring Diagrams For Dc NPN/PNP Type

	Emitter	Receiver
1	1. Brown(V+)	1. Brown(V+)
2	2. White (Synchronization wire)	2. White (Synchronization wire)
3	3. Blue(V-)	3. Blue(V-)
4	4. Black*	4. output

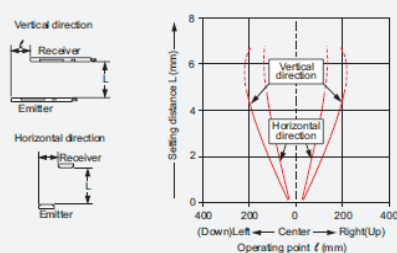
* Note: Black wire is connected to V- for emitter off; Black wire is connected to V+ or open for emitter on.

LED indicator:

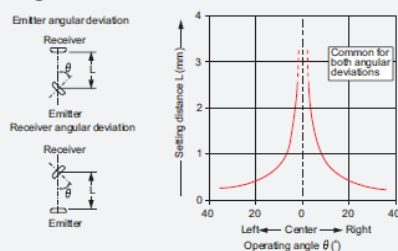
Emitter ON	Emitter OFF
One LED lights up	Two LEDs light up

Sensing Characteristics(typical)

Parallel deviation(all models)

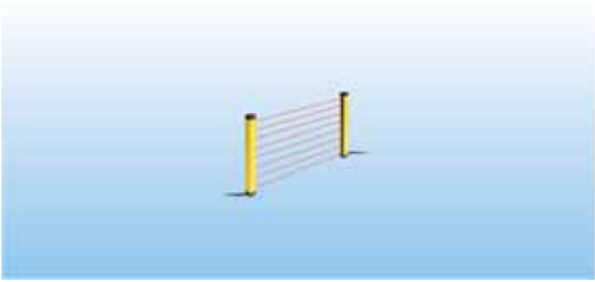
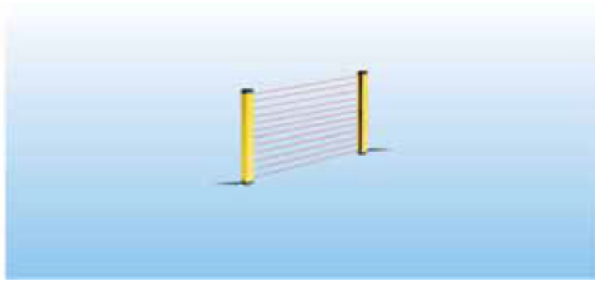


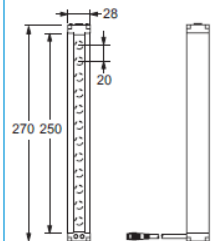
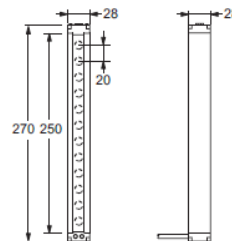
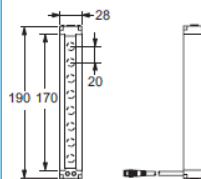
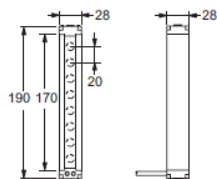
Angular deviation all models



SL2 SERIES PHOTOELECTRIC AREA SENSOR

8 beam channels and 12 beam channels

Number of beam channels		8 beam channels					12 beam channels				
Connect		Cable			Pigtail		Cable			Pigtail	
Output		NPN output	PNP output	Relay SPDT	NPN output	PNP output	NPN output	PNP output	Relay SPDT	NPN output	PNP output
Emitter		SL2-08ES-C2	SL2-08ES-C2	SL2-08ES-C2	SL2-08ES-E4	SL2-08ES-E4	SL2-12ES-C2	SL2-12ES-C2	SL2-12ES-C2	SL2-12ES-E4	SL2-12ES-E4
Receiver	N.O.	SL2-08NO-C2	SL2-08PO-C2		SL2-08NO-E4	SL2-08PO-E4	SL2-12NO-C2	SL2-12NO-C2		SL2-12NO-E4	SL2-12PO-E4
	N.C.	SL2-08NC-C2	SL2-08PC-C2		SL2-08NC-E4	SL2-08PC-E4	SL2-12NC-C2	SL2-12PC-C2		SL2-12NC-E4	SL2-12PC-E4
	N.C.+N.O.			SL2-08RS-C2					SL2-12RS-C2		
											
Sensing height		140mm					220mm				
Sensing range		7m									
Beam pitch		20mm									
Sensing object		ø30mm or more opaque object									
Supply voltage		12 to 24V DC 10% Ripple p-p 10% or less									
Current consumption(at DC 24V)		Emitter: 18.5mA, Receiver: 41mA					Emitter: 19mA, Receiver: 58mA				
Output	NPN	NPN open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V									
	PNP	PNP open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V									
	Relay	Relay SPDT, 5A/250VAC, 5A/30VDC									
Output operation		ON when all beams are received, OFF when one or more beams are interrupted.									
Short-circuit ptecton		Incorporated									
Response time for NPN/PNP type		10ms or less									
Indicators	Emitter	Power indicator: green LEDX2(light up when the power is ON; If emitter is off that is indicated by the number of LEDs lighting up)									
	Receiver	Operation indicator: Red LED(lights up when one or more beams are interrupted), Stable indicator: Green LED(lights up when all beams are stably received)									
Interference prevention function		Incorporated									
Ambient temperature		-10 to +55 °C, Storage:-10 to +60 °C									
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH									
Ambient illuminance		Sunlight: 10,000lx at the light -receiving face, Incandescent light: 3,000lx at the light-receiving face									
EMC immunity		RFI>10V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)									
Voltage withstand ability		1,000 V AC for one min. between all supply terminals connected together and enclosure									
Insulation resistance		20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure									
Vibration resistance		10 to 150 Hz frequency, 0.75 mm 0.030 in amplitude in X, Y and Z directions for two hours each									
Shock resistance		490m/s ² , acceleration(50G approx) in X, Y and Z directions for three times each									
Emitting element		Infrared LED									
Material		Enclosure: Aluminum, lens: polyester									
Cable or pigtail		ø 5.0 PVC 2m, 4x0.5mm ²	ø5.0 PVC 2m, 6x0.25mm ²	ø5.0 PVC 2m, with m12 Euro style connector	ø 5.0 PVC 2m, 4x0.5mm ²	ø 5.0 PVC 2m, 4x0.5mm ²	ø 5.0 PVC 2m, 6x0.25mm ²	ø 5.0 PVC 2m, 6x0.25mm ²	ø 5.0 PVC 2m, with m12 Euro style connector	ø 5.0 PVC 2m, with m12 Euro style connector	ø 5.0 PVC 2m, with m12 Euro style connector
Weigh(approx.)		230g	240g	220g	285.5g	285.5g	295.5g	295.5g	275.5g	275.5g	275.5g

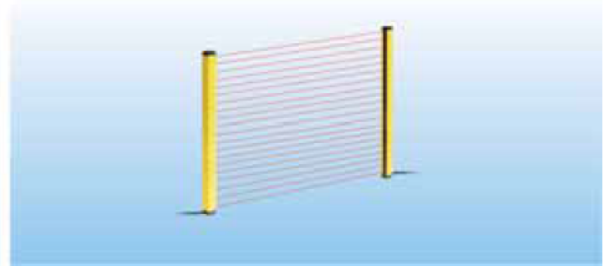
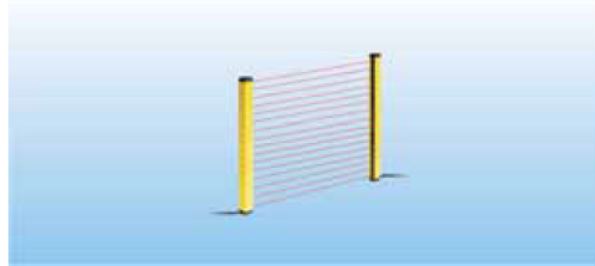


SL2 SERIES PHOTOELECTRIC AREA SENSOR

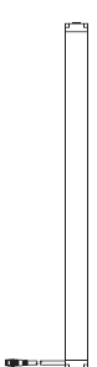
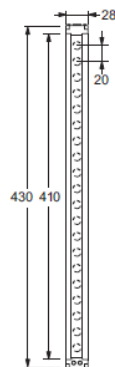
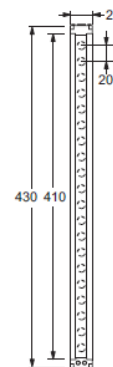
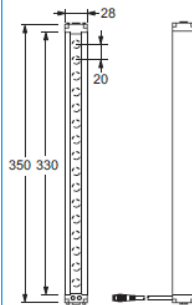
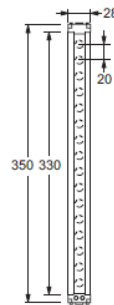
16 beam channels and 20 beam channels

Number of beam channels	
Connect	
Output	
Emitter	
Receiver	N.O.
	N.C.
	N.C.+N.O.

16 beam channels					20 beam channels				
Cable			Pigtail		Cable			Pigtail	
NPN output	PNP output	Relay SPDT	NPN output	PNP output	NPN output	PNP output	Relay SPDT	NPN output	PNP output
SL2-16ES-C2	SL2-16ES-C2	SL2-16ES-C2	SL2-16ES-E4	SL2-16ES-E4	SL2-20ES-C2	SL2-20ES-C2	SL2-20ES-C2	SL2-20ES-E4	SL2-20ES-E4
SL2-16NO-C2	SL2-16PO-C2		SL2-16NO-E4	SL2-16PO-E4	SL2-20NO-C2	SL2-20PO-C2		SL2-20NO-E4	SL2-20PO-E4
SL2-16NC-C2	SL2-16PC-C2		SL2-16NC-E4	SL2-16PC-E4	SL2-20NC-C2	SL2-20PC-C2		SL2-20NC-E4	SL2-20PC-E4
		SL2-16RS-C2					SL2-20RS-C2		

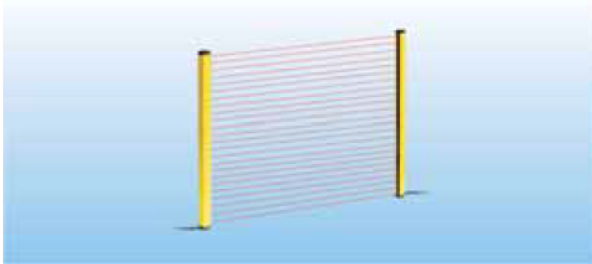
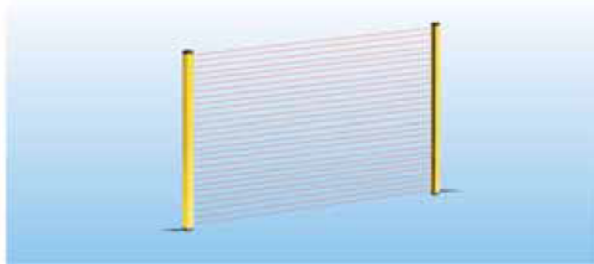
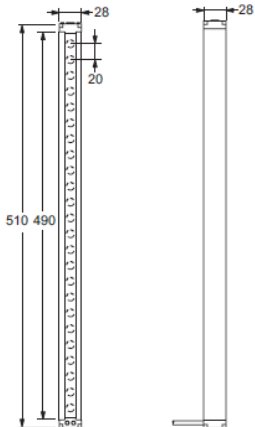
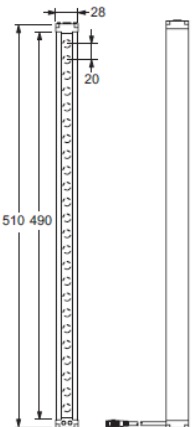
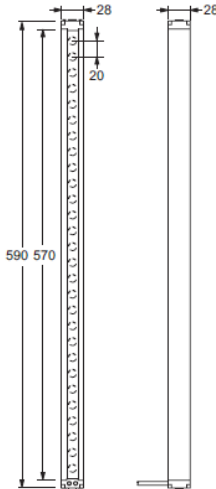
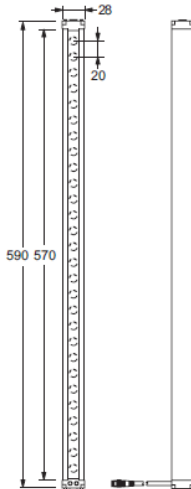


Sensing height	300mm	380mm
Sensing range	7m	
Beam pitch	20mm	
Sensing object	ø30mm or more opaque object	
Supply voltage	12 to 24V DC 10% Ripple p-p 10% or less	
Current consumption(at DC 12V)	Emitter: 19.5mA, Receiver: 71mA	
Output	NPN open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V	
	PNP open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V	
	Relay SPDT, 5A/250VAC, 5A/30VDC	
Output operation	ON when all beams are received, OFF when one or more beams are interrupted.	
Short-circuit ptecton	Incorporated	
Response time for NPN/PNP type	10ms or less	
Indicators	Power indicator: green LEDX2(light up when the power is ON; If emitter is off that is indicated by the number of LEDs lighting up)	
	Operation indicator: Red LED(lights up when one or more beams are interrupted), Stable indicator: Green LED(lights up when all beams are stably received)	
Interference prevention function	Incorporated	
Ambient temperature	-10 to +55 °C, Storage: -10 to +60 °C	
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH	
Ambient illuminance	Sunlight: 10,000lx at the light -receiving face, Incandescent light: 3,000lx at the light-receiving face	
EMC immunity	RFI>10V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)	
Voltage withstand ability	1,000 V AC for one min. between all supply terminals connected together and enclosure	
Insulation resistance	20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure	
Vibration resistance	10 to 150 Hz frequency, 0.75 mm 0.030 in amplitude in X, Y and Z directions for two hours each	
Shock resistance	490m/s ² , acceleration(50G approx) in X, Y and Z directions for three times each	
Emitting element	Infrared LED	
Material	Enclosure: Aluminum, lens: polyester	
Cable or pigtail	ø 5.0 PVC 2m, 4x0.5mm ²	ø 5.0 PVC 2m, 6x0.25mm ²
Weight(approx.)	341g	351g



SL2 SERIES PHOTOELECTRIC AREA SENSOR

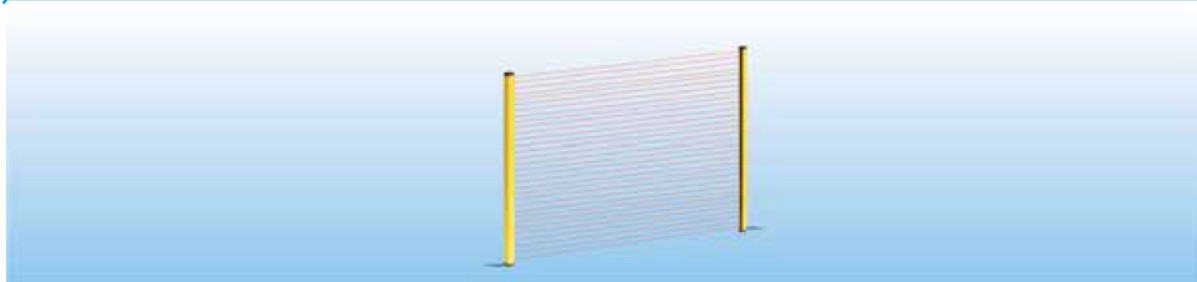
24 beam channels and 28 beam channels

Number of beam channels		24 beam channels					28 beam channels									
Connect		Cable			Pigtail		Cable			Pigtail						
Output		NPN output	PNP output	Relay SPDT	NPN output	PNP output	NPN output	PNP output	Relay SPDT	NPN output	PNP output					
Emitter		SL2-24ES-C2	SL2-24ES-C2	SL2-24ES-C2	SL2-24ES-E4	SL2-24ES-E4	SL2-28ES-C2	SL2-28ES-C2	SL2-28ES-C2	SL2-28ES-E4	SL2-28ES-E4					
Receiver	N.O.	SL2-24NO-C2	SL2-24PO-C2		SL2-24NO-E4	SL2-24PO-E4	SL2-28NO-C2	SL2-28PO-C2		SL2-28NO-E4	SL2-28PO-E4					
	N.C.	SL2-24NC-C2	SL2-24PC-C2		SL2-24NC-E4	SL2-24PC-E4	SL2-28NC-C2	SL2-28PC-C2		SL2-28NC-E4	SL2-28PC-E4					
	N.C.+N.O.			SL2-24RS-C2					SL2-28RS-C2							
																
Sensing height		460mm					540mm									
Sensing range		7m														
Beam pitch		20mm														
Sensing object		ø30mm or more opaque object														
Supply voltage		12 to 24V DC 10% Ripple p-p 10% or less														
Current consumption(at DC 12V)		Emitter: 20.5mA, Receiver: 100mA					Emitter:21mA, Receiver:117mA									
Output	NPN	NPN open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V														
	PNP	PNP open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V														
	Relay	Relay SPDT, 5A/250VAC, 5A/30VDC														
Output operation		ON when all beams are received, OFF when one or more beams are interrupted.														
Short-circuit ptecton		Incorporated														
Response time for NPN/PNP type		10ms or less														
Indicators	Emitter	Power indicator: green LEDX2(light up when the power is ON; If emitter is off that is indicated by the number of LEDs lighting up)														
	Receiver	Operation indicator: Red LED(lights up when one or more beams are interrupted), Stable indicator: Green LED(lights up when all beams are stably received)														
Interference prevention function		Incorporated														
Ambient temperature		-10 to +55 °C, Storage:-10 to +60°C														
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH														
Ambient illuminance		Sunlight: 10,000lx at the light-receiving face, Incandescent light: 3,000lx at the light-receiving face														
EMC immunity		RFI>10V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)														
Voltage withstand ability		1,000 VAC for one min. between all supply terminals connected together and enclosure														
Insulation resistance		20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure														
Vibration resistance		10 to 150 Hz frequency, 0.75 mm 0.030 in amplitude in X, Y and Z directions for two hours each														
Shock resistance		490m/s ² , acceleration(50G approx) in X, Y and Z directions for three times each														
Emitting element		Infrared LED														
Material		Enclosure: Aluminum, lens: polyester														
Cable or pigtail		ø 5.0 PVC 2m, 4x0.5mm ²	ø5.0 PVC 2m, 6x0.25mm ²	ø5.0 PVC 2m, with m12 Euro style connector		ø 5.0 PVC 2m, 4x0.5mm ²	ø 5.0 PVC 2m, 4x0.5mm ²	ø5.0 PVC 2m, 6x0.25mm ²	ø5.0 PVC 2m, with m12 Euro style connector							
Weigh(approx.)		452.3g	462.3g	442.3g		508g	518g	498g								
																
																

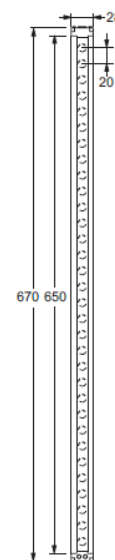
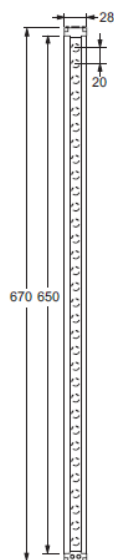
SL2 SERIES PHOTOELECTRIC AREA SENSOR

32 beam channels

Number of beam channels		32 beam channels			
Connect		Cable		Pigtail	
Output		NPN output	PNP output	NPN output	PNP output
Emitter		SL2-32ES-C2	SL2-32ES-C2	SL2-32ES-E4	SL2-32ES-E4
Receiver	N.O.	SL2-32NO-C2	SL2-32PO-C2	SL2-32NO-E4	SL2-32PO-E4
	N.C.	SL2-32NC-C2	SL2-32PC-C2	SL2-32NC-E4	SL2-32PC-E4
	N.C.+N.O.		SL2-32RS-C2		

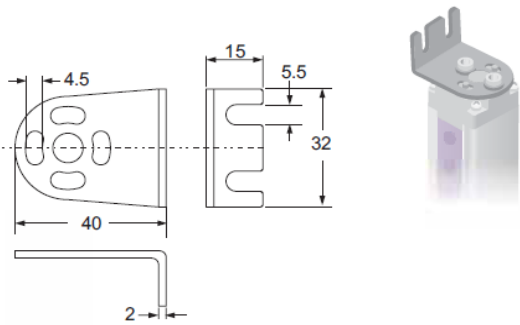


Sensing height		620mm		
Sensing range		7m		
Beam pitch		20mm		
Sensing object		φ30mm or more opaque object		
Supply voltage		12 to 24V DC 10% Ripple p-p 10% or less		
Current consumption(at DC 12V)		Emitter:21.9mA, Receiver:130mA		
Output	NPN	NPN open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V		
	PNP	PNP open-collector transistor, Max.load current:100mA; Votage Drop: <1.5V		
	Relay	Relay SPDT, 5A/250VAC, 5A/30VDC		
Output operation		ON when all beams are received, OFF when one or more beams are interrupted.		
Short-circuit ptotection		Incorporated		
Response time for NPN/PNP type		10ms or less		
Indicators	Emitter	Power indicator: green LEDx2(light up when the power is ON; if emitter is off that is indicated by the number of LEDs lighting up)		
	Receiver	Operation indicator: Red LED(lights up when one or more beams are interrupted), Stable indicator: Green LED(lights up when all beams are stably received)		
Interference prevention function		Incorporated		
Ambient temperature		-10 to +55 °C, Storage:-10 to +60°C		
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH		
Ambient Illuminance		Sunlight: 10,000lx at the light -receiving face, Incandescent light: 3,000lx at the light-receiving face		
EMC immunity		RFI>10V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)		
Voltage withstand ability		1,000 VAC for one min. between all supply terminals connected together and enclosure		
Insulation resistance		20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure		
Vibration resistance		10 to 150 Hz frequency, 0.75 mm 0.030 in amplitude in X, Y and Z directions for two hours each		
Shock resistance		490m/s ² , acceleration(50G approx) in X, Y and Z directions for three times each		
Emitting element		Infrared LED		
Material		Enclosure: Aluminum, lens: polyester		
Cable or pigtail		φ5.0 PVC 2m, 4x0.5mm ²	φ5.0 PVC2m, 6x0.25mm ²	φ5.0 PVC 2m, with m12 Euro style connector
Weigh(approx.)		563g	573g	553g

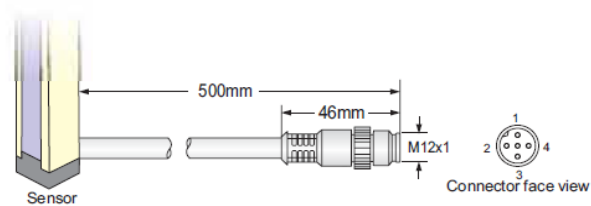


SL2 SERIES PHOTOELECTRIC AREA SENSOR

Bracket Dimensions



Diameter for Pigtail connect



Selection Guide

