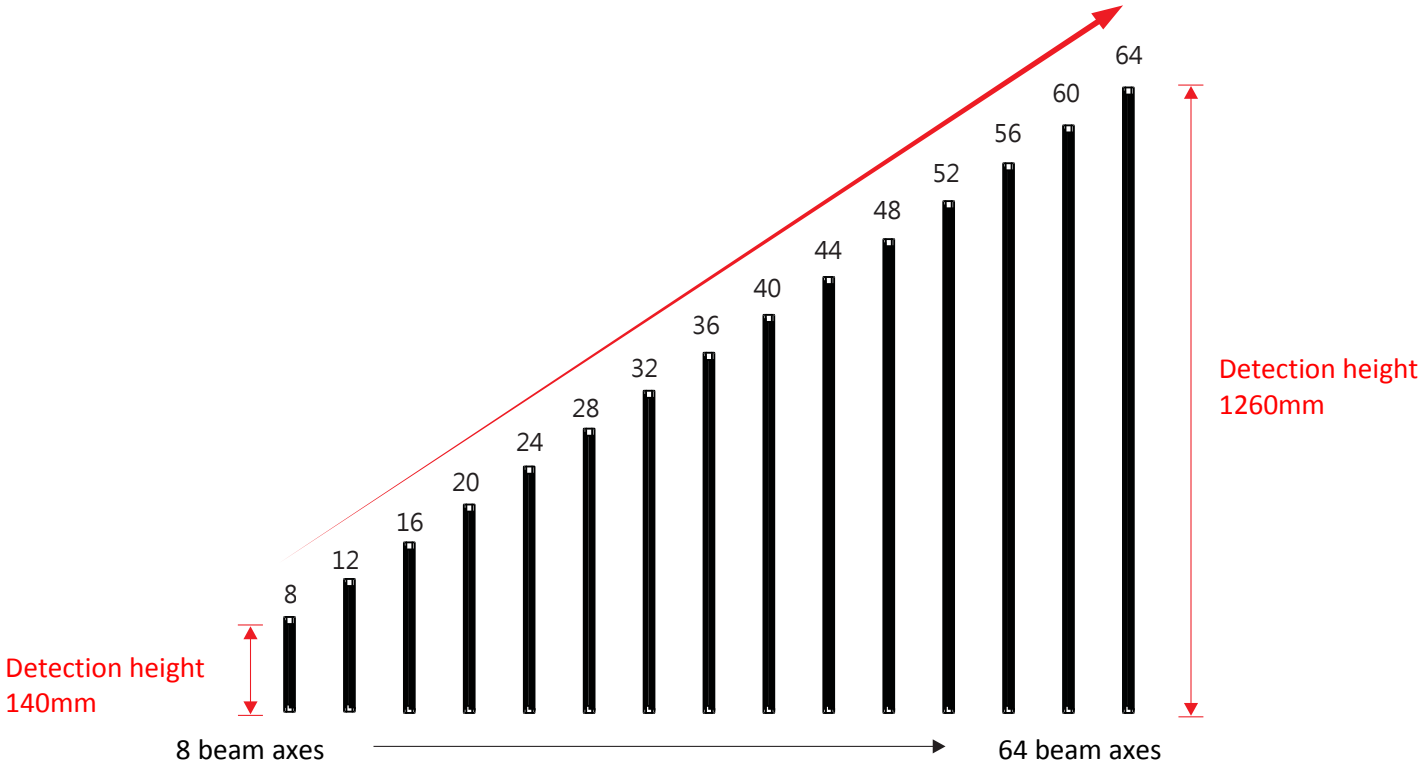
SLC Series Instruction Manual

Ver. 4.0

⚠ NOTICE

Please read the instruction manual before using the product.

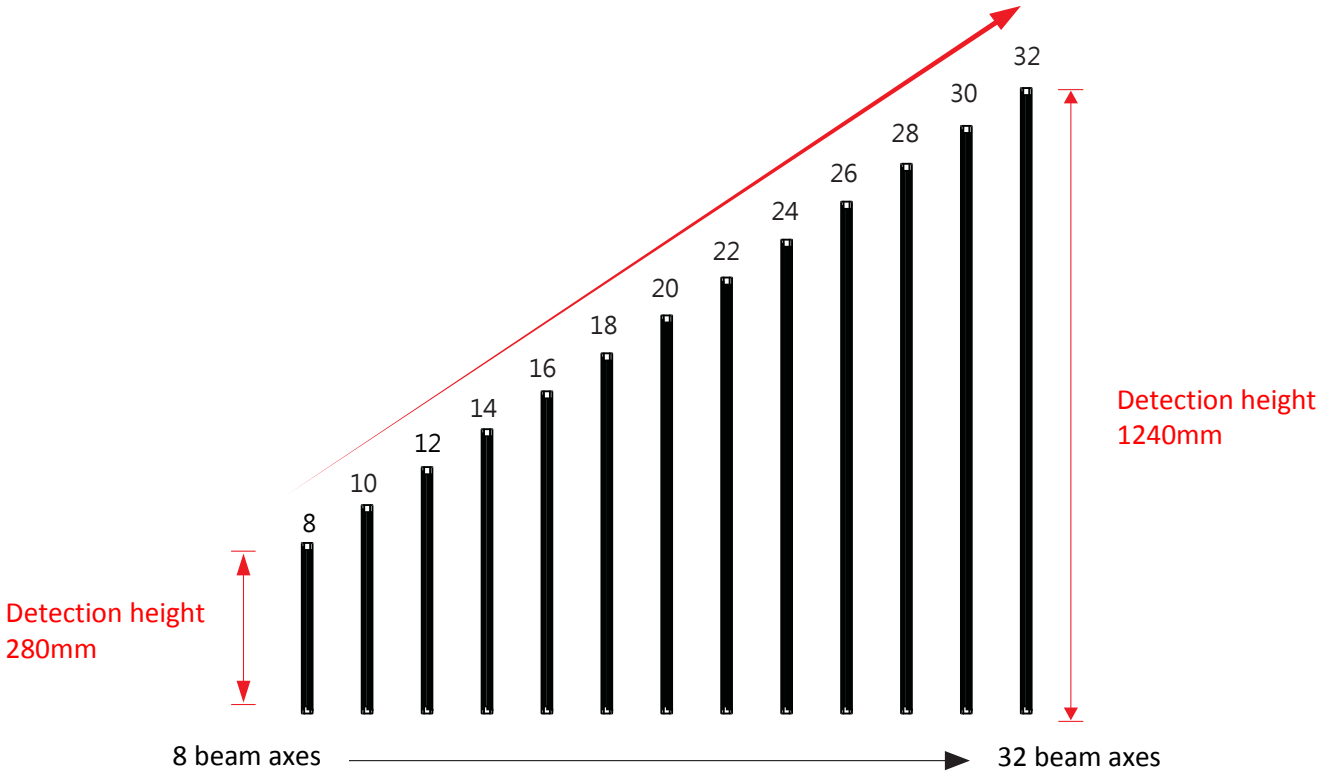
Product (Beam axes pitch 20mm)



Unit: mm

Model	Operating distance	Number of beam axes	Detection height	Installation distance
SLC-08-□□2	0.1-6M	8	140	183
SLC-12-□□2		12	220	263
SLC-16-□□2		16	300	343
SLC-20-□□2		20	380	423
SLC-24-□□2		24	460	503
SLC-28-□□2	0.1-3M	28	540	583
SLC-32-□□2		32	620	663
SLC-36-□□2		36	700	743
SLC-40-□□2		40	780	823
SLC-44-□□2		44	860	903
SLC-48-□□2		48	940	983
SLC-52-□□2		52	1020	1063
SLC-56-□□2		56	1100	1143
SLC-60-□□2		60	1180	1223
SLC-64-□□2		64	1260	1303

Product (Beam axis pitch 40mm)



Unit: mm

Model	Operating Distance	Number of beam axes	Detection Height	Installation distance
SLC-08-□□4	0.1-6M	8	280	343
SLC-10-□□4		10	360	423
SLC-12-□□4		12	440	503
SLC-14-□□4		14	520	583
SLC-16-□□4		16	600	663
SLC-18-□□4	0.1-3M	18	680	743
SLC-20-□□4		20	760	823
SLC-22-□□4		22	840	903
SLC-24-□□4		24	920	983
SLC-26-□□4		26	1000	1063
SLC-28-□□4		28	1080	1143
SLC-30-□□4		30	1160	1223
SLC-32-□□4		32	1240	1303
SLC-34-□□4 (make to order)		34	1320	1383
SLC-36-□□4 (make to order)		36	1400	1463

Coding Principles of Model

Description

SLC -□□-□□ □
1 2 3 4

ITEM		Description
1	Number of beam axes	08~64
2	Cable type	M： Pigtail Cable (5-core cable) L： Pigtail Cable (8-core cable for series connection.)
3	OSSD Output	N: NPN Output P: PNP Output
4	Beam axis pitch	2: 20mm 4: 40mm

Cables model (The outlet of the main light curtains is M12 pigtail type, the length is 0.3 meters.)

Different models SLC-□□-M□□, SLC-□□-L□□ are not interchangeable due to the different number of core cable.

Each cable model is pair; length is one cable.

Model：SLC-□□-M□ □

Item	Model	Length
1	CBL-M12B-02M	2M
2	CBL-M12B-05M	5M
3	CBL-M12B-10M	10M

Model：SLC-□□-L□ □

Item	Model	Length
1	CBL-M12L-02M	2M
2	CBL-M12L-05M	5M
3	CBL-M12L-10M	10M
4	CBL_LINK_T5R8 (For series connection)	Y-SHAPED CONNECTOR

Specification

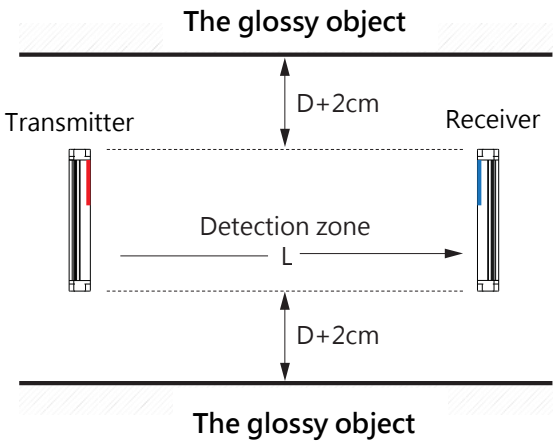
Item			Specification
Beam axis pitch			20 mm/40mm
Detection Capability			ø25 mm/ø45 mm (opaque object)
Operating Distance			Max. 3M or 6M
Response time			Max. 14 ms
Light source			Infrared LED (940 nm)
OSSD operation			Turns on when no interruptions are present in the detection zone
Power supply	Voltage		24 VDC (TOL.18 to 26VDC)
	Current consumption		Receiver Max.0.1A Transmitter AVG. 0.1A(Peak 0.2A)
Control output (OSSD output)	Output (Receiver)		2 common type outputs (PNP or NPN is determined when placing an order.)
	Max. load current		80 mA
	Auxiliary output		NPN Max.20mA
	Short-circuit protection		100 mA
Protection circuit			Reverse current protection, short-circuit protection for each output.
Environmental resistance	Enclosure rating		IP65
	Ambient light		Incandescent lamp: 5,000 lx or less. Sunlight: 20,000 lx or less.
	Ambient temperature		-10~+55°C (non-condensation)
	Storage ambient		-25~+60°C (non-condensation)
	Relative humidity		15~ 85% RH (non-condensation)
	Storage relative humidity		15~ 95% RH (non-condensation)
Material	Main unit case		Aluminum
	Upper case/lower case		PVC
	Front cover		PMMA
Approved standards	EMC	EMS	EN61496-1
		EMI	FCC Part15B ClassA
	Safety		EN61496-1 (Type4 ESPE)
			EN61496-2 (Type4 AOPD)
			EN61508 (SIL3)
			EN ISO13849-1: 2008 (Category4、PLe)

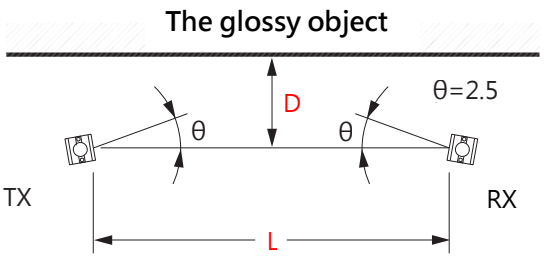
Installation Precautions

The light curtains might have interference and unable to detect when the glossy work table or object exists in detection zone, therefore, this situation might cause danger or seriously injured.

Mounting distance

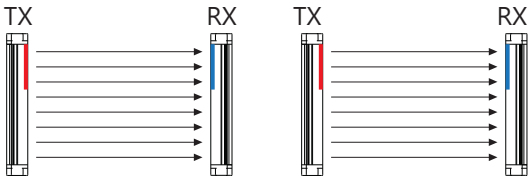
The required mounting distance, which marked as D is minimum allowable value from the glossy objects (such as wall, floor, ceiling and work piece etc.) to the unit.

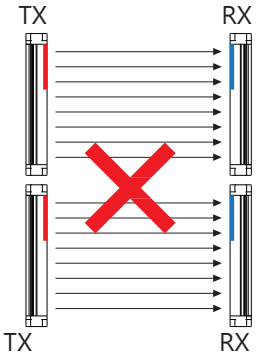




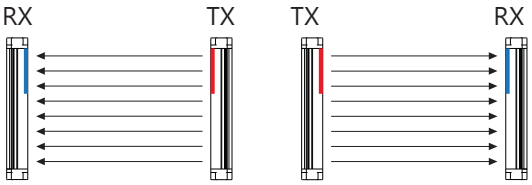
Operating Distance Marked as L	The required mounting distance marked as D
<300cm or less	13cm
>300cm or above	L×tan2.5°=L×4.4cm

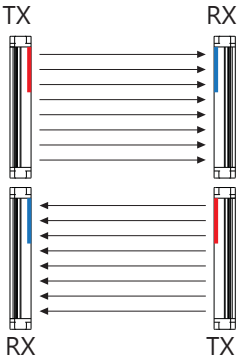
Multi-unit installation



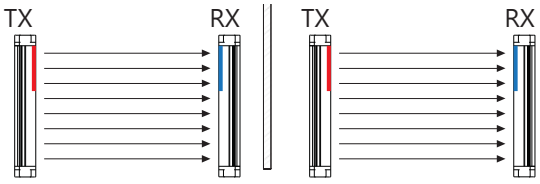


Directions should be different for 2 units.





If directions are the same, place an opaque board in the middle of two units.



Opaque board

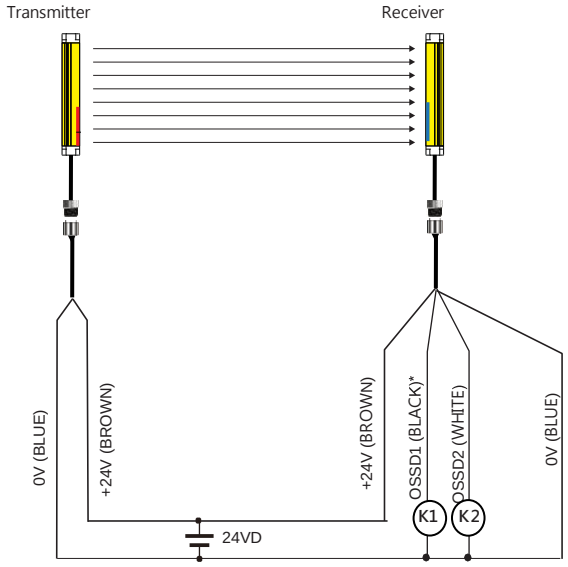
Wiring(SLC -□□-M series)

⚠ WARNING	Please according to the wiring diagram when wiring, wrong wiring might cause the circuit board damaged.
⚠ WARNING	Checking the wiring well before operating the light curtains, if turning on the light curtains in abnormal status neglect the error wiring stuff might cause danger and seriously injured.

Simple wiring SLC -□□-M□ □

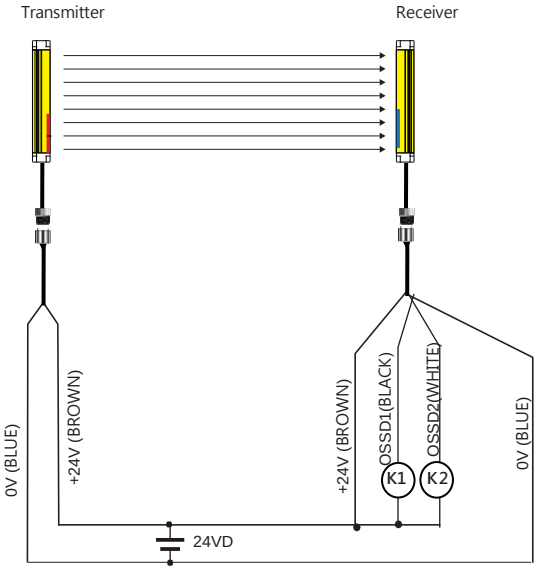
PNP or NPN is determined when placing an order

PNP Output



K1、K2：External equipment
(Safety relay etc.)

NPN Output



K1、K2：External equipment
(Safety relay etc.)

Note:

1. OSSD1 output is red, when using single SLC-□□-L□□ series.
2. Aux.OUT is NPN OUTPUT, max. current 20mA.

⚠ When wiring, the brown wire is connected to +24V, the blue wire is connected to 0V, and the rest should not be connected to the power supply. Unused cables must be properly insulated; otherwise the equipment will be damaged.

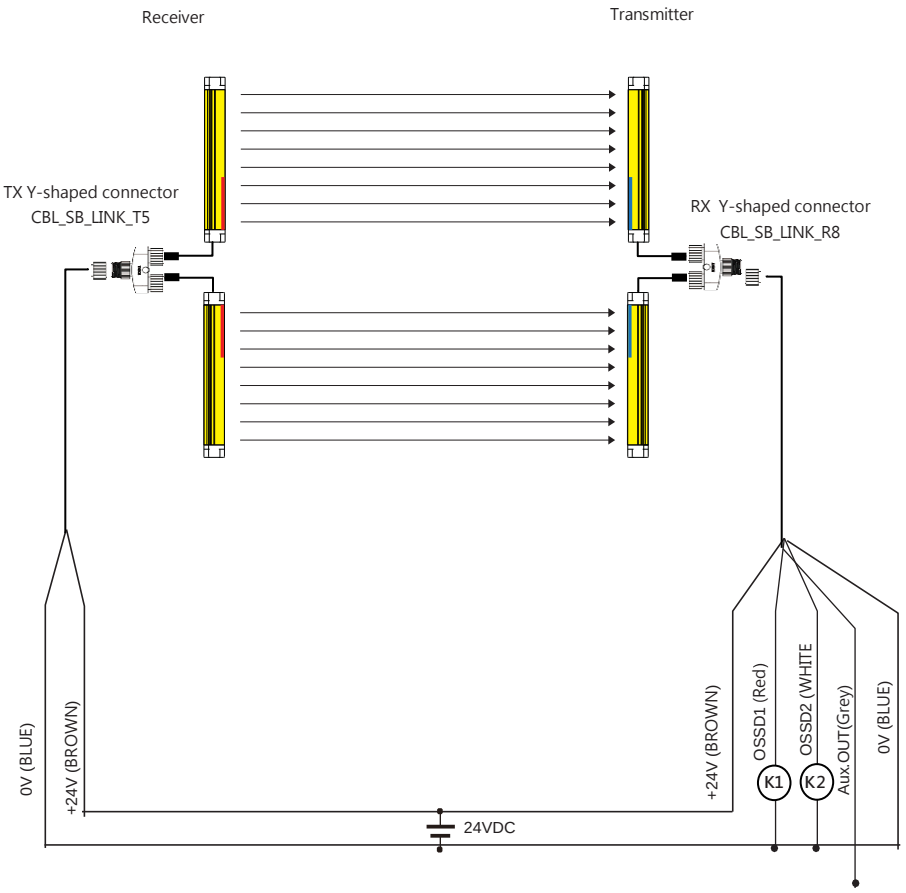
The simplest wiring for series connection SLC -□□-L□□.

Caution:

1. Please apply the designated Y-shaped connector for series connection, the function doesn’ t support for other self-wiring method.
2. Under the series connection, please turn on/off the two units in the same time, otherwise, might cause an error operation.

PNP Output

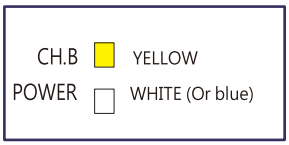
PNP or NPN is determined when placing an order.



Aux. output is NPN output, max. current 20 mA.

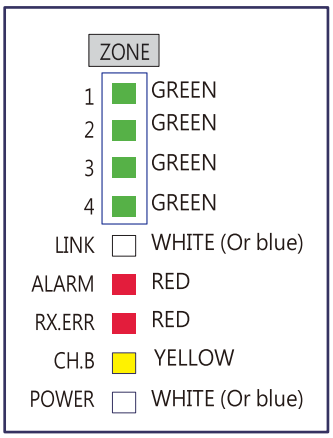
Indicators

Transmitter



CH.B : Channel selection
POWER Indicator: Normal power input when showing

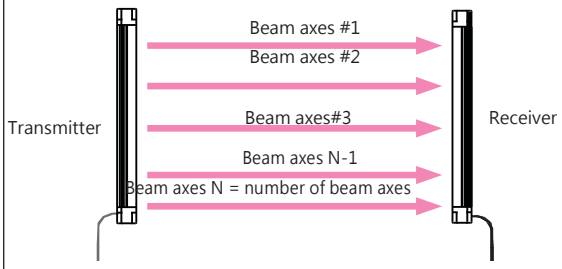
Receiver



Beam signal receiving status (by region)
Good receiving status when showing
LINK: Communication signal
Good communication when flashing
ACTION: Cover action signal
Sensing area being covered when showing
RX.ERR: Receiver alarm
IR LED abnormal current occurred when flashing
CH.B: Channel selection
When light: select channel B

POWER: Power Indicator
Normal power input when showing

Beam axes



Definition of ZONE 1~ZONE4:

Total beams /4= beam number in each zone

For example: total 20 beams, each zone includes 5 beams.

ZONE 1: The status of beam 1~beam5

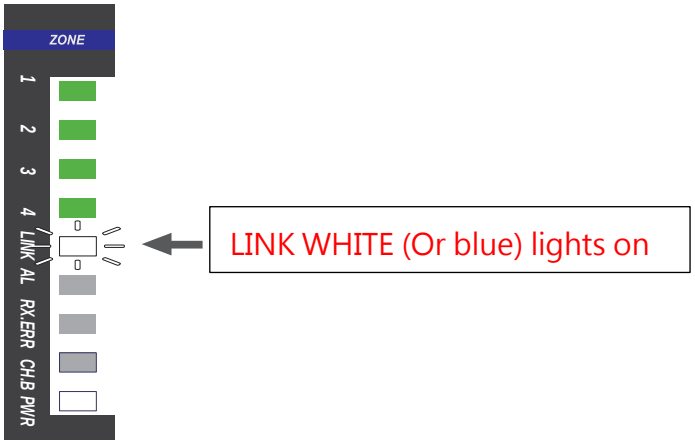
ZONE 2: The status of beam 6~beam10

ZONE 3: The status of beam 11~beam15

ZONE 4: The status of beam 16~beam20

Correct wiring

Green all light+ LINK lights +No red indicators +Power lights

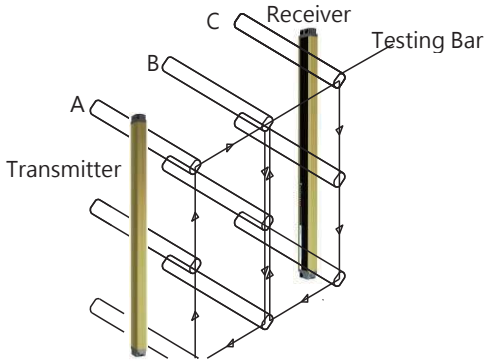


⚠ Warning

If the indicator doesn’ t match the figure as above, please shut down the power and re-wiring avoid danger or seriously injured.

Please ensure wiring is ready before operation. Carefulness checking or operating under abnormal condition may cause death or serious harm.

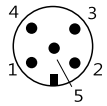
Checking List

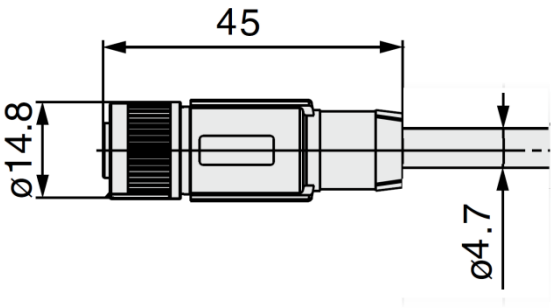
Check	Item
☐	Passing through sensing area of safety light curtains before approaching to the dangerous area of the equipment.
☐	Human or part are detectable in the sensing area when the equipment is working.
☐	Setting position of safety light curtain must be in the safety area of mechanism action.
☐	No damage of machine safety barrier and protection mechanism.
☐	Correct wiring, no rife and damage.
☐	Safety light curtain has been settled well.
☐	No blot or damage on the beam side of the light curtains.
☐	No damage or deformed with testing bar.
☐	When no any object covering in the sensing area, LEDs will only show ZONE1~ZONE4 & LINK flashing & POWER
☐	Moving testing bar (o25mm) with speed under 15,000mm/s in front transmitter (A), Between receiver and transmitter (B) and in front of receiver(C). Alarm signal will be shown as long 
☐	Machine operates normally when no any object covering in the sensing area.
☐	Machine will be shut down immediately when putting testing bar in front transmitter (A), Between receiver and transmitter (B) and in front of receiver(C).
☐	Machine will be stopped continuously when testing bar left in the sensing area.
☐	Machine will be shut down immediately when turning off the power of the light curtains.
☐	Either any interruption of input of transmitter or receiver, machine will be stopped immediately.

M12 connector dimension (M series: 5-core wire; L series: 8-core wire)

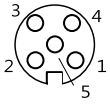
M12 connector dimension

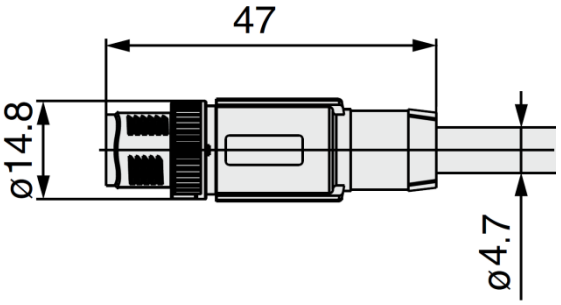
The unit outlet (male)





Wiring (female)



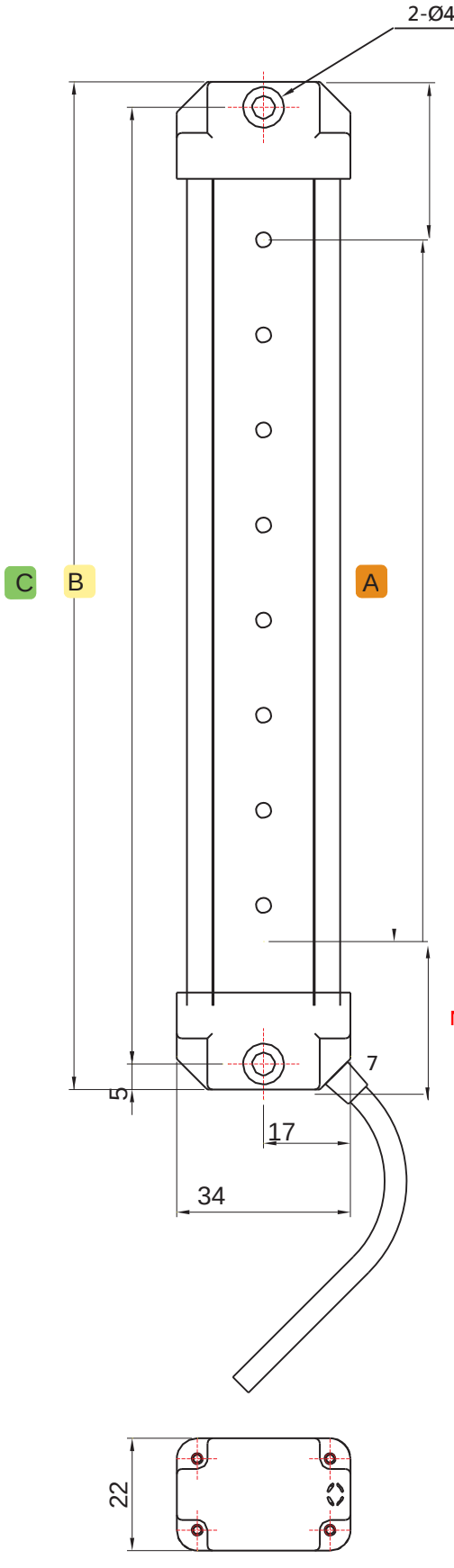


1 Brown
2 White
3 Blue
4 Black
5 Grey

Specification

Number of contacts	5;8
Connector locking system	screw
Termination	solder; molded-on cable
Wire gauge	0.25mm^2
Cable outlet	4.7mm
Degree go protection	IP68
Mechanical operation	>100mating cycles
Temperature range	(-40-85°C)
Rated voltage	60V
Rated impulse voltage	800V
Pollution degree	3
Over voltage category	II
Material group	II
Rated current(40°C)	2A
Contact resistance	<=10mΩ(gold)
Material of contact	brass
Contact plating	gold
Material of contact body	PA
coding key	PVC;PUR
Number of contacts	A

Dimension (Beam axes pitch 20mm)

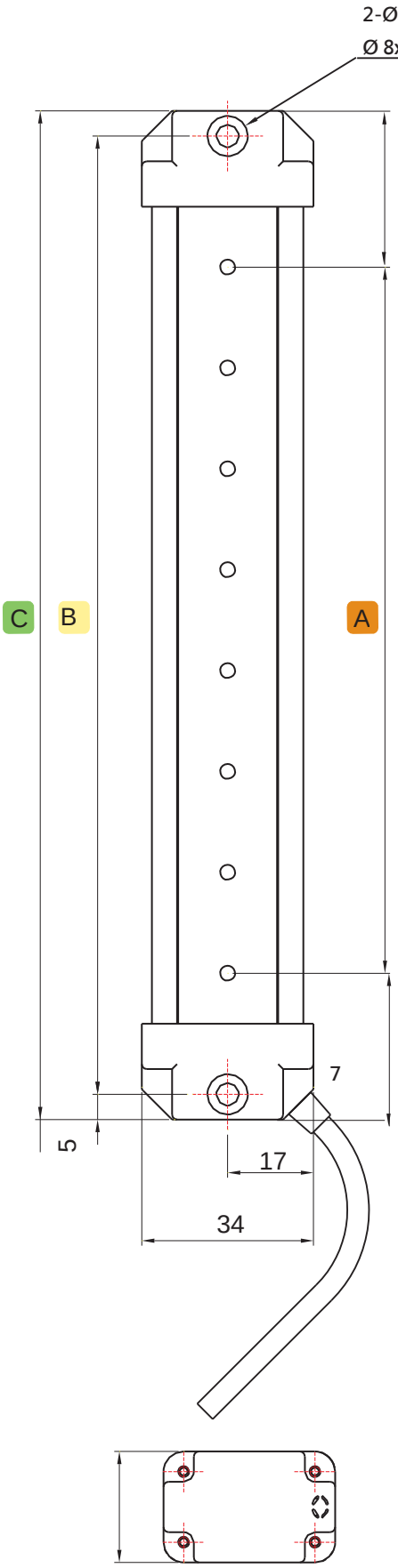


Transmitter outlet

(The outlet of the receiver and the transmitter are symmetrical.)

NO	Model	Number of beam axes	Detection Height (mm)	Installation distance (mm)	Total Length(mm)
			A	B	C
1	SLC-08-□□2	8	140	182	192
2	SLC-12-□□2	12	220	262	272
3	SLC-16-□□2	16	300	342	352
4	SLC-20-□□2	20	380	422	432
5	SLC-24-□□2	24	460	502	512
6	SLC-28-□□2	28	540	582	592
7	SLC-32-□□2	32	620	662	672
8	SLC-36-□□2	36	700	742	752
9	SLC-40-□□2	40	780	822	832
10	SLC-44-□□2	44	860	902	912
11	SLC-48-□□2	48	940	982	992
12	SLC-52-□□2	52	1020	1062	1072
13	SLC-56-□□2	56	1100	1142	1152
14	SLC-60-□□2	60	1180	1222	1232
15	SLC-64-□□2	64	1260	1302	1312

Dimension (Beam axes pitch 40mm)



Transmitter outlet

(The outlet of the receiver and the transmitter are symmetrical.)

NO	Model	Number of beam axes	A Detection height(mm)	B Installation distance(mm)	C Total Length(mm)
1	SLC-08-□□4	8	280	322	332
2	SLC-10-□□4	10	360	402	412
3	SLC-12-□□4	12	440	482	492
4	SLC-14-□□4	14	520	562	572
5	SLC-16-□□4	16	600	642	652
6	SLC-18-□□4	18	680	722	732
7	SLC-20-□□4	20	760	802	812
8	SLC-22-□□4	22	840	882	892
9	SLC-24-□□4	24	920	962	972
10	SLC-26-□□4	26	1000	1042	1052
11	SLC-28-□□4	28	1080	1122	1132
12	SLC-30-□□4	30	1160	1202	1212
13	SLC-32-□□4	32	1240	1282	1292