

KEYENCE

Safety Light Curtain
GL-R Series

Maximum safety standard

Type4

SIL3

PLe

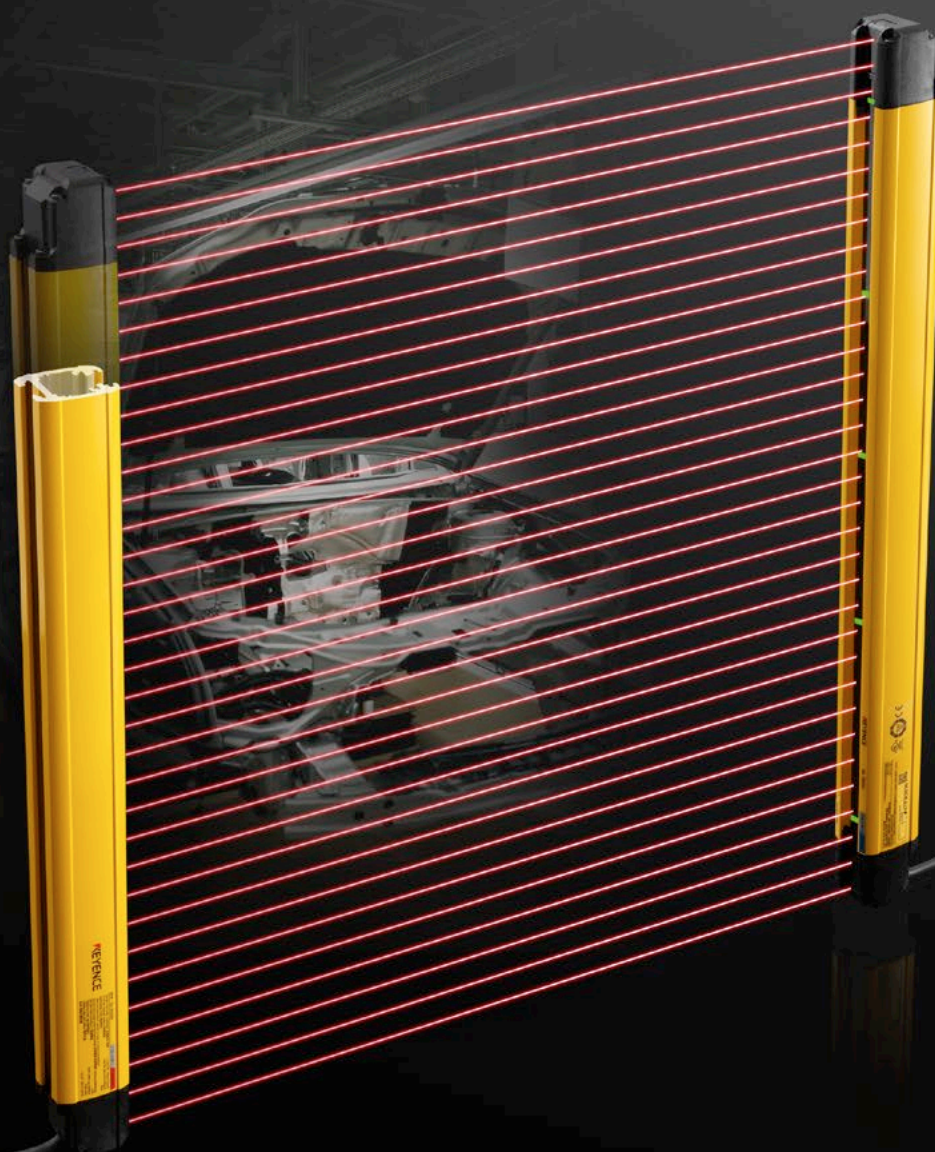
CE

TUV

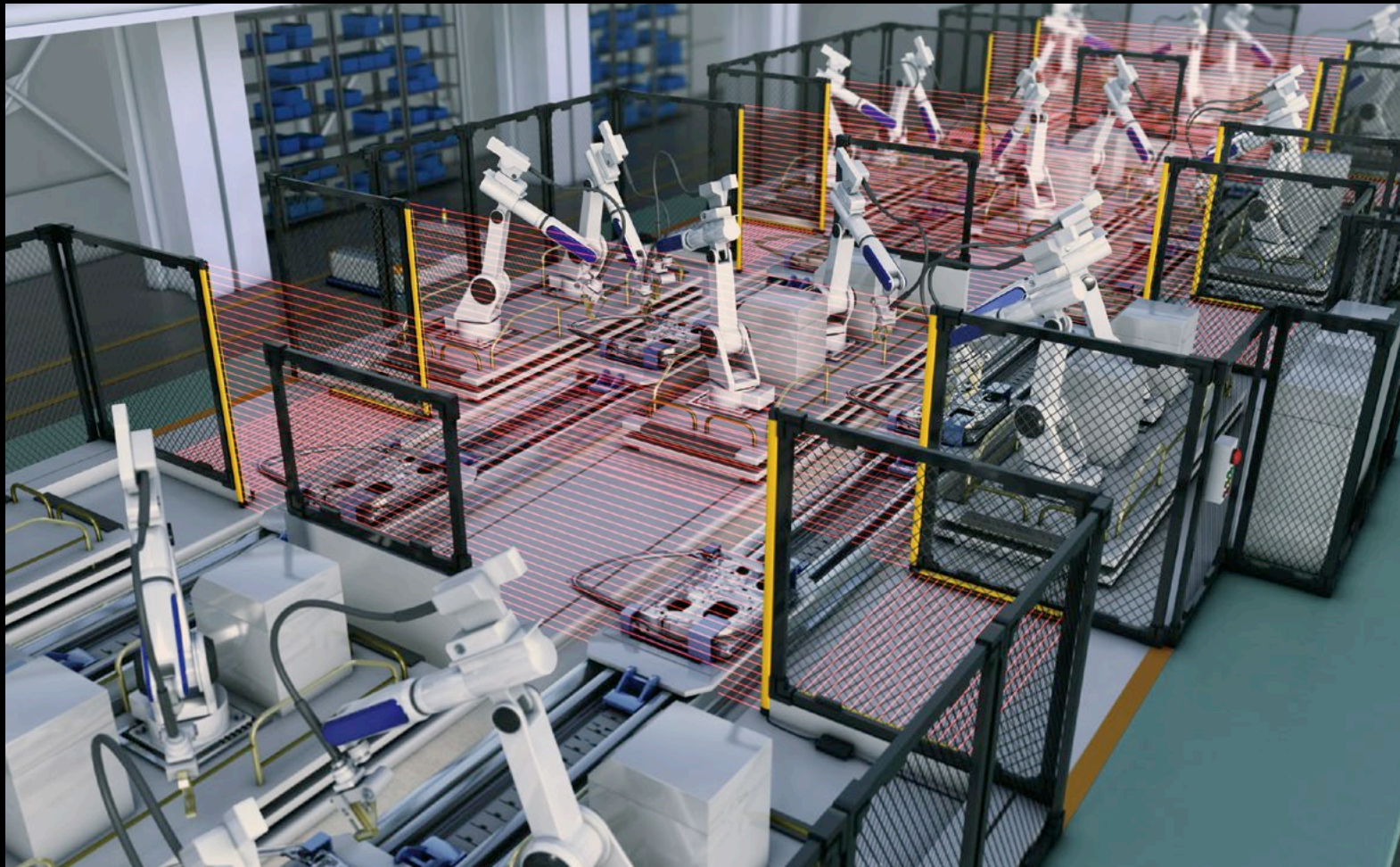
UL LISTED

Unmatched Protection! Safety Light Curtain

STRONG × SMART × SIMPLE **3S**



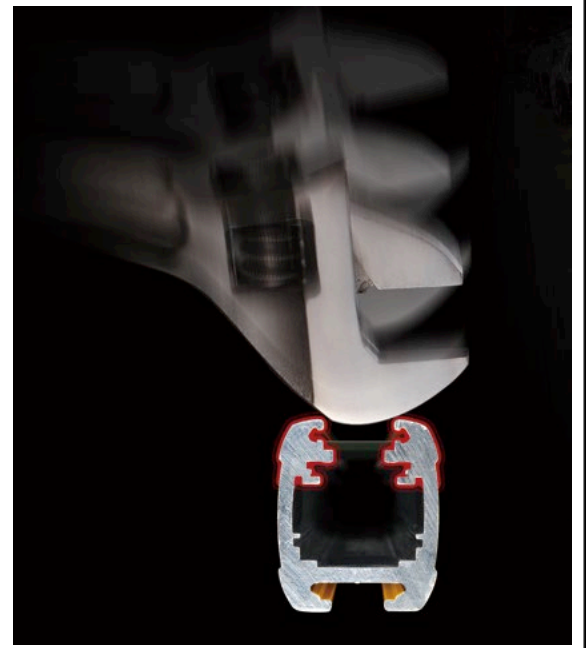
GL-R Series



SAFETY LIGHT CURTAINS DESIGNED FOR ANY APPLICATION

RECESSED LENS
DURABLE HOUSING
HIGH POWERED

STRONG



EDGE-TO-EDGE PROTECTION
FULL LENGTH INDICATORS
BUILT-IN SERIES CONNECTION

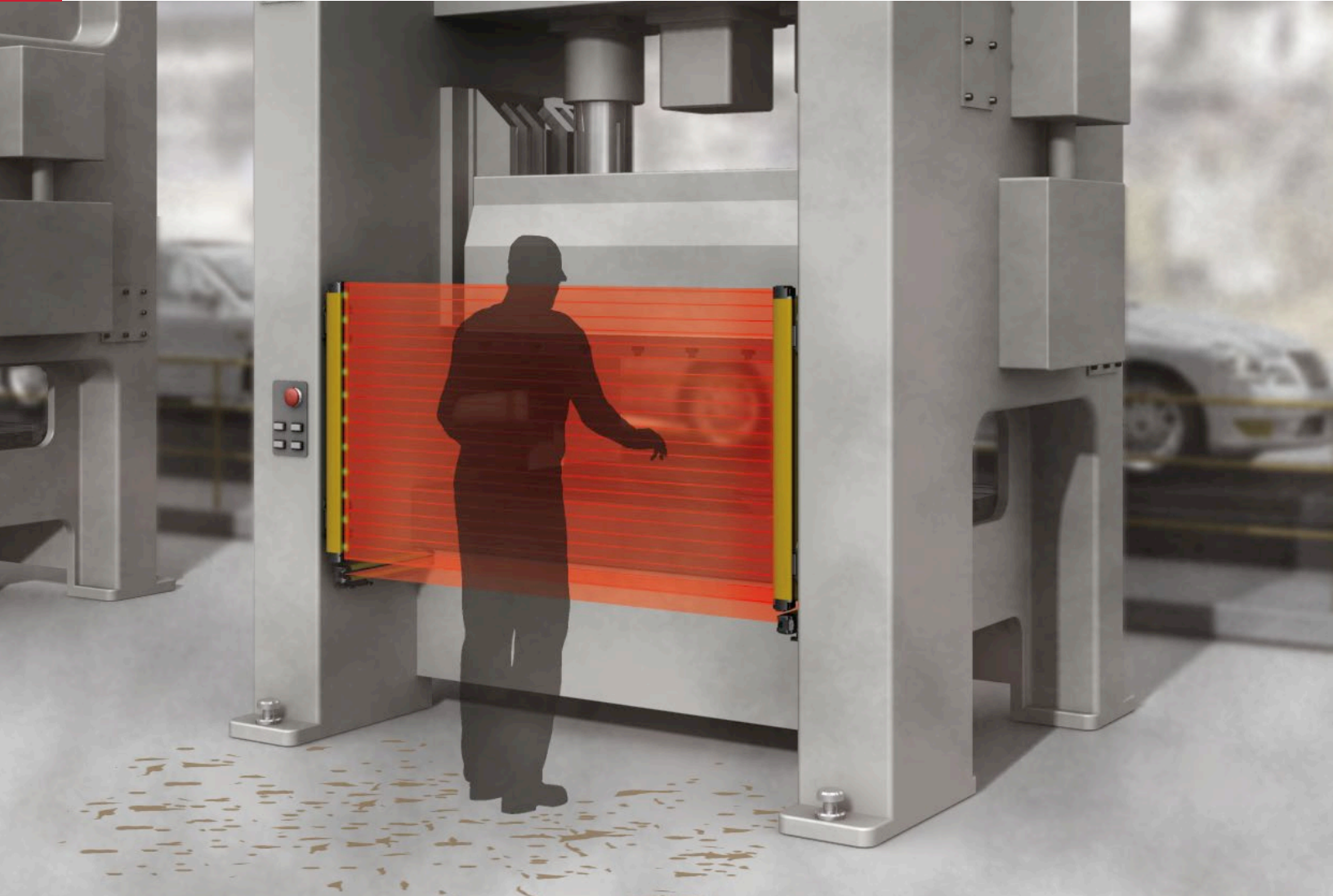
SMART



UNIQUE WIRING OPTIONS
UNIVERSAL CONNECTIVITY
INNOVATIVE ALIGNMENT METHODS

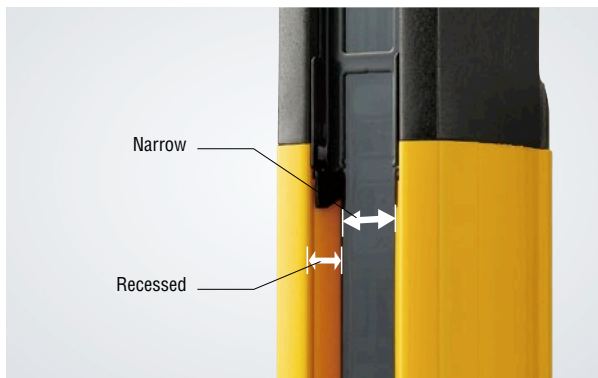
SIMPLE



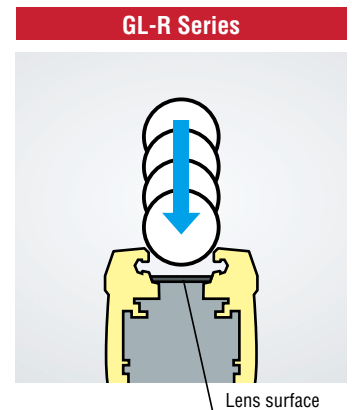
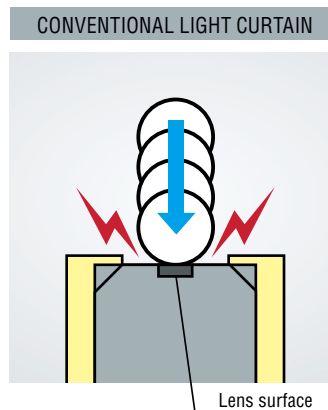


RECESSED LENS

With the narrowest exposed lens surface in the industry (0.35" 9 mm), the built-in guarding completely prevents impact to the lens surface by parts or tools of $\phi 0.67"$ $\phi 17$ mm or larger.*

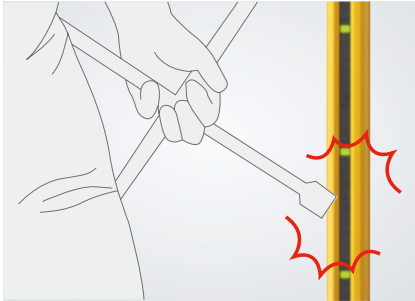


*See specifications for guaranteed values.



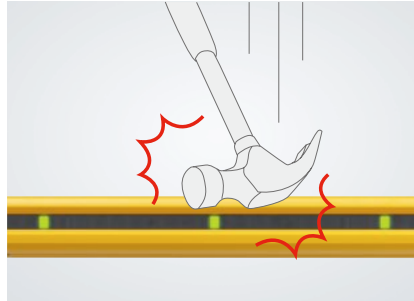
ROBUST HOUSING THAT RESISTS IMPACT

The GL-R Series is designed with a 0.12" 3 mm thick housing that protects the light curtain body from various forms of impact, such as dropping equipment on it or hitting it with tools.*

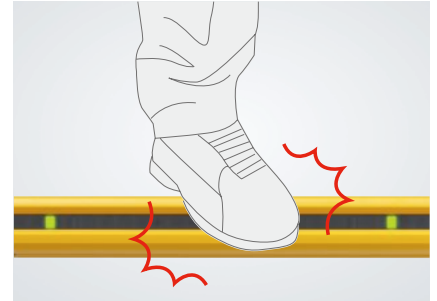


Hitting

*See specifications for guaranteed values.



Dropping



Stepping, Kicking

HIGH POWERED

High power means:

- Up to a 15 meter detection range
- Easy alignment
- Stable detection through dirt and build up

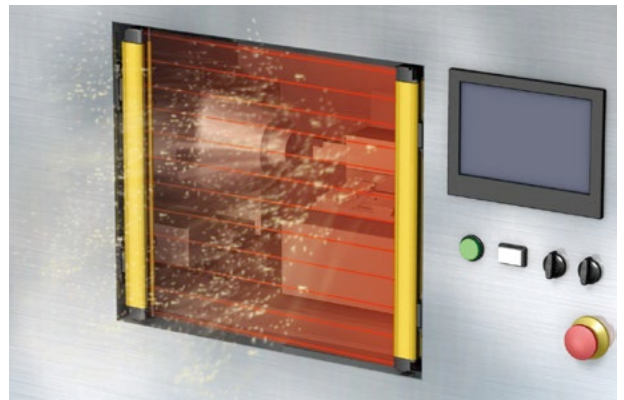


IP65/IP67 ENCLOSURE RATING

The GL-R Series housing meets IP65/IP67 enclosure ratings based on IEC standards, enabling its use in washdown environments without fear of damage to the light curtain.

IP65 WATER-JET (WASHDOWN) RESISTANT

IP67 WATERTIGHT



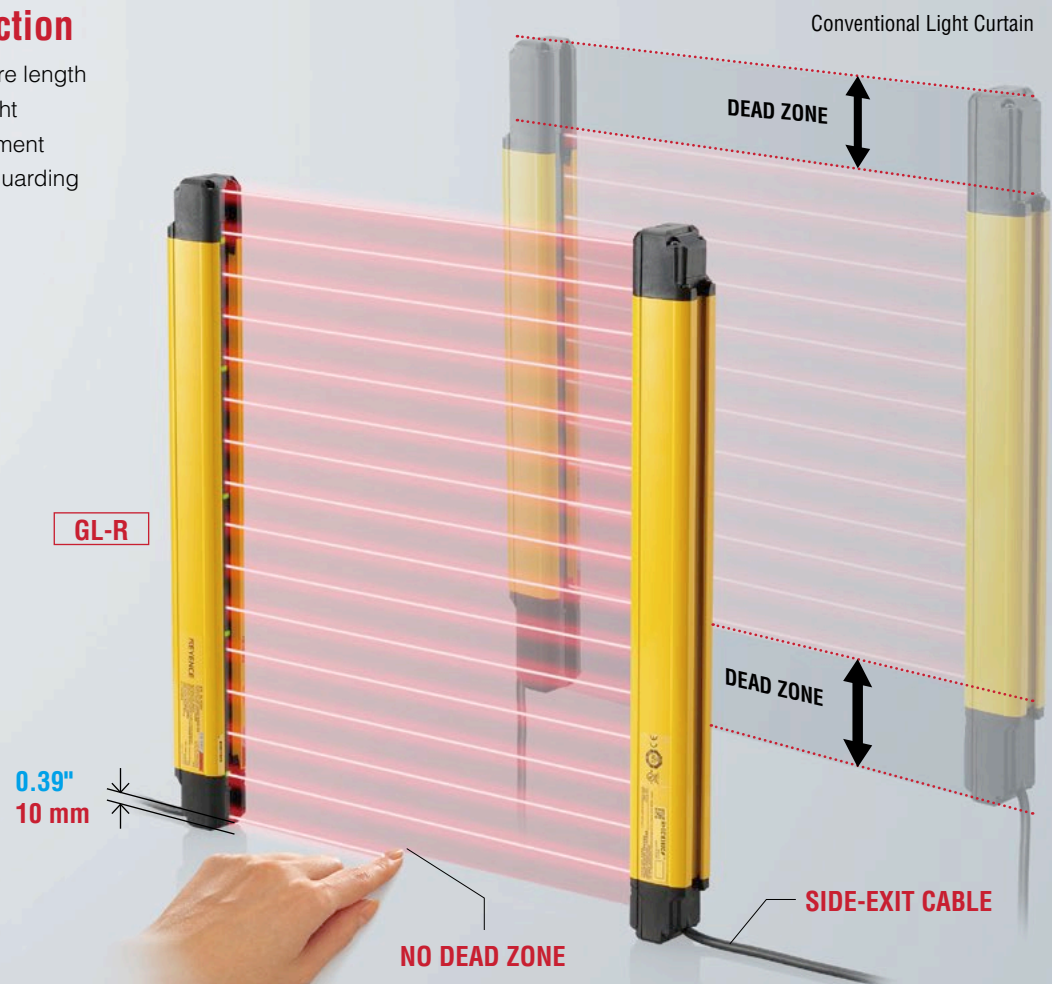
NO NEED FOR ADDITIONAL GUARDING

The GL-R Series can be installed and remain protected WITHOUT the use of additional U-channel type guarding, further simplifying installation and reducing cost.



Edge-To-Edge Protection

Beams are emitted over the entire length of the curtain. This allows the light curtain to be mounted on equipment without the need for additional guarding or outside mounting.



CONVENTIONAL LIGHT CURTAIN



Additional guarding is required to protect dead zones

GL-R Series



Protection is provided over the full length of the light curtain, which allows for flush mounting inside an opening.

FULL LENGTH INDICATORS

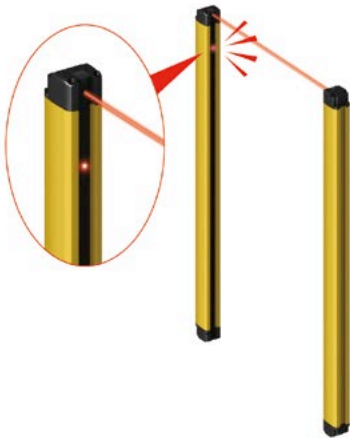
The highly-visible indicators help the operator to easily identify the current status of the safety light curtain in real-time.



STEP1

ALIGN THE TOP ROW

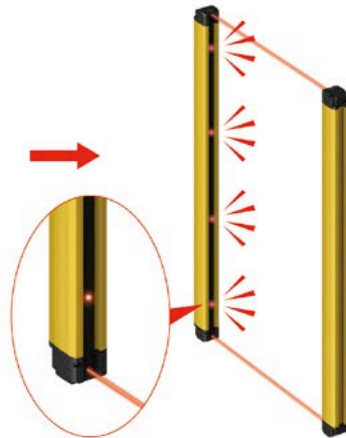
The top indicators light up red when the top beam axis is aligned.



STEP2

ALIGN THE BOTTOM ROW

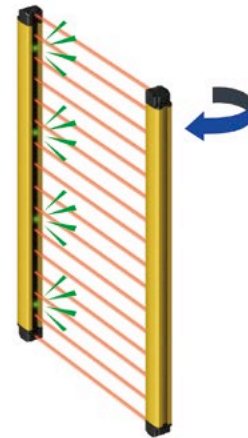
All of the indicators light up red when the bottom beam axis is aligned.



STEP3

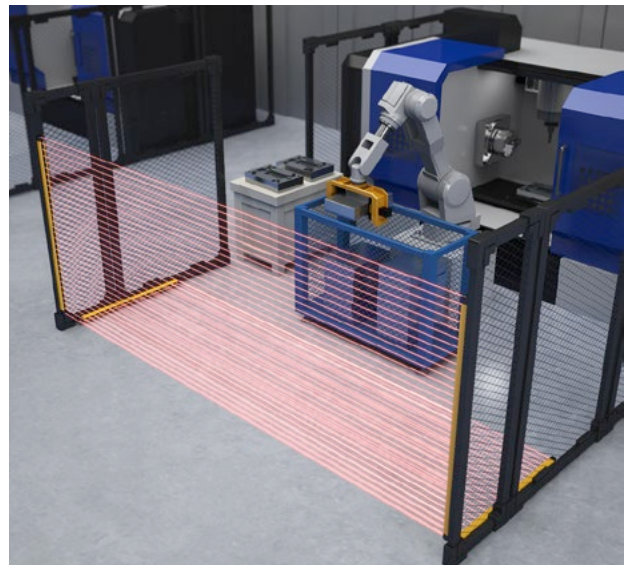
FINE-TUNE THE ROTATIONAL DIRECTION

All of the indicators change to green when all of the beam axes are aligned.

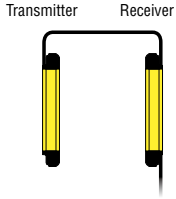
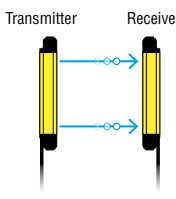
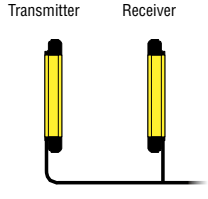


BUILT-IN SERIES CONNECTION ABILITY

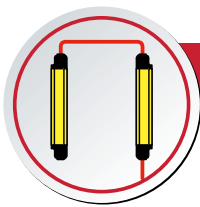
The protection provided by the GL-R Series can be easily expanded to cover multiple sides of a machine by connecting additional units in series. All models include this feature, making it simple to install the curtains in L-shaped or U-shaped configurations.



THREE UNIQUE WIRING OPTIONS

Wiring system	One-line system	Optical synchronization system	Wire synchronization system
Wiring diagram			
Advantage	<ul style="list-style-type: none">• Simplified wiring.• The unit connection cable is not needed for the transmitter.	<ul style="list-style-type: none">• Wiring is not needed between the transmitter and receiver.• The Transmitter and the receiver can operate on different power supplies.	<ul style="list-style-type: none">• All functions of the GL-R are available.
Limitation	<ul style="list-style-type: none">• The input and output functions on the transmitter are not available.• 98.4' 30 m maximum limit for the sum of all cables.	<ul style="list-style-type: none">• The input and output functions on the transmitter are not available.• No indicators, other than "Power", are available on the transmitter.	<ul style="list-style-type: none">• Wiring is needed between the transmitter and the receiver.

► See page 26 and 27 for the detail of the wiring diagram



ONE-LINE SYSTEM

Recommended for smaller, single operation pieces of equipment

By connecting the transmitter directly to the receiver, installation time is cut in half as only one cable needs to be wired.

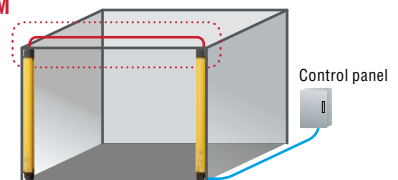
ADVANTAGES OF THE ONE-LINE SYSTEM

1. Wiring is simplified by connecting the transmitter directly to the receiver, requiring that only the receiver be wired.
2. Reduced risk of incorrect wiring due to the reduction in required connections.

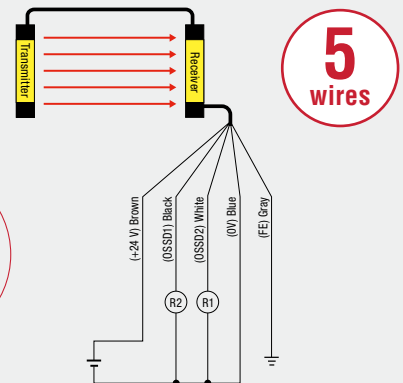


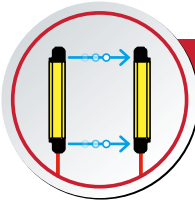
ONE-LINE SYSTEM

ONE-LINE SYSTEM



EXAMPLE OF WIRING





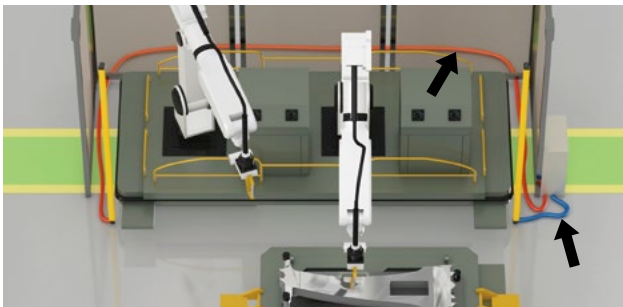
OPTICAL SYNCHRONIZATION

Recommended for larger pieces of equipment or work cells

Eliminate lengthy cable routing by powering the transmitter and receiver separately.

SEPARATE TRANSMITTER AND RECEIVER WIRING SIMPLIFIES INSTALLATION

CONVENTIONAL LIGHT CURTAIN

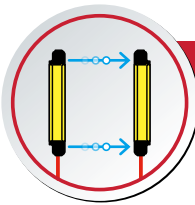


It is necessary to route both the transmitter and receiver cables back to the same control box.

OPTICAL SYNCHRONIZATION



The transmitter and receiver can be wired separately, which greatly simplifies wiring and installation time. Long lengths of cable are no longer required to be routed through the machine.



WIRED SYNCHRONIZATION

Recommended when using advanced features

Integrate advanced functions with ease and utilize the full I/O capabilities of the light curtains by using wired synchronization.

INTEGRATED FUNCTIONS

The following functions are available without the use of the configuration software:

1. Muting(*)
2. EDM (External Device Monitoring)
3. AUX (Auxiliary) output (*)
4. Reduced Resolution
5. Error output

(*) When 11-core cable is used for both transmitter and receiver.



MUTING FUNCTION

UNIVERSAL CONNECTIVITY

By featuring built-in EDM (External Device Monitoring), GL-R Series Light Curtains can easily create a Category 4 system by connecting to any form of safety interface, such as: safety relays, safety contactors, or safety PLCs.



SAFETY RELAY UNIT

SAFETY CONTACTORS

SAFETY PLC

GL-T11R TYPE4 QUICK DISCONNECT SAFETY RELAY

The GL-T11R combines all of the features necessary to build a Category 4 compatible safety circuit in a single unit. This makes it possible to dramatically reduce the amount of time and labor required to wire into a standard safety interface.



QUICK DISCONNECT

The safety light curtain is connected via quick disconnects, eliminating the danger of wiring mistakes and reducing the amount of time and labor required for installation.

GL-T11R

SPRING TYPE TERMINAL BLOCK

Easy and reliable wiring with no screw terminals to tighten.



SL-U2 AC POWER SUPPLY

The SL-U2 dedicated power supply directly connects to the side of the GL-T11R, providing power to the entire light curtain setup without the need for additional wiring.

SL-U2



REPLACEABLE RELAY

The relay board (OP-87682) can be replaced without removing any wiring, which eliminates time loss and potential connection mistakes during rewiring.

* The terminal unit can also be removed separately.

QUICK FIT BRACKETS

STEP 1



- Brackets come preassembled
- Easy integration with extruded aluminum

STEP 2



- Multiple mounting options
- Anti-vibration brackets also available

BATTERY-POWERED LASER ALIGNMENT TOOL



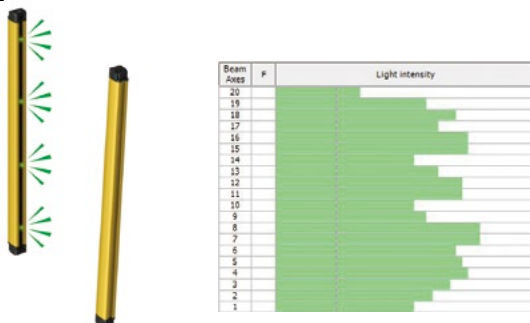
Easily align the light curtains before power is even turned ON.

- Attaches to the GL-R in seconds with no tools necessary
- Battery power removes the need for a nearby power source
- Quickly check alignment at any point on the curtain

ADVANCED ALIGNMENT METHOD

The GL-R Series makes nuisance trips and alignment problems a thing of the past. By using KEYENCE's optional Alignment Tool, users can quickly and easily ensure full alignment of each individual beam.

BEFORE



While the light curtain appears to be aligned; the software indicates that the potential for nuisance trips still exists and that superior alignment can be achieved.

AFTER



By utilizing the software, ideal alignment can be quickly and easily achieved to maintain consistently stable operation.

ADDITIONAL FEATURES

CORNER MIRROR

Corner mirrors are available to allow 1 set of curtains to cover up to 4 sides of a machine and reduce the amount of wiring required.



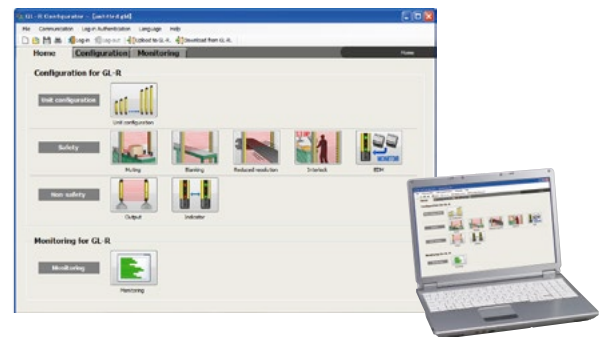
QD CONNECTOR

The GL-R Series offers unit connection cables that can easily be connected to a general-purpose M12 quick disconnect port or cable.



USER-FRIENDLY SOFTWARE

- Customize unit with advanced features
- Monitor light curtain interruptions
- Troubleshoot costly nuisance trips
- Connection via USB

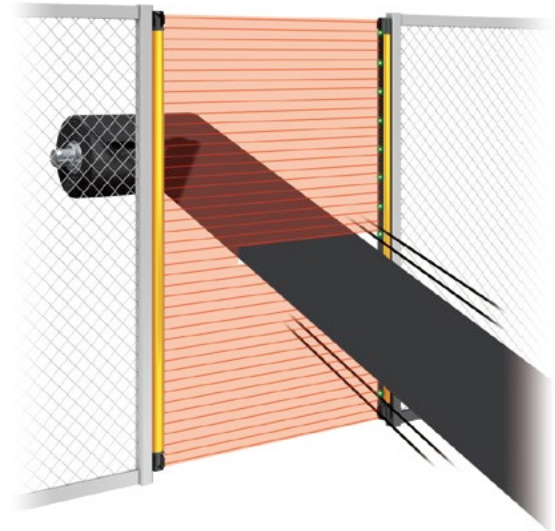


BLANKING FUNCTION



FIXED BLANKING

For operation when an obstruction is always present in the light curtain.



REDUCED RESOLUTION

For operation when an obstacle moves through the light curtain area.

Selecting a Safety Light Curtain

Use the following steps to select the optimum GL-R Series components for your application

STEP 1

Select the light curtain type



STEP 2

Select the light curtain length



STEP 3

Select the mounting bracket



STEP 4

Select the cables



STEP 5

Select the optional accessories*

*Optional accessories are not required for normal operation.

STEP 1

CURTAINS

STEP 2



GL-RF Series

Detection capability
ø0.55" ø14 mm



GL-RH Series

Detection capability
ø0.98" ø25 mm



GL-RL Series

Detection capability
ø1.77" ø45 mm

STEP 3



BRACKETS



Adjustable angle
mounting bracket
GL-RB01



Adjustable angle
mounting bracket
GL-RB02



Straight
mounting bracket
GL-RB11



L-shaped
mounting bracket
GL-RB12



L-shaped
mounting bracket
GL-RB21

STEP 4



CABLES



STEP 5

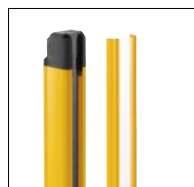
OPTIONAL ACCESSORIES



Dedicated safety relay for
the GL-R Series
GL-T11R



Laser Alignment tool
GL-R1LP



Front protection cover



Interface unit



Corner mirror
SL-M Series

SELECT THE LIGHT CURTAIN TYPE

Select a model according to the distance to the equipment hazard.

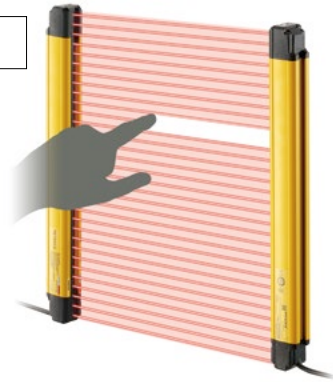
▶ DETECTION CAPABILITY: $\phi 0.55"$ $\phi 14$ mm

Beam axis pitch of $0.39"$ 10 mm.

ENTRY DETECTION

To STEP 2 **GL-RF**

P. 15



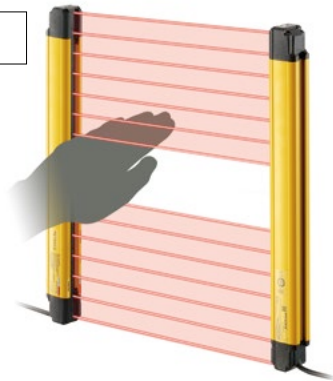
▶ DETECTION CAPABILITY: $\phi 0.98"$ $\phi 25$ mm

Beam axis pitch of $0.79"$ 20 mm.

ENTRY DETECTION

To STEP 2 **GL-RH**

P. 15



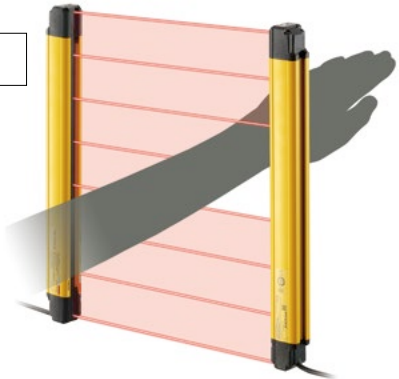
▶ DETECTION CAPABILITY: $\phi 1.77"$ $\phi 45$ mm

Beam axis pitch of $1.57"$ 40 mm.

ENTRY/PRESENCE DETECTION

To STEP 2 **GL-RL**

P. 15



The required mounting distance from the hazard is determined by the response time and detection capability for the light curtain that has been selected. Though the $\phi 0.98"$ $\phi 25$ mm model is used most frequently, if the distance to the hazard is short, select the $\phi 0.55"$ $\phi 14$ mm model. If the distance to the hazard is long, you can use the $\phi 1.77"$ $\phi 45$ mm model.



SELECT THE LIGHT CURTAIN LENGTH

If [Detection capability: $\phi 0.55"$ $\phi 14$ mm] was selected in Step 1

GL-RF Series



Model	No. of beam axes	Total length (inch mm)	Detection height (inch mm)	Protection height (inch mm)	Operating distance (ft. m)
GL-R23F	23	9.45" 240	8.66" 220	9.61" 244	0.67' to 32.81' 0.2 to 10
GL-R31F	31	12.60" 320	11.81" 300	12.76" 324	
GL-R39F	39	15.75" 400	14.96" 380	15.91" 404	
GL-R47F	47	18.90" 480	18.11" 460	19.06" 484	
GL-R55F	55	22.05" 560	21.26" 540	22.20" 564	
GL-R63F	63	25.20" 640	24.41" 620	25.35" 644	
GL-R71F	71	28.35" 720	27.56" 700	28.50" 724	
GL-R79F	79	31.50" 800	30.71" 780	31.65" 804	
GL-R87F	87	34.65" 880	33.86" 860	34.80" 884	
GL-R95F	95	37.80" 960	37.01" 940	37.95" 964	
GL-R103F	103	40.94" 1040	40.16" 1020	41.10" 1044	
GL-R111F	111	44.09" 1120	43.31" 1100	44.25" 1124	
GL-R119F	119	47.24" 1200	46.46" 1180	47.40" 1204	
GL-R127F	127	50.39" 1280	49.61" 1260	50.55" 1284	

To STEP 3 P. 16

If [Detection capability: $\phi 0.98"$ $\phi 25$ mm] was selected in Step 1

GL-RH Series



Model	No. of beam axes	Total length (inch mm)	Detection height (inch mm)	Protection height (inch mm)	Operating distance (ft. m)
GL-R08H	8	6.30" 160	5.51" 140	7.28" 185	0.67' to 49.21' 0.2 to 15
GL-R12H	12	9.45" 240	8.66" 220	10.43" 265	
GL-R16H	16	12.60" 320	11.81" 300	13.58" 345	
GL-R20H	20	15.75" 400	14.96" 380	16.73" 425	
GL-R24H	24	18.90" 480	18.11" 460	19.88" 505	
GL-R28H	28	22.05" 560	21.26" 540	23.03" 585	
GL-R32H	32	25.20" 640	24.41" 620	26.18" 665	
GL-R36H	36	28.35" 720	27.56" 700	29.33" 745	
GL-R40H	40	31.50" 800	30.71" 780	32.48" 825	
GL-R44H	44	34.65" 880	33.86" 860	35.63" 905	
GL-R48H	48	37.80" 960	37.01" 940	38.78" 985	
GL-R52H	52	40.94" 1040	40.16" 1020	41.93" 1065	
GL-R56H	56	44.09" 1120	43.31" 1100	45.08" 1145	
GL-R60H	60	47.24" 1200	46.46" 1180	48.23" 1225	
GL-R64H	64	50.39" 1280	49.61" 1260	51.38" 1305	
GL-R72H	72	56.69" 1440	55.91" 1420	57.68" 1465	
GL-R80H	80	62.99" 1600	62.20" 1580	63.98" 1625	
GL-R88H	88	69.29" 1760	68.50" 1740	70.28" 1785	
GL-R96H	96	75.59" 1920	74.80" 1900	76.57" 1945	

To STEP 3 P. 16

If [Detection capability: $\phi 1.77"$ $\phi 45$ mm] was selected in Step 1

GL-RL Series

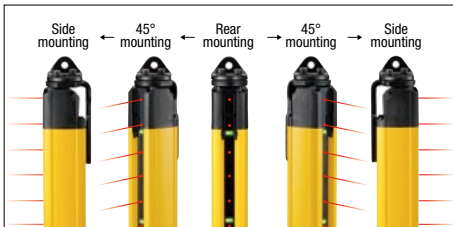


Model	No. of beam axes	Total length (inch mm)	Detection height (inch mm)	Protection height (inch mm)	Operating distance (ft. m)
GL-R04L	4	6.30" 160	4.72" 120	8.07" 205	0.67' to 49.21' 0.2 to 15
GL-R06L	6	9.45" 240	7.87" 200	11.22" 285	
GL-R08L	8	12.60" 320	11.02" 280	14.37" 365	
GL-R10L	10	15.75" 400	14.17" 360	17.52" 445	
GL-R12L	12	18.90" 480	17.32" 440	20.67" 525	
GL-R14L	14	22.05" 560	20.47" 520	23.82" 605	
GL-R16L	16	25.20" 640	23.62" 600	26.97" 685	
GL-R18L	18	28.35" 720	26.77" 680	30.12" 765	
GL-R20L	20	31.50" 800	29.92" 760	33.27" 845	
GL-R22L	22	34.65" 880	33.07" 840	36.42" 925	
GL-R24L	24	37.80" 960	36.22" 920	39.57" 1005	
GL-R26L	26	40.94" 1040	39.37" 1000	42.72" 1085	
GL-R28L	28	44.09" 1120	42.52" 1080	45.87" 1165	
GL-R30L	30	47.24" 1200	45.67" 1160	49.02" 1245	
GL-R32L	32	50.39" 1280	48.82" 1240	52.17" 1325	

To STEP 3 P. 16

SELECT THE MOUNTING BRACKET

▶ ADJUSTABLE ANGLE MOUNTING BRACKET GL-RB01/GL-RB02 (incl. 2 pieces)



- By changing the screw positions, it is possible to adjust the angle of the light curtain by 180°.

If the total length of the GL-R main unit is 50.39" 1280 mm or longer, and if mounting it using the Adjustable angle mounting bracket, also use the antivibration bracket [GL-RB32 (2 pieces/pack)] to prevent vibration.



GL-RB01

To STEP 4 P. 17

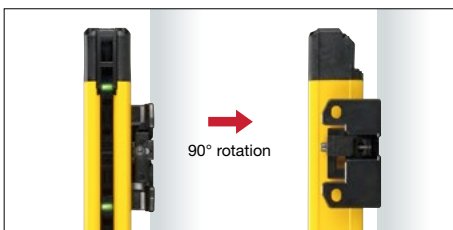


GL-RB02

To STEP 4 P. 17

▶ NO DEAD ZONE MOUNTING BRACKET GL-RB21 (incl. 2 pieces)

Useful when mounting brackets cannot be used on the top or bottom of the light curtain



- Allows you to rotate the light curtain 90° by changing the mounting hole. It is also possible to perform fine-tuning of $\pm 15^\circ$ from this position.

If the total length of the GL-R main unit is 50.39" 1280 mm or longer and if mounting it using the no dead zone mounting bracket, also use the antivibration bracket [GL-RB32 (2 pieces/pack)] to prevent vibration.



To STEP 4 P. 17

▶ STRAIGHT MOUNTING BRACKET GL-RB11 (incl. 2 pieces)



- Simple attachment to standard machine framework.

If the total length of the GL-R main unit is 50.39" 1280 mm or longer, and if mounting it using the straight mounting bracket, also use the antivibration bracket [GL-RB31 (2 pieces/pack)] to prevent vibration.



To STEP 4 P. 17

▶ L-SHAPED MOUNTING BRACKET GL-RB12 (incl. 2 pieces)



- Simple attachment to standard machine framework.

If the total length of the GL-R main unit is 50.39" 1280 mm or longer, and if mounting it using the L-shaped mounting bracket, additional L-shaped mounting brackets can be used [GL-RB12 (2 pieces/pack)] to prevent vibration.



To STEP 4 P. 17

SELECT THE CABLES

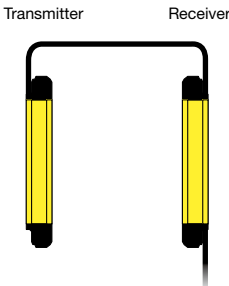
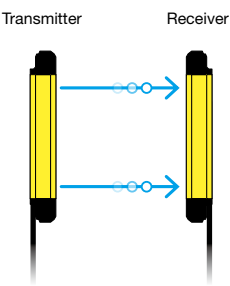
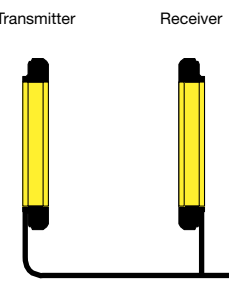
It is possible to select from the following 3 types of wiring systems according to the application.
Select an applicable cable according to the wiring systems listed below.

▶ CABLES

- Each model is connected to one cable. Therefore, at least two cables are needed as a system, one for the transmitter and another for the receiver.
- All cables can be used for both the transmitter and receiver.
- The combination of the wiring system and cable determines the functions that can be used. Different types of cables can be used for the transmitter and receiver.
- Make sure that the length of the main unit connection cable and extension cable will be **98.43'** 30 m or less regarding the transmitter and receiver, respectively, when using the optical/wire synchronization system.
- Make sure that the total length for all cables, which includes the unit connection cable, extension cable, and series connection cable, is **98.43'** 30 m or less when using the one-line system.

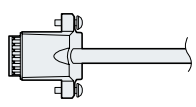
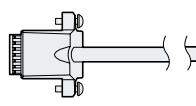
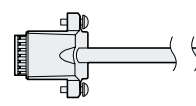
Select 1 cable for each transmitter/receiver according to the optimal wiring system.

If multiple functions are necessary, select an 11-core cable.

Wiring system		One-line system	Optical synchronization system	Wire synchronization system
Wiring diagram				
Applicable Cables	Transmitter	Series connection cable	5-core cable	7-core cable 11-core cable
	Receiver	5-core cable 11-core cable	5-core cable 11-core cable	7-core cable 11-core cable

Select a unit connection cable or one-line system series connection cable.

If extending the cable, select a connector type.

Shape	No. of conductors	PNP/NPN	Connector	Length (ft. m)	Model	
 Unit connection cable	5-core	PNP	—	16.40' 5	GL-RP5P	
			—	32.81' 10	GL-RP10P	
		NPN	—	16.40' 5	GL-RP5N	
			—	32.81' 10	GL-RP10N	
	7-core	PNP	—	16.40' 5	GL-RP5PS	
			—	32.81' 10	GL-RP10PS	
		NPN	—	16.40' 5	GL-RP5NS	
			—	32.81' 10	GL-RP10NS	
	11-core	PNP	—	16.40' 5	GL-RP5PM	
			—	32.81' 10	GL-RP10PM	
		NPN	—	16.40' 5	GL-RP5NM	
			—	32.81' 10	GL-RP10NM	
 Unit connection cable (for extension use)	5-core	PNP	M12 (5-pin male)	0.98' 0.3	GL-RPC03P	
		NPN			GL-RPC03N	
	7-core	PNP	M12 (8-pin male)		GL-RPC03PS	
		NPN			GL-RPC03NS	
	11-core	PNP	M14 (12-pin male)		GL-RPC03PM	
		NPN			GL-RPC03NM	
	 Series connection cable	PNP/NPN shared	—		0.26' 0.08	GL-RS008
					0.49' 0.15	GL-RS015
1.64' 0.5				GL-RS05		
3.28' 1				GL-RS1		
9.84' 3				GL-RS3		
16.40' 5				GL-RS5		
32.81' 10				GL-RS10		

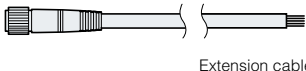
The connector shape for both sides is the same.

The connector shape for both sides is the same.

SELECT THE CABLES

FOR EXTENSION

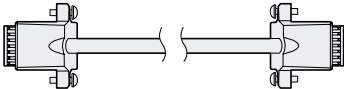
- If using a combination of the unit connection cable (for extension use) and the extension cable, make sure that they share the same amount of conductors.

Shape	No. of conductors	PNP/NPN	Length (ft. m)	Model
 Extension cable	5-core M12 connector (5-pin female)	PNP/NPN shared	16.40' 5	GL-RC5
			32.81' 10	GL-RC10
			65.62' 20	GL-RC20
	7-core M12 connector (8-pin female)		16.40' 5	GL-RC5S
			32.81' 10	GL-RC10S
			65.62' 20	GL-RC20S
	11-core M14 connector (12-pin female)		16.40' 5	GL-RC5M
			32.81' 10	GL-RC10M
			65.62' 20	GL-RC20M

FOR SERIES CONNECTION

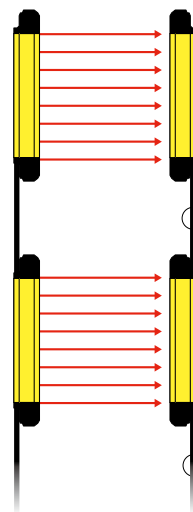
By connecting up to 3 GL-R units in a series, they can function as a single set of light curtains.

- Use a series connection cable to perform series connection.

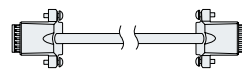
Shape	PNP/NPN	Length (ft. m)	Model
 * The connector shape for both sides is the same. There are no regulations for the direction in which connection is performed.	PNP/NPN shared	0.26' 0.08	GL-RS008
		0.49' 0.15	GL-RS015
		1.64' 0.5	GL-RS05
		3.28' 1	GL-RS1
		9.84' 3	GL-RS3
		16.40' 5	GL-RS5
		32.81' 10	GL-RS10

▶ INSTALLATION SCHEMATIC

Optical synchronization/
Wire synchronization system



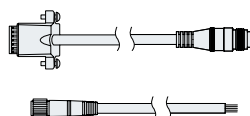
• Series connection cable



• Unit connection cable

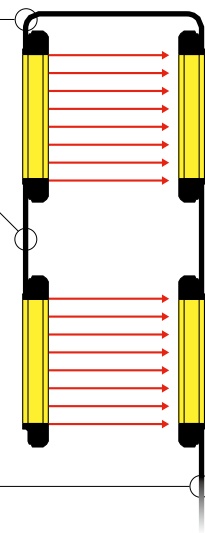


• Unit connection cable
(for extension use) + extension cable



* The unit connection cable cannot be installed on top of the GL-R.

One-line system



SELECT THE OPTIONAL ACCESSORIES

▶ DEDICATED SAFETY RELAY AND POWER SUPPLY FOR THE GL-R SERIES



Dedicated relay for the GL-R Series

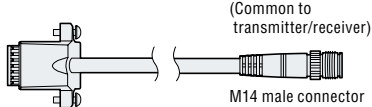
Type	Model	Safety input	Safety output	Other I/O
		Light curtain		
Safety relay	GL-T11R	1 ch (2 inputs) (Dedicated for GL-R)	1 channel (2 outputs)	EDM input, Muting input, AUX output, Muting lamp output, etc.

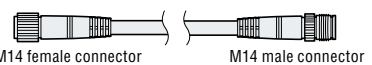
Dedicated power supply for KEYENCE light curtains

Type	Model	Input power supply voltage	Output voltage	Output capacity	Power consumption
Switching type power supply	SL-U2	100 to 240 VAC ±10% (50/60 Hz)	24 VDC ±10% Class 2	1.8 A	135 VA

▶ GL-T11R CONNECTION CABLE

- The following cable must be used for connection between the GL-R and GL-T11R.
The system will not operate if other GL-R cables are used to connect the GL-R and GL-T11R.

Shape	Length (ft. m)	Model
 (Common to transmitter/receiver) M14 male connector	0.98' 0.3	GL-RPT03PM
	9.84' 3	GL-RPT3PM
	16.40' 5	GL-RPT5PM
	32.81' 10	GL-RPT10PM

Shape	Length (ft. m)	Model
 M14 female connector M14 male connector	32.81' 10	GL-RCT10PM

▶ BATTERY-OPERATED LASER ALIGNMENT TOOL



Type	Model	Power source	Laser class
Laser Alignment Tool	GL-R1LP	AAA battery x 2	Class 2 laser product

SELECT THE OPTIONAL ACCESSORIES

▶ FRONT PROTECTION COVER

Select a front protection cover to protect the detection surface as necessary.



Two sets are required to install protection on both the transmitter and receiver. Refer to the detection distances in the chart when using the front protection cover.

Front protection cover	Operating distance		
	GL-RF	GL-RH	GL-RL
Single side (Transmitter or receiver only)	31.17' 9.5 m	47.57' 14.5 m	
Both sides (Transmitter and receiver)	29.53' 9 m	45.93' 14 m	



Model	Applicable GL-R model		
GL-RA160	—	GL-R08H	GL-R04L
GL-RA240	GL-R23F	GL-R12H	GL-R06L
GL-RA320	GL-R31F	GL-R16H	GL-R08L
GL-RA400	GL-R39F	GL-R20H	GL-R10L
GL-RA480	GL-R47F	GL-R24H	GL-R12L
GL-RA560	GL-R55F	GL-R28H	GL-R14L
GL-RA640	GL-R63F	GL-R32H	GL-R16L
GL-RA720	GL-R71F	GL-R36H	GL-R18L
GL-RA800	GL-R79F	GL-R40H	GL-R20L
GL-RA880	GL-R87F	GL-R44H	GL-R22L
GL-RA960	GL-R95F	GL-R48H	GL-R24L
GL-RA1040	GL-R103F	GL-R52H	GL-R26L
GL-RA1120	GL-R111F	GL-R56H	GL-R28L
GL-RA1200	GL-R119F	GL-R60H	GL-R30L
GL-RA1280	GL-R127F	GL-R64H	GL-R32L
GL-RA1440	—	GL-R72H	—
GL-RA1600	—	GL-R80H	—
GL-RA1760	—	GL-R88H	—
GL-RA1920	—	GL-R96H	—

▶ INTERFACE UNIT

Optional accessory required to perform configuration and monitoring of the GL-R on a PC.

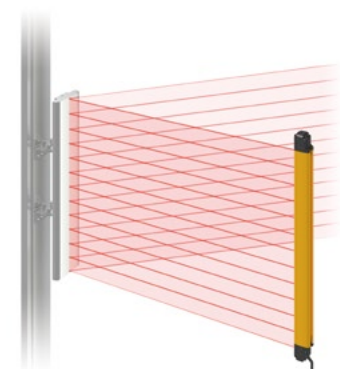


Model	Name
GL-R1UB	Interface unit
OP-51580	USB cable 6.56' 2 m
OP-86941	USB cable 16.40' 5 m

▶ CORNER MIRROR SL-M SERIES

By using a corner mirror, it is possible to reduce costs and save time on wiring.

- This is a mirror that reflects light from the transmitter within a range of 45° to 95°. Up to 4 mirrors can be used. For details, see the "SL-M Series instruction manual".



For each single corner mirror, the detection distance will decrease by approximately 10%.

Model	Applicable GL-R model		
SL-M12H	GL-R23F	GL-R08H/GL-R12H	GL-R04L/GL-R06L
SL-M16H	GL-R31F	GL-R16H	GL-R08L
SL-M20H	GL-R39F	GL-R20H	GL-R10L
SL-M24H	GL-R47F	GL-R24H	GL-R12L
SL-M28H	GL-R55F	GL-R28H	GL-R14L
SL-M32H	GL-R63F	GL-R32H	GL-R16L
SL-M36H	GL-R71F	GL-R36H	GL-R18L
SL-M40H	GL-R79F	GL-R40H	GL-R20L
SL-M44H	GL-R87F	GL-R44H	GL-R22L
SL-M48H	GL-R95F	GL-R48H	GL-R24L
SL-M52H	GL-R103F	GL-R52H	GL-R26L
SL-M56H	GL-R111F	GL-R56H	GL-R28L
SL-M60H	GL-R119F	GL-R60H	GL-R30L
SL-M64H	GL-R127F	GL-R64H	GL-R32L
SL-M80H*	—	GL-R72H/GL-R80H	—
SL-M96H*	—	GL-R88H/GL-R96H	—

* Newly added to the lineup

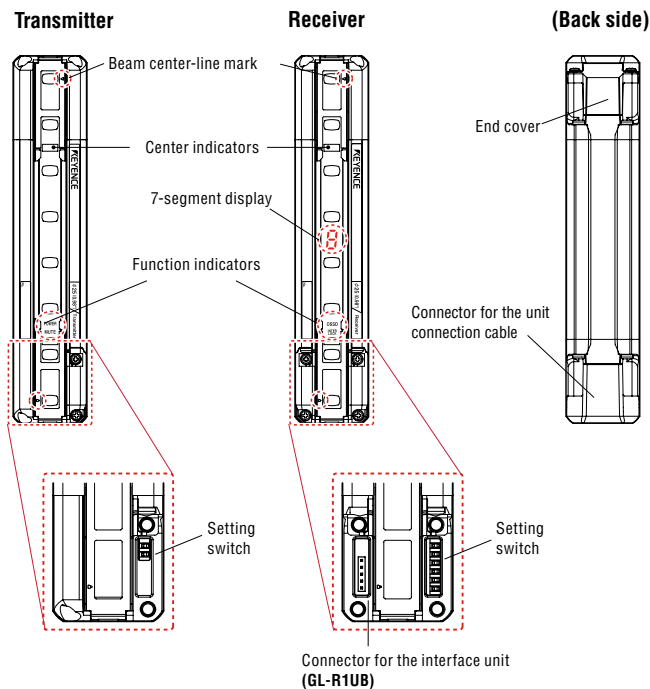
SPECIFICATIONS

Model			GL-RF	GL-RH	GL-RL
Beam axis spacing/Lens diameter			0.39" 10 mm / ø0.16" ø4	0.79" 20 mm / ø0.20" ø5	1.57" 40 mm / ø0.20" ø5
Detection capability			ø0.55" ø14 mm	ø0.98" ø25 mm	ø1.77" ø45 mm
Operating distance			0.66' to 32.81' 0.2 to 10 m*1		
Effective aperture angle			Max. ±2.5° (When operating distance is 9.84' 3 m or more)		
Light source			Infrared LED (870 nm)		
Response time			Optical synchronization (Channel 0) or Wire synchronization: 6.6 to 18.1 ms Optical synchronization (Channel A or B): 6.9 to 27.4 ms		
OSSD operation			Turns on when no interruptions are present in the detection zone		
Synchronization between the transmitter and receiver			Optical synchronization or Wire synchronization (Determined by wiring)		
Light interference prevention function			Prevents mutual interference in up to two GL-R systems. Optical synchronization: prevented by Channel A and B with setting switch Wire synchronization: prevented automatically		
Control output (OSSD output)	Output	2 transistor outputs. (PNP or NPN is determined by the cable type)			
	Max. load current	500 mA*2			
	Residual voltage (during ON)	Max. 2.5 V (with a cable length of 16.40' 5 m)			
	OFF state voltage	Max. 2.0 V (with a cable length of 16.40' 5 m)			
	Leakage current	Max. 200 µA			
	Max. capacitive load	2.2 µF			
	Load wiring resistance	Max. 2.5 Ω			
Supplemental output (Non-safety-related output)	AUX	Transistor outputs (Compatible with both PNP and NPN)			
	Error output	Load current: Max. 50 mA, Residual voltage: Max. 2.5 V (with a cable length of 16.40' 5 m)			
	Muting lamp output	Incandescent lamp (24 VDC, 1 to 5.5 W) LED lamp (load current: 10 to 230 mA) can be connected			
External input	EDM input	[When using a PNP output cable] ON voltage: 10 to 30 V OFF voltage: Open or 0 to 3 V Short circuit current: Approx. 2.5 mA (Approx. 10 mA with EDM input only)		[When using an NPN output cable] ON voltage: 0 to 3 V OFF voltage: Open or 10 V or more Up to the power voltage Short circuit current: Approx. 2.5 mA (Approx. 10 mA with EDM input only)	
	Wait input				
	Reset input				
	Muting input 1, 2				
	Override input				
Power supply	Voltage	24 VDC ±20%, ripple (P-P) 10% or less, Class 2			
	Current consumption	Transmitter : 37 to 81 mA, Receiver : 66 to 91 mA			
Protection circuit			Reverse current protection, short-circuit protection for each output, surge protection for each output		
Environmental resistance	Enclosure rating	IP65/IP67 (IEC60529)			
	Overvoltage category	II			
	Ambient temperature	14 to +131°F -10 to +55°C (No freezing)			
	Storage ambient temperature	-13 to +140°F -25 to +60°C (No freezing)			
	Relative humidity	15 to 85% RH (No condensation)			
	Storage relative humidity	15 to 95% RH			
	Ambient light	Incandescent lamp: 3,000 lx or less. Sunlight: 20,000 lx or less			
	Vibration	10 to 55 Hz, 0.03" 0.7 mm compound amplitude, 20 sweeps each in the X, Y and Z directions			
	Shock	100m/s ² (approx. 10 G), 16 ms pulse in X, Y and Z directions, 1,000 times each axis			
Material	Main unit case	Aluminum			
	Upper case/lower case	Nylon (GF 30%)			
	Front cover	Polycarbonate, SUS304			
Weight			See p.23		
Approved standards	EMC	EMS	IEC61496-1, EN61496-1, UL61496-1		
		EMI	EN55011 ClassA, FCC Part15B ClassA, ICES-003 ClassA		
	Safety		IEC61496-1, EN61496-1, UL61496-1 (Type 4 ESPE)		
			IEC61496-2, EN61496-2, UL61496-2 (Type 4 AOPD)		
			IEC61508, EN61508 (SIL3), IEC62061, EN62061 (SIL CL3)		
			EN ISO13849-1:2008 (Category 4, PLe)		
			UL508		
			UL1998		

*1 When the option front protection cover is installed on the one of transmitter or receiver, the Operating distance is shortened by 1.64' 0.5 m. When the front covers are installed on both of the transmitter and receiver, the Operating distance is shortened by 3.28' 1.0 m.

*2 When the GL-R is used under surrounding air temperatures between 122°F to 131°F 50 to 55°C, the Maximum load current should not exceed 350 mA.

PART DESCRIPTION



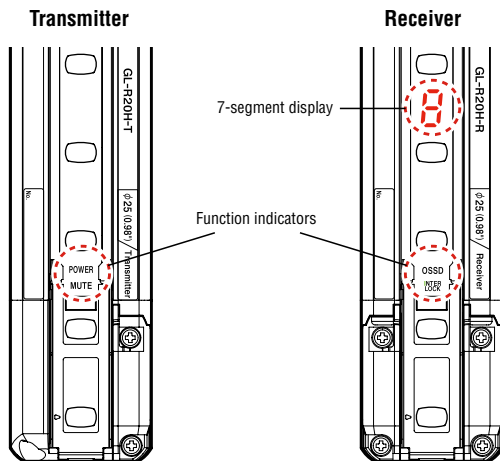
SETTING SWITCH

Transmitter

Number	Details	Settings
2	Channel	Channel 0 (Not applied) (default)
1	Channel	Channel A
	Channel	Channel B

Receiver

Number	Details	Settings
6	Center indicator	ON (Green) when all beam axes are clear (Default)
		OFF when all beam axes are clear
5	Reduced resolution function (safety function)	Reduced resolution is not applied (Default).
4		Reduced resolution (one optical beam) is applied.
3		Reduced resolution (two optical beams) is applied.
2	Channel	Channel 0 (Not applied) (default)
1	Channel	Channel A
	Channel	Channel B



FUNCTION INDICATORS

Transmitter		
Name	Status	Details
POWER (orange)	Light ON	Power ON (Transmitter)
	Light OFF	Power OFF (Transmitter)
MUTE (orange)	Light ON	Muted condition or Override condition
	Blinking slowly	Muting input 1 ON
	Blinking	Muting input 2 ON, or muting input 1 and 2 ON
	Light OFF	Muting input 1 and 2 OFF

Receiver		
Name	State	Details
OSSD (red/green)	Light in red	OSSD OFF
	Light in green	OSSD ON
	Blinking in green	Amount of received light is unstable. (Alert output OFF)
	Light OFF	Power OFF (Receiver)
INTERLOCK (Yellow)	Light ON	Interlock condition
	Blinking	Interlock reset ready condition (Interlock reset ready output ON)
	Light OFF	No interlock or error condition

• When optical synchronization system is applied, only the "POWER" indicator turns ON on the transmitter.

7-SEGMENT DISPLAY

UPON POWER-UP

Wire synchronization system or one-line system	Optical synchronization system		
	Channel 0	Channel A	Channel B
	11	≡	A b

DURING NORMAL OPERATION

Condition		7-segment display
Applying the reduced resolution function or fixed blanking function.		F
Wait input is activated.		U
Applying the muting function or override function	Muting input 1 ON	8
	Muting input 2 ON	8
	Muting input 1 and 2 ON ^{*1}	-
	Muted Condition	8 → 8 → 8 → 8 → 8
	Override input ON ^{*2}	0
	Override condition.	8 → 8 → 8 → 8
Other than those above.		Turn OFF

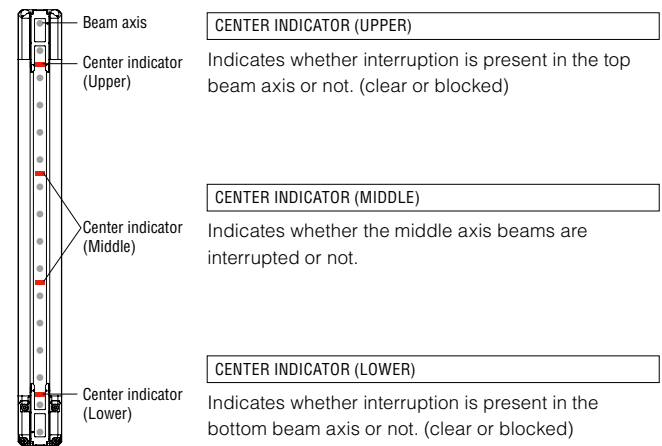
*1 When not in the muted condition because conditions for initiation of muting are not met.

*2 When not in the override condition because conditions for initiation of override are not met.

ERROR CONDITION

When an error occurs, the OSSD goes to the OFF-state and the GL-R goes to the error condition. For the 7-segment display in the error condition, refer to the "instruction manual".

CENTER INDICATORS



Center indicator	Light OFF	Light in red	Light in green	Blinking in red
Upper	Top beam axis is blocked	Although the top beam axis is unblocked, the others are blocked	No interruption is present in detection zone of the GL-R. (clear)	Error condition
Middle	Top beam axis or Bottom beam axis is blocked	Although the top and bottom beam axis are unblocked, the middle beams are blocked		
Lower	Bottom beam axis is blocked	Although the bottom beam axis is unblocked, the others are blocked		

* The center indicator on the transmitter is OFF when optical synchronization system is applied.

RESPONSE TIME (OSSD)

GL-RF

Unit: ms

Model	Response time (OSSD)					
	Wire synchronization, One-line or Optical synchronization system (Channel 0)			Optical synchronization system (Channel A or B)		
	ON → OFF	OFF → ON*1	All blocked → ON*2	ON → OFF	OFF → ON*1	All blocked → ON*2
GL-R23F	6.9	49.2	64.4	9.3	52.7	74.0
GL-R31F	7.8	50.5	67.9	10.7	54.8	79.5
GL-R39F	8.6	51.8	71.3	12.1	56.9	85.1
GL-R47F	9.5	53.1	74.8	13.5	59.0	90.7
GL-R55F	10.4	54.3	78.3	14.9	61.1	96.3
GL-R63F	11.2	55.6	81.7	16.3	63.2	101.8
GL-R71F	12.1	56.9	85.2	17.6	65.3	107.4
GL-R79F	13.0	58.2	88.6	19.0	67.4	113.0
GL-R87F	13.8	59.5	92.1	20.4	69.4	118.5
GL-R95F	14.7	60.8	95.5	21.8	71.5	124.1
GL-R103F	15.5	62.1	99.0	23.2	73.6	129.7
GL-R111F	16.4	63.4	102.4	24.6	75.7	135.2
GL-R119F	17.3	64.7	105.9	26.0	77.8	140.8
GL-R127F	18.1	66.0	109.4	27.4	79.9	146.4

GL-RL

Unit: ms

Model	Response time (OSSD)					
	Wire synchronization, One-line or Optical synchronization system (Channel 0)			Optical synchronization system (Channel A or B)		
	ON → OFF	OFF → ON*1	All blocked → ON*2	ON → OFF	OFF → ON*1	All blocked → ON*2
GL-R04L	6.6	48.7	63.1	6.9	49.1	64.2
GL-R06L	6.6	48.7	63.1	6.9	49.1	64.2
GL-R08L	6.6	48.7	63.1	6.9	49.1	64.2
GL-R10L	6.6	48.7	63.1	7.0	49.3	64.9
GL-R12L	6.6	48.7	63.1	7.4	49.9	66.3
GL-R14L	6.6	48.7	63.1	7.7	50.4	67.7
GL-R16L	6.6	48.7	63.1	8.1	50.9	69.1
GL-R18L	6.6	48.7	63.1	8.4	51.4	70.5
GL-R20L	6.6	48.7	63.1	8.8	52.0	71.9
GL-R22L	6.8	49.0	64.0	9.1	52.5	73.3
GL-R24L	7.0	49.3	64.9	9.5	53.0	74.7
GL-R26L	7.2	49.6	65.7	9.8	53.5	76.1
GL-R28L	7.4	50.0	66.6	10.2	54.0	77.5
GL-R30L	7.7	50.3	67.5	10.5	54.6	78.9
GL-R32L	7.9	50.6	68.3	10.9	55.1	80.2

*1 If the interruption is present in the detection zone for less than 80 ms, the response time (OFF to ON) will be 80 ms or more to ensure that the OSSD maintains the OFF state for more than 80 ms.

*2 "All blocked" means the situation where the GL-R operates in optical synchronization system and the transmitter and receiver is not synchronized (top and bottom beam axes are both blocked). In this situation, the response time is longer because the GL-R synchronizes the transmitter and receiver first and then determines the clear or blocked.

CURRENT CONSUMPTION

Unit: mA

Unit: mA

Unit: mA

Model	Current consumption (Max.)		Model	Current consumption (Max.)		Model	Current consumption (Max.)	
	Transmitter	Receiver		Transmitter	Receiver		Transmitter	Receiver
GL-R23F	50	70	GL-R08H	43	66	GL-R04L	37	66
GL-R31F	54	71	GL-R12H	46	68	GL-R06L	39	67
GL-R39F	57	72	GL-R16H	50	69	GL-R08L	41	68
GL-R47F	60	74	GL-R20H	53	71	GL-R10L	43	69
GL-R55F	62	75	GL-R24H	57	72	GL-R12L	46	70
GL-R63F	64	77	GL-R28H	59	73	GL-R14L	48	71
GL-R71F	66	78	GL-R32H	61	74	GL-R16L	50	72
GL-R79F	67	80	GL-R36H	63	75	GL-R18L	52	73
GL-R87F	69	81	GL-R40H	65	76	GL-R20L	54	75
GL-R95F	71	83	GL-R44H	66	77	GL-R22L	56	75
GL-R103F	72	84	GL-R48H	68	79	GL-R24L	57	76
GL-R111F	74	85	GL-R52H	69	80	GL-R26L	59	77
GL-R119F	76	87	GL-R56H	71	81	GL-R28L	60	78
GL-R127F	78	89	GL-R60H	72	82	GL-R30L	61	79
			GL-R64H	73	83	GL-R32L	62	80
			GL-R72H	75	85			
			GL-R80H	77	87			
			GL-R88H	79	89			
			GL-R96H	81	91			

* When each input, excluding the EDM input, is turned ON, the current consumption per input increases by 2.5 mA.

GL-RH

Unit: ms

Model	Response time (OSSD)					
	Wire synchronization, One-line or Optical synchronization system (Channel 0)			Optical synchronization system (Channel A or B)		
	ON → OFF	OFF → ON*1	All blocked → ON*2	ON → OFF	OFF → ON*1	All blocked → ON*2
GL-R08H	6.6	48.7	63.1	6.9	49.1	64.2
GL-R12H	6.6	48.7	63.1	7.4	49.9	66.3
GL-R16H	6.6	48.7	63.1	8.1	50.9	69.1
GL-R20H	6.6	48.7	63.1	8.8	52.0	71.9
GL-R24H	7.0	49.3	64.9	9.5	53.0	74.7
GL-R28H	7.4	50.0	66.6	10.2	54.0	77.5
GL-R32H	7.9	50.6	68.3	10.9	55.1	80.2
GL-R36H	8.3	51.3	70.0	11.6	56.1	83.0
GL-R40H	8.7	51.9	71.8	12.3	57.2	85.8
GL-R44H	9.2	52.6	73.5	12.9	58.2	88.6
GL-R48H	9.6	53.2	75.2	13.6	59.3	91.4
GL-R52H	10.0	53.9	77.0	14.3	60.3	94.2
GL-R56H	10.5	54.5	78.7	15.0	61.4	96.9
GL-R60H	10.9	55.2	80.4	15.7	62.4	99.7
GL-R64H	11.3	55.8	82.1	16.4	63.4	102.5
GL-R72H	12.2	57.1	85.6	17.8	65.5	108.1
GL-R80H	13.1	58.4	89.1	19.2	67.6	113.7
GL-R88H	13.9	59.7	92.5	20.6	69.7	119.2
GL-R96H	14.8	61.0	96.0	22.0	71.8	124.8

POINT

- When the GL-R units are connected in series, the response time is calculated according to the following steps;

- Sum up the response time of all unit.
- Subtract the following time from the result of previous step.

ON to OFF

One sub unit : 2 ms

Two sub unit : 4.2 ms

(When Optical synchronization system and Channel A or B)

One sub unit : 2.7 ms

Two sub unit : 5.7 ms

OFF to ON

One sub unit : 42 ms

Two sub unit : 84 ms

When connecting the GL-R32H (32 beam axes), GL-R24H (24 beam axes), and GL-R12L (12 beam axes) in series for one-line system, the response time of each unit is 7.9 ms, 7.0 ms, and 6.6 ms respectively, and the response time (ON to OFF) is 7.9 ms + 7.0 ms + 6.6 ms - 4.2 ms = 17.3 ms.

The response time (OFF to ON) is 50.6 ms + 49.3 ms + 48.7 ms - 84 ms = 64.6 ms.

- 2.0 m/s is the maximum object detection speed of the GL-R Series.

WEIGHT

Unit: g

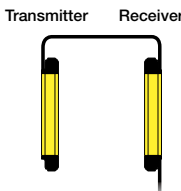
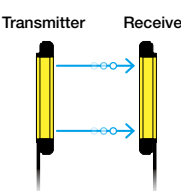
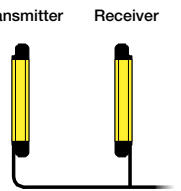
Unit: g

Unit: g

Model	Weight		Model	Weight		Model	Weight	
	Transmitter	Receiver		Transmitter	Receiver		Transmitter	Receiver
GL-R23F	320	330	GL-R08H	210	210	GL-R04L	210	210
GL-R31F	430	440	GL-R12H	320	330	GL-R06L	320	330
GL-R39F	550	550	GL-R16H	430	440	GL-R08L	430	440
GL-R47F	660	670	GL-R20H	550	550	GL-R10L	550	550
GL-R55F	780	780	GL-R24H	660	660	GL-R12L	660	660
GL-R63F	890	900	GL-R28H	770	770	GL-R14L	770	770
GL-R71F	1000	1010	GL-R32H	880	890	GL-R16L	880	890
GL-R79F	1200	1200	GL-R36H	1000	1000	GL-R18L	1000	1000
GL-R87F	1300	1300	GL-R40H	1110	1110	GL-R20L	1110	1110
GL-R95F	1400	1400	GL-R44H	1220	1220	GL-R22L	1220	1220
GL-R103F	1500	1500	GL-R48H	1330	1340	GL-R24L	1330	1340
GL-R111F	1600	1600	GL-R52H	1440	1450	GL-R26L	1440	1450
GL-R119F	1700	1700	GL-R56H	1550	1560	GL-R28L	1550	1560
GL-R127F	1800	1900	GL-R60H	1670	1680	GL-R30L	1670	1680
			GL-R64H	1780	1790	GL-R32L	1780	1790
			GL-R72H	2010	2010			
			GL-R80H	2230	2240			
			GL-R88H	2450	2460			
			GL-R96H	2680	2690			

FUNCTIONS AND FEATURES

WIRING SYSTEM

Wiring system		One-line system	Optical synchronization system	Wire synchronization system
Wiring diagram				
	<ul style="list-style-type: none"> Simplified wiring. The unit connection cable is not needed for the transmitter. 		<ul style="list-style-type: none"> Wiring is not needed between the transmitter and receiver. The transmitter and the receiver can operate on different power supplies. 	<ul style="list-style-type: none"> All functions of the GL-R are available.
Limitation		<ul style="list-style-type: none"> The input and output functions on the transmitter are not available. There is a maximum limit for the total length of cables. 	<ul style="list-style-type: none"> The input and output functions on the transmitter are not available. All indicators other than "Power" are not available on the transmitter. 	<ul style="list-style-type: none"> Wiring is needed between the transmitter and the receiver.
Applicable Cables	Transmitter	Series connection cable	5-core cable	7-core cable 11-core cable
	Receiver	5-core cable 11-core cable	5-core cable 11-core cable	7-core cable 11-core cable

Wiring system		One-line system		Optical synchronization system		Wire synchronization system			
Cable combination	Transmitter cable Receiver cable	Series connection		5-core		7-core		11-core	
		5-core	11-core	5-core	11-core	7-core	11-core	7-core	11-core
Usable functions	OSSD output	✓	✓	✓	✓	✓	✓	✓	✓
	AUX (auxiliary) output		✓		✓	ⓧ	✓	ⓧ	✓
	Error output		ⓧ		ⓧ	✓	✓	✓	✓
	Muting		ⓧ		ⓧ		ⓧ	✓	✓
	Partial muting function		ⓧ		ⓧ		ⓧ	ⓧ	ⓧ
	Muting bank function								ⓧ
	Muted condition output		ⓧ		ⓧ		ⓧ	ⓧ	ⓧ
	Muting lamp output							✓ (ⓧ)	✓ (ⓧ)
	Override function							✓ (ⓧ)	✓ (ⓧ)
	Interlock function		✓ (ⓧ)		✓ (ⓧ)		✓ (ⓧ)		✓ (ⓧ)
	Interlock-reset-ready output		ⓧ		ⓧ		ⓧ		ⓧ
	EDM function		✓ (ⓧ)		✓ (ⓧ)		✓ (ⓧ)		✓ (ⓧ)
	Wait input					✓	✓	✓	✓
	Alert output		ⓧ		ⓧ	ⓧ	ⓧ	ⓧ	ⓧ
	Clear/Block output		ⓧ		ⓧ	ⓧ	ⓧ	ⓧ	ⓧ
	Reset input (for error)		✓		✓		✓		✓
	Reduced resolution function	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)
	Fixed blanking function	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ
	Channel configuration (Light interference prevention function)	✓	✓	✓	✓	✓	✓	✓	✓
	Center indicator configuration	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)	✓ (ⓧ)
	Monitoring function	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ

✓ Available without the configuration software ⓧ Available with the configuration software ✓ (ⓧ) Available without the configuration software. Functionality can be expanded when using the configuration software.

SERIES CONNECTION

Up to three GL-R units can be serially connected and used as a single light curtain.

INTERLOCK FUNCTION

Interlock is a function that prevents the OSSD from automatically going to the ON state from an OFF state. You can prevent the unintended start-up and/or the unintended restart of the machine if an interlock is applied to the GL-R.

OSSD

The OSSD is a safety-related control output. It connects to an external device (load), such as an FSD or MPCE. The GL-R generates self-diagnosis signals on its internal control circuit to perform diagnostics on the output circuit (OSSD). These signals periodically force the OSSD into a temporary OFF state when no interruption exists in the detection zone.

EXTERNAL DEVICE BREAKDOWN DETECTION (EDM FUNCTION)

EDM (External Device Monitoring) is a function of the GL-R that monitors the state of the control devices which are externally connected to the GL-R. The GL-R can detect a fault, such as welded contacts on external devices, as long as the EDM function is activated. This function is available only when connecting the 11-core cable to the receiver.

WIRING

POINT

- Each model is connected to one cable. Therefore, at least two cables are needed as a system, one for the transmitter and another for the receiver.
- All cables can be used for both the transmitter and receiver.
- The combination of the wiring system and cable determines the functions that can be used. Different types of Cables can be used for the transmitter and receiver.
- Be sure to match the numbers of conductors (core wires) when using the unit connection cable for extension use and the extension cable.

CABLE SPECIFICATION

1 CABLE LENGTH

1. OPTICAL SYNCHRONIZATION SYSTEM, WIRE SYNCHRONIZATION SYSTEM

The sum of the length for the unit connection cable and extension cable must be **98.43' 30 m** or less. This limitation applies separately to the entire transmitter cable setup and the entire receiver cable setup.

2. ONE-LINE SYSTEM

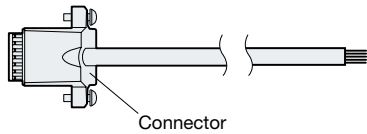
The sum of the length for all of the unit connection cables, extension cables and series cables must be **98.43' 30 m** or less.



- Cables must be within the lengths specified. Failure to follow this specification may cause improper operation of safety functions, and may create a dangerous situation.
- The series connection cable cannot be cut or extended. If the cable is cut or extended, safety features may not operate properly. Do not allow this to happen as it is extremely dangerous.

2 Minimum cable bending radius: 0.2" 5 mm

3 Identification of connector cables



CONNECTOR COLOR

PNP output type cables or series connection cables : Black connectors

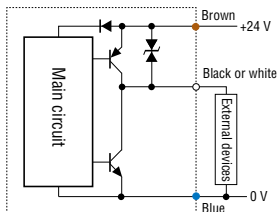
NPN output type cables : Grey connectors

POINT

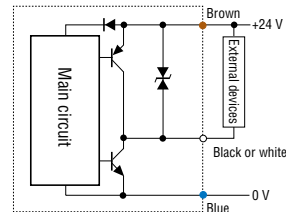
- PNP output type cables and NPN output type cables cannot be used at the same time (mixed wiring is not possible). One type of cable must be chosen based on the application.

DIAGRAMS OF THE I/O CIRCUITS

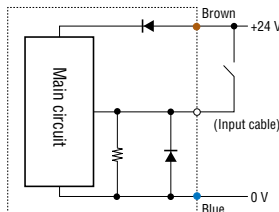
OUTPUT CIRCUIT (PNP CABLE)



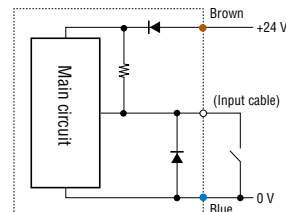
OUTPUT CIRCUIT (NPN CABLE)



INPUT CIRCUIT (PNP CABLE)



INPUT CIRCUIT (NPN CABLE)



CABLE COLORS AND PIN POSITIONS

REFERENCE

- When the synchronization wire 1 or 2 is not connected, the GL-R operates in optical synchronization system.
- When optical synchronization system or one-line system is applied, the input and output functions on the transmitter are not available.
- The functions assigned to the input and output may differ according to the configuration when setting through the configuration software.
- "Wiring systems" (page 24)

5-CORE CABLE

Pin number	Cable color	Name	
		When the transmitter is connected	When the receiver is connected
1	Brown	+24 V	+24 V
2	White	(Not in use)	OSSD2
3	Blue	0 V	0 V
4	Black	(Not in use)	OSSD1
5	Gray	FE	FE

REFERENCE



M12 connector male pin assignment



M12 connector female pin assignment

7-CORE CABLE

Pin number	Cable color	Name	
		When the transmitter is connected	When the receiver is connected
1	White	Wait input	OSSD2
2	—	(Not in use)	(Not in use)
3	Black	Error output	OSSD1
4	Brown	+24 V	+24 V
5	Orange	Synchronization 1 (RS-485 +)	Synchronization 1 (RS-485 +)
6	Orange/black	Synchronization 2 (RS-485 -)	Synchronization 2 (RS-485 -)
7	Blue	0 V	0 V
8	Gray	FE	FE

REFERENCE



M12 connector male pin assignment



M12 connector female pin assignment

11-CORE CABLE

Pin number	Cable color	Name	
		When the transmitter is connected	When the receiver is connected
1	White	Wait input	OSSD2
2	—	(Not in use)	(Not in use)
3	Black	Error output	OSSD1
4	Yellow	Override input	RESET input
5	Orange	Synchronization 1 (RS-485 +)	Synchronization 1 (RS-485 +)
6	Orange/black	Synchronization 2 (RS-485 -)	Synchronization 2 (RS-485 -)
7	Blue	0 V	0 V
8	Red	Muting lamp output	AUX output
9	Red/black	Muting input 2	EDM input
10	Brown	+24 V	+24 V
11	Pink	Muting input 1	Interlock selection input
12	Gray	FE	FE

REFERENCE



M14 connector male pin assignment



M14 connector female pin assignment

EXAMPLES OF WIRING

NOTICE

- Unused I/O cables should be individually insulated.
- The functions assigned to the input and output may differ according to the configuration when configuring through the configuration software. For more information, see the "GL-R Series user's Manual".
- The Gray cable (FE) is electrically connected to the main unit case.
- The main unit case and a power-supply line are connected by a capacitors 3 kV 100 pF.

SIGNAL MEANING

R1, R2 External device (safety PLC, safety relay unit, etc.)

K1, K2 External device (Force guided relay, magnet connector, etc.)

K3 Solid state connector*1

S1 Switch used for reset input

S2 Switch used for wait input*1

S3 Switch used for override input

L1 Muting lamp (Incandescent lamp or LED lamp)

P1, P2 Muting device (Self-contained photoelectric sensors, etc.)

M 3-phase motor

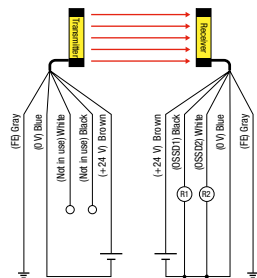
PLC For NON SAFETY-RELATED system control use*1

*1 These are NON SAFETY-RELATED components.

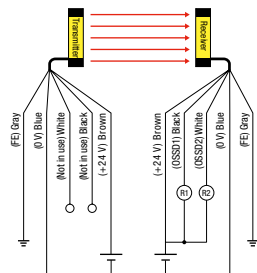
OPTICAL SYNCHRONIZATION SYSTEM

TRANSMITTER : 5-CORE CABLE, RECEIVER: 5-CORE CABLE

(1) PNP output cable

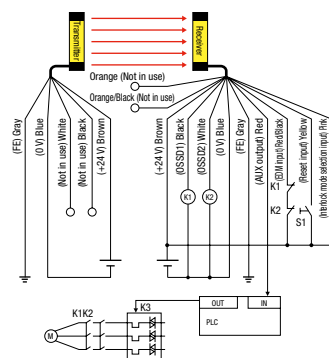


(2) NPN output cable

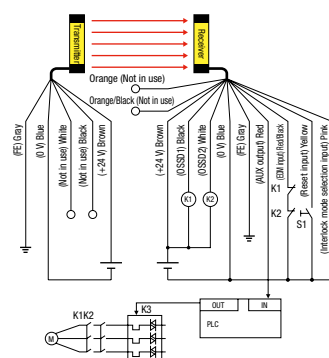


TRANSMITTER : 5-CORE CABLE, RECEIVER: 11-CORE CABLE USES EDM INPUT AND THE INTERLOCK FUNCTION

(1) PNP output cable



(2) NPN output cable

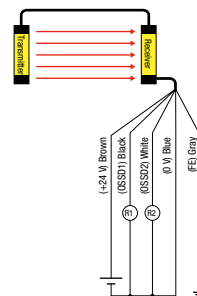


ONE-LINE SYSTEM

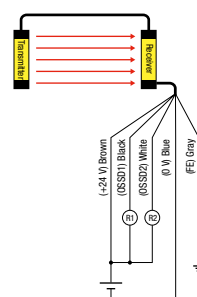
- The series connection cable must be used to connect the transmitter and receiver.
- The unit connection cable is not needed for the transmitter.
- The wiring when using an 11-core cable with the receiver is the same as the optical synchronization system wiring.

TRANSMITTER : SERIES CONNECTION CABLE, RECEIVER: 5-CORE CABLE

(1) PNP output cable



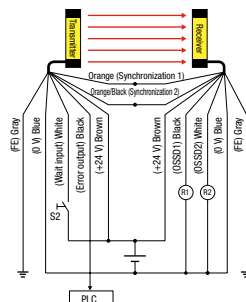
(2) NPN output cable



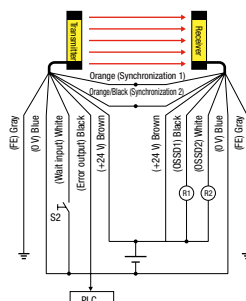
WIRE SYNCHRONIZATION SYSTEM

TRANSMITTER : 7-CORE CABLE, RECEIVER: 7-CORE CABLE

(1) PNP output cable



(2) NPN output cable

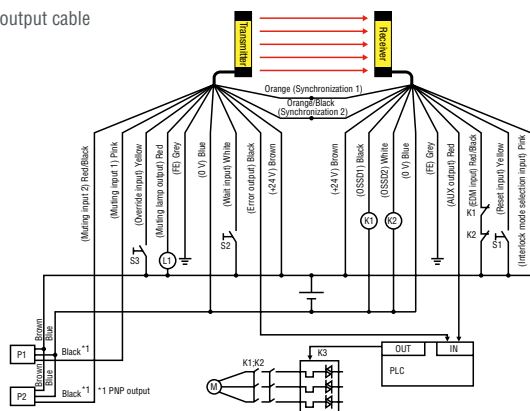


WIRE SYNCHRONIZATION SYSTEM

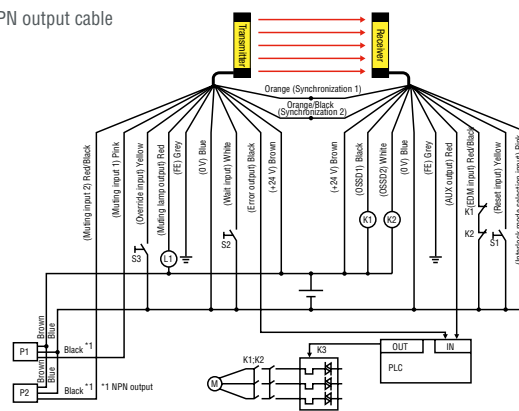
TRANSMITTER: 11-CORE CABLE, RECEIVER: 11-CORE CABLE

When using the EDM function and Interlock function

(1) PNP output cable



(2) NPN output cable



SPECIFICATIONS

Model			GL-T11R
Applicable model			GL-R Series
Relay output	FSD1,2		250 VAC 6 A 30 VDC 6 A (Resistance load)
			240 VAC 2 A (COSφ=0.3) (Inductive load)
			24 VDC 1 A (COSφ=0.3) (Inductive load)
Response time	ON→OFF		GL-R +10 ms
	OFF→ON		GL-R +32 ms
Life-span	Electrical life-span		100,000 cycles or more with 250 VAC 6 A resistance load (open/close frequency: 20 times/minute)
			100,000 cycles or more with 30 VDC 6 A resistance load (open/close frequency: 20 times/minute)
			500,000 cycles or more with 250 VAC 1 A resistance load (open/close frequency: 30 times/minute)
			500,000 cycles or more with 30 VDC 1 A resistance load (open/close frequency: 30 times/minute)
			AC15: 100,000 cycles or more with 240 VAC 2 A inductive load (open/close frequency: 20 times/minute, cosφ = 0.3)
			DC13: 100,000 cycles or more with 24 VDC 1 A inductive load (open/close frequency: 20 times/minute, L/R = 48 ms)
Non-safety output	AUX output	Transistor output (PNP/NPN input device can be connected.) *1 50 mA max., residual voltage 2.5 V max. (When the cable between the GL-R and GL-T11R is 16.4' 5 m)	
	Error output		
	Muting lamp output		Incandescent lamp (24 VDC, 1 to 5.5 W) LED lamp (load current: 10 to 230 mA) can be connected.
External input	EDM input	ON voltage: [Power supply voltage - 5 V] to [Power supply voltage] OFF voltage: Open or 0 to 3 V Short circuit current: Approx. 2.5 mA (Approx. 10 mA with EDM input only)	
	Wait input		
	Reset input		
	Muting input 1, 2		
	Override input		
Power supply	Power supply voltage	24 VDC ±10%, ripple (P-P) 10% or less, Class 2	
	Current consumption	100 mA max. (24 VDC, GL-T11R only)	
Environmental resistance	Enclosure rating	IP20 (IEC60529) Must be installed within a control panel rated at IP54 or higher.	
	Pollution degree	2	
	Overvoltage category	III	
	Ambient temperature	14 to +131°F -10 to +55°C (No freezing)	
	Storage ambient temperature	-13 to +140°F -25 to +60°C (No freezing)	
	Relative humidity	15 to 85% RH (No condensation)	
	Storage relative humidity	15 to 95% RH	
	Altitude	2,000 m or less	
	Vibration	10 to 55 Hz 0.03" 0.7 mm compound amplitude 20 sweeps each in the X, Y and Z directions	
	Shock	100m/s ² (approx. 10 G), 16 ms pulse in X, Y and Z directions, 1,000 times each axis	
Material	Main unit case	Polycarbonate	
Weight		Approx. 310 g	
Approved standards	EMC	EMS	EN61496-1, UL61496-1, IEC61496-1
		EMI	EN55011 ClassA, FCC Part15B ClassA, ICES-003 ClassA
	Safety		EN61496-1, UL61496-1, IEC61496-1 (Type4 ESPE)
			EN ISO13849-1 : 2008 (Category4, PLe)
			UL508, EN50178

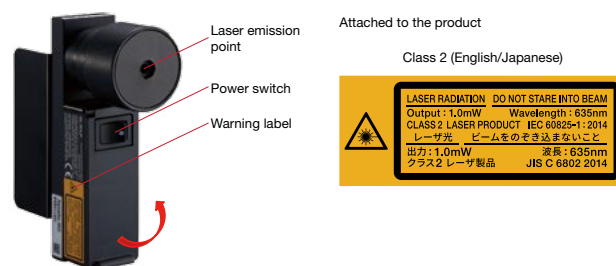
*1 The output operation is the same as that when the PNP output type cable is used.

Model		SL-U2
Type		Switching type
Input power supply voltage		100 to 240 VAC ±10% (50/60 Hz)
Overvoltage category		II
Output voltage		24 VDC ±10%, Class 2
Ripple/noise		240 mVp-p max.
Output capacity		1.8 A
Environmental resistance	Ambient temperature	14 to +131°F -10 to +55°C (No freezing)
	Relative humidity	35 to 85% RH (No condensation)
Pollution degree		2
Withstand voltage		1500 VAC 1 minute (across all external terminals and case)
Vibration		10 to 55 Hz 0.03" 0.7 mm compound amplitude 20 sweeps each in the X, Y and Z directions
Shock		100m/s ² (approx. 10 G), 16 ms pulse in X, Y and Z directions, 1,000 times each axis
Insulation resistance		50 MΩ or more (With 500 VDC megohmmeter across all external terminals and case)
Power consumption		135 VA
Momentary interruption		10 ms max.
Weight		Approx. 240 g
Approved standards	EMC	EN61000-6-2, EN55011 Class A, FCC Part15 Class A, ICES-003 Class A
	Safety	EN60950-1, EN50178, UL60950-1, UL508

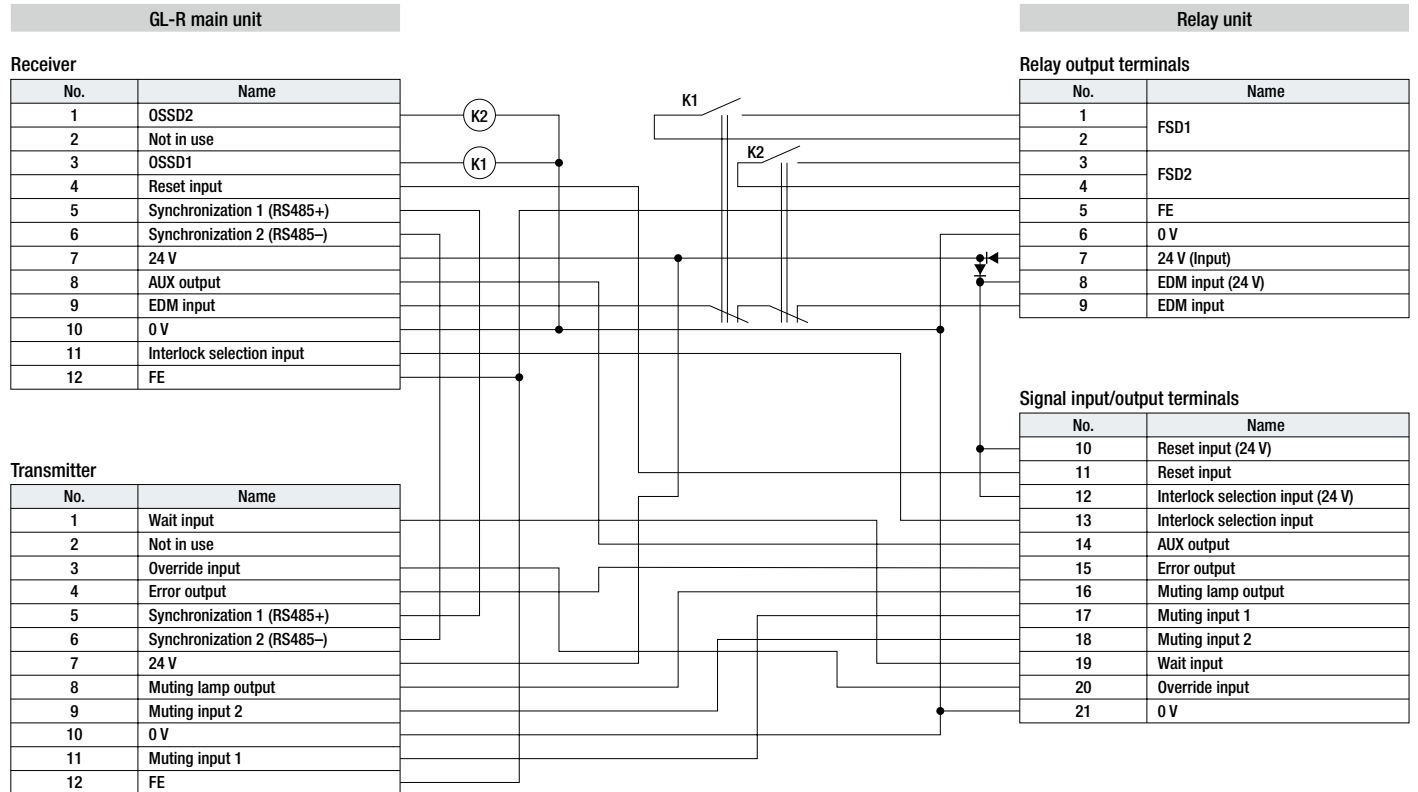
Model		GL-R1LP
Type		Laser Alignment Tool
Wavelength		635nm
Power source		AAA battery x 2
FDA(CDRH) Part 1040.10	Laser class	Class 2 laser product
	Output	1.0mW
IEC 60825-1/ JIS C 6802	Laser class	Class 2 laser product
	Output	1.0mW
Weight		260g

*The Laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.

Laser warning and explanation label



INTERNAL CIRCUIT DIAGRAM

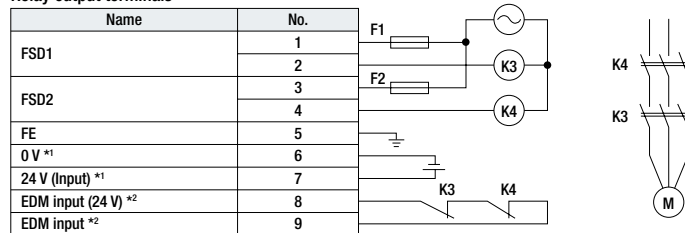


WIRING EXAMPLE

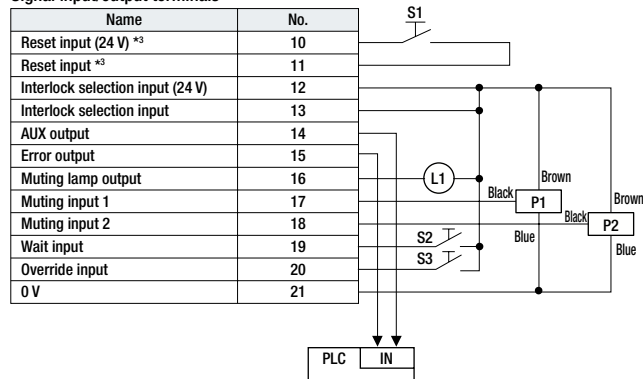
The wiring example shown here assumes the case of the following settings:

- Interlock function: Enabled (Manual reset mode)
- EDM function: Enabled
- Muting function: Enabled

Relay output terminals



Signal input/output terminals



- F1, F2** Fuse
- K3, K4** External device (Magnet contactor, etc.)
- S1** Switch for reset (N.O.)
- S2** Switch for wait input (N.O.)
- S3** Switch for override (N.O.)
- L1** Muting lamp (Incandescent lamp or LED lamp)
- P1, P2** Muting device (PZ Series self-contained photoelectric sensor <PNP output>, etc.)
- M** 3-phase motor
- PLC** For monitoring use. This is a NON-SAFETY RELATED system.

S2 and PLC are NON-SAFETY RELATED systems.

*1 No. 6 and No. 7 do not need to be wired when the SL-U2 is connected.

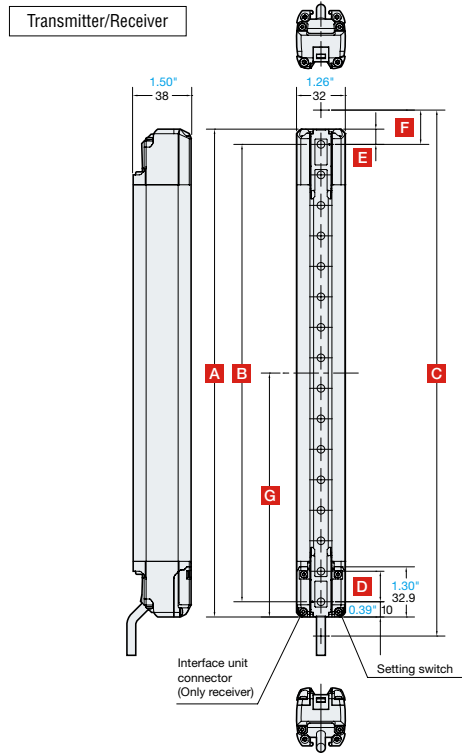
*2 If it is not necessary to perform error detection for K3 and K4 (when EDM input is not used), use the shorting bar between No. 8 and No.9.

*3 In the auto reset mode, use the shorting bar between No. 10 and No.11. To release the error condition of a GL-R through the reset input, connect a N.C. switch.



- Depending on the settings of the "Safety Device Configurator" PC setting software, each function is switched to a different function. When the settings are changed, check the wiring referring to the internal circuit diagram in the previous section.
- The total electric current supplied from each 24 V terminal of the GL-T11R must be 95 mA or less.

GL-R (GL-RF/RH/RL) MAIN UNIT

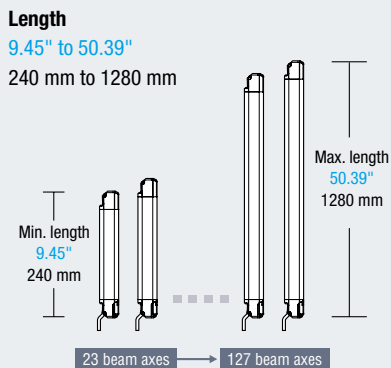


Note

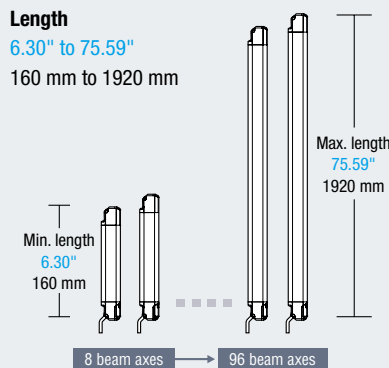
When the total length of the GL-R main unit becomes 50.39\"/>

Mounting bracket being used	Antivibration bracket to use
Adjustable angle mounting bracket	Antivibration bracket for adjustable angle mounting bracket
No dead zone mounting bracket	Antivibration bracket for adjustable angle mounting bracket
Straight mounting bracket	Antivibration bracket for straight mounting bracket
L-shaped mounting bracket	L-shaped mounting bracket

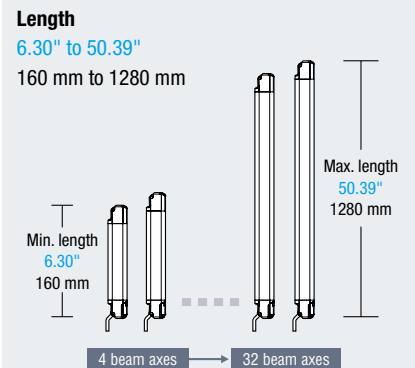
GL-RF UNIT VARIATION



GL-RH UNIT VARIATION



GL-RL UNIT VARIATION



UNDERSTANDING THE MODEL NAME

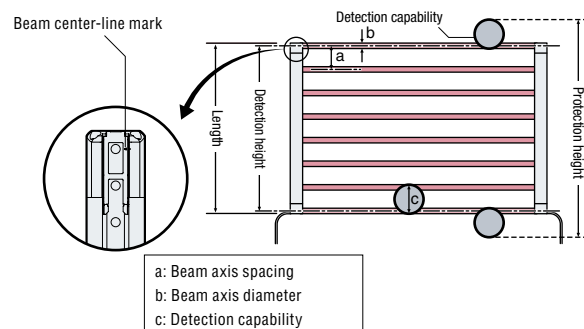
GL-R 12 H

1 2 3

- Series name
- Number of beam axes: 2 or 3 digit number.
Ex.: 08 = 8 axes, 64 = 64 axes
- Detection capability: F: $\phi 0.55"$ $\phi 14$ mm detection type,
H: $\phi 0.98"$ $\phi 25$ mm detection type,
L: $\phi 1.77"$ $\phi 45$ mm detection type

The main unit includes both transmitter and receiver as one set.

MEANING OF EACH ITEM



DIMENSIONS

Unit: inch mm

DIMENSIONS FOR UNITS A-G

Model	No. of axes	A Length	B Detection height	C Protection height	D Beam axis pitch	E	F	G
GL-R23F	23	9.45" 240	8.66" 220	9.61" 244	0.39° 10	0.39° 10	0.47° 12	4.72" 120
GL-R31F	31	12.60" 320	11.81" 300	12.76" 324				6.30" 160
GL-R39F	39	15.75" 400	14.96" 380	15.91" 404				7.87" 200
GL-R47F	47	18.90" 480	18.11" 460	19.06" 484				9.45" 240
GL-R55F	55	22.05" 560	21.26" 540	22.20" 564				11.02" 280
GL-R63F	63	25.20" 640	24.41" 620	25.35" 644				12.60" 320
GL-R71F	71	28.35" 720	27.56" 700	28.50" 724				14.17" 360
GL-R79F	79	31.50" 800	30.71" 780	31.65" 804				15.75" 400
GL-R87F	87	34.65" 880	33.86" 860	34.80" 884				17.32" 440
GL-R95F	95	37.80" 960	37.01" 940	37.95" 964				18.90" 480
GL-R103F	103	40.94" 1040	40.16" 1020	41.10" 1044				20.47" 520
GL-R111F	111	44.09" 1120	43.31" 1100	44.25" 1124				22.05" 560
GL-R119F	119	47.24" 1200	46.46" 1180	47.40" 1204				23.62" 600
GL-R127F	127	50.39" 1280	49.61" 1260	50.55" 1284				25.20" 640

Model	No. of axes	A Length	B Detection height	C Protection height	D Beam axis pitch	E	F	G
GL-R08H	8	6.30" 160	5.51" 140	7.28" 185	0.79° 20	0.39° 10	0.89° 22.5	3.15" 80
GL-R12H	12	9.45" 240	8.66" 220	10.43" 265				4.72" 120
GL-R16H	16	12.60" 320	11.81" 300	13.58" 345				6.30" 160
GL-R20H	20	15.75" 400	14.96" 380	16.73" 425				7.87" 200
GL-R24H	24	18.90" 480	18.11" 460	19.88" 505				9.45" 240
GL-R28H	28	22.05" 560	21.26" 540	23.03" 585				11.02" 280
GL-R32H	32	25.20" 640	24.41" 620	26.18" 665				12.60" 320
GL-R36H	36	28.35" 720	27.56" 700	29.33" 745				14.17" 360
GL-R40H	40	31.50" 800	30.71" 780	32.48" 825				15.75" 400
GL-R44H	44	34.65" 880	33.86" 860	35.63" 905				17.32" 440
GL-R48H	48	37.80" 960	37.01" 940	38.78" 985				18.90" 480
GL-R52H	52	40.94" 1040	40.16" 1020	41.93" 1065				20.47" 520
GL-R56H	56	44.09" 1120	43.31" 1100	45.08" 1145				22.05" 560
GL-R60H	60	47.24" 1200	46.46" 1180	48.23" 1225				23.62" 600
GL-R64H	64	50.39" 1280	49.61" 1260	51.38" 1305				25.20" 640
GL-R72H	72	56.69" 1440	55.91" 1420	57.68" 1465				28.35" 720
GL-R80H	80	62.99" 1600	62.20" 1580	63.98" 1625				31.50" 800
GL-R88H	88	69.29" 1760	68.50" 1740	70.28" 1785				34.65" 880
GL-R96H	96	75.59" 1920	74.80" 1900	76.57" 1945				37.80" 960

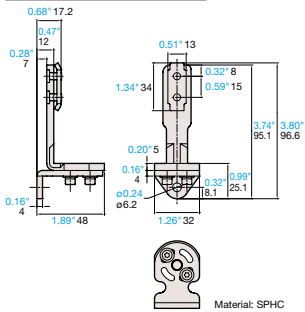
Model	No. of axes	A Length	B Detection height	C Protection height	D Beam axis pitch	E	F	G
GL-R04L	4	6.30" 160	4.72" 120	8.07" 205	1.57° 40	1.18° 30	1.67° 42.5	3.15" 80
GL-R06L	6	9.45" 240	7.87" 200	11.22" 285				4.72" 120
GL-R08L	8	12.60" 320	11.02" 280	14.37" 365				6.30" 160
GL-R10L	10	15.75" 400	14.17" 360	17.52" 445				7.87" 200
GL-R12L	12	18.90" 480	17.32" 440	20.67" 525				9.45" 240
GL-R14L	14	22.05" 560	20.47" 520	23.82" 605				11.02" 280
GL-R16L	16	25.20" 640	23.62" 600	26.97" 685				12.60" 320
GL-R18L	18	28.35" 720	26.77" 680	30.12" 765				14.17" 360
GL-R20L	20	31.50" 800	29.92" 760	33.27" 845				15.75" 400
GL-R22L	22	34.65" 880	33.07" 840	36.42" 925				17.32" 440
GL-R24L	24	37.80" 960	36.22" 920	39.57" 1005				18.90" 480
GL-R26L	26	40.94" 1040	39.37" 1000	42.72" 1085				20.47" 520
GL-R28L	28	44.09" 1120	42.52" 1080	45.87" 1165				22.05" 560
GL-R30L	30	47.24" 1200	45.67" 1160	49.02" 1245				23.62" 600
GL-R32L	32	50.39" 1280	48.82" 1240	52.17" 1325				25.20" 640

MOUNTING BRACKET

ADJUSTABLE ANGLE MOUNTING BRACKET
GL-RB01

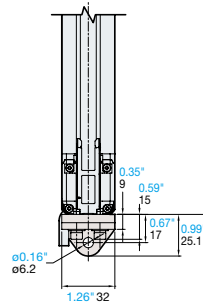
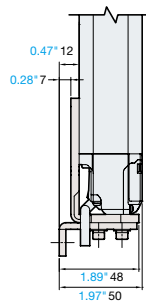


When mounted on GL-R

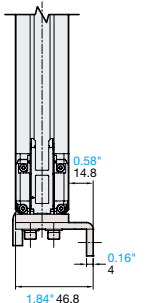
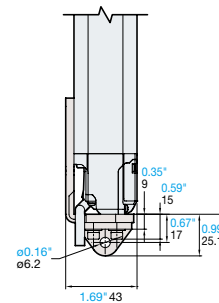


Material: SPHC

Back mounted state



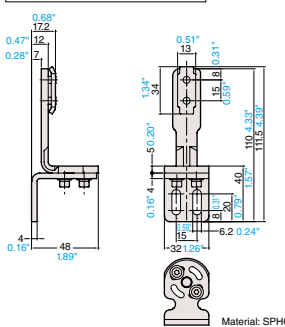
Side mounted state



ADJUSTABLE ANGLE MOUNTING BRACKET
GL-RB02

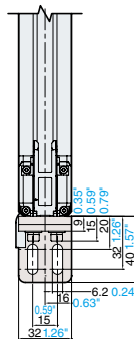
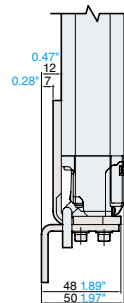


When mounted on GL-R

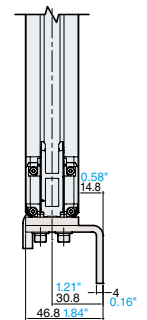
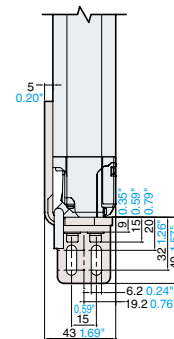


Material: SPHC

Back mounted state



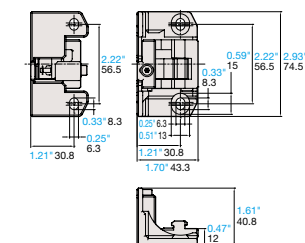
Side mounted state



NO DEAD ZONE MOUNTING BRACKET
GL-RB21

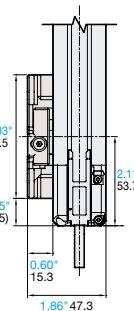
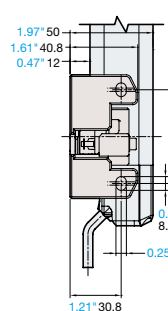


When mounted on GL-R

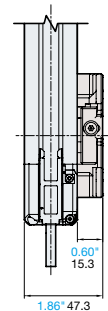
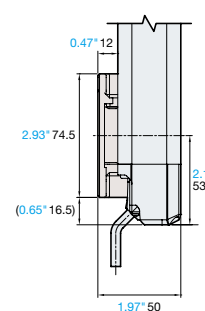


Material: Zinc die-cast

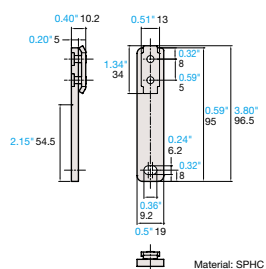
Back mounted state



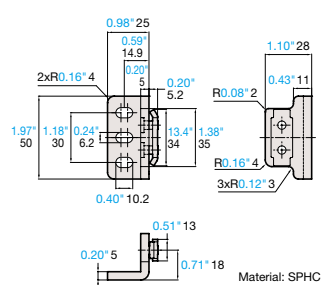
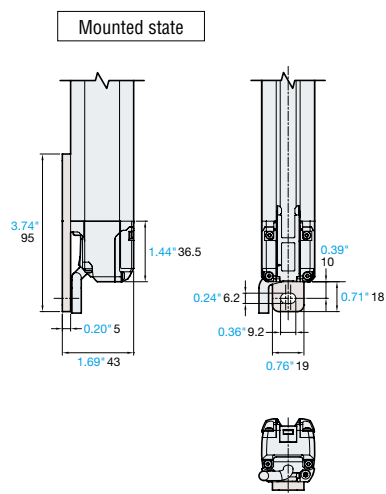
Side mounted state



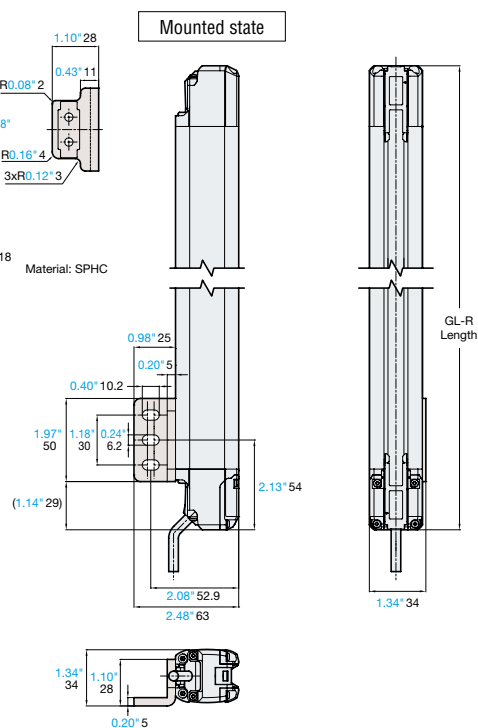
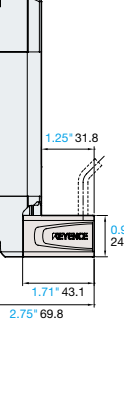
STRAIGHT MOUNTING BRACKET GL-RB11



Material: SPHC

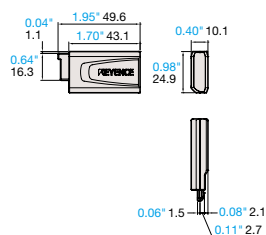


Material: SPHC

**GL-R1UB**

Technical drawings of the 1000 Series 1/2" (12.7mm) GL-R. The drawings include:

- Front View:** Shows the overall dimensions of the unit. The total height is 38" (965mm). The width is 3.81" (96.9mm). The mounting bracket dimensions are 1.50" (38mm) for the top flange and 1.71" (43.1mm) for the base flange. The mounting hole spacing is 2.75" (69.8mm). The mounting bracket thickness is 0.98" (24.9mm). The mounting bracket is labeled "REVERSE".
- Side View:** Shows the side profile of the unit. The total height is 32.9" (836mm). The width is 1.30" (32.9mm). The mounting bracket thickness is 0.98" (24.9mm). The mounting bracket is labeled "GL-R Length".
- Top View:** Shows the top of the unit. The width is 1.30" (32.9mm). The mounting bracket thickness is 0.98" (24.9mm). The mounting bracket is labeled "GL-R Length".



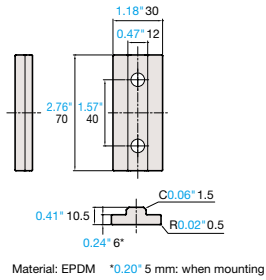
GL-RA



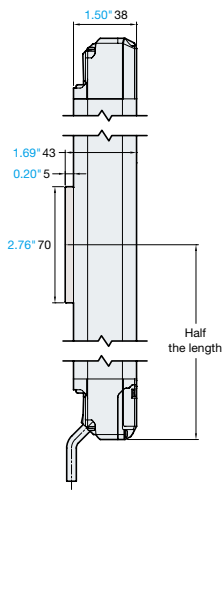
See p.20 for the details

ANTIVIBRATION BRACKET

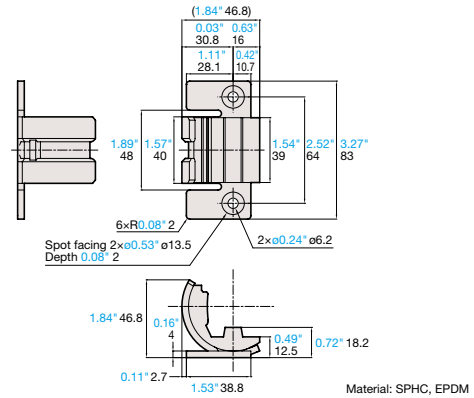
ANTIVIBRATION BRACKET
FOR THE STRAIGHT MOUNTING BRACKET
GL-RB31



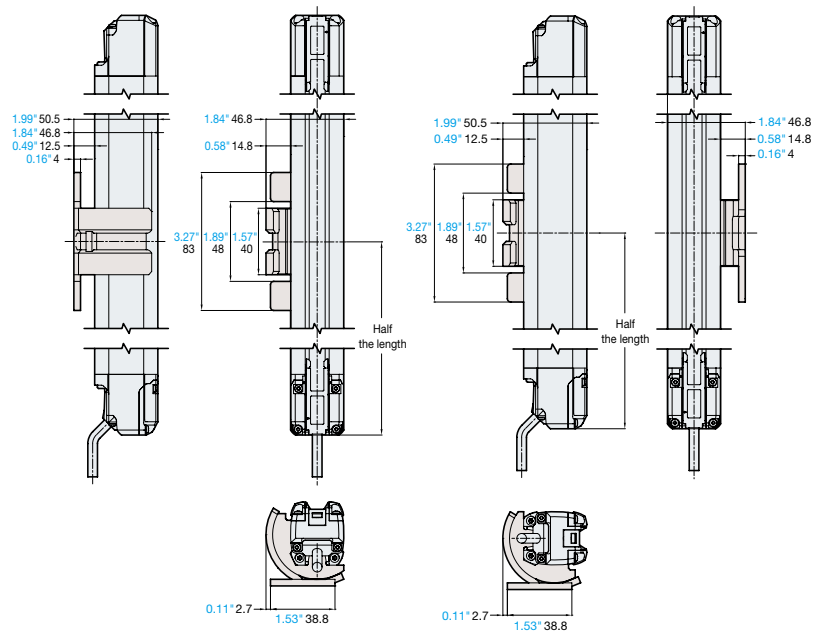
Mounted state



ANTIVIBRATION BRACKET
FOR THE ADJUSTABLE ANGLE MOUNTING BRACKET
GL-RB32

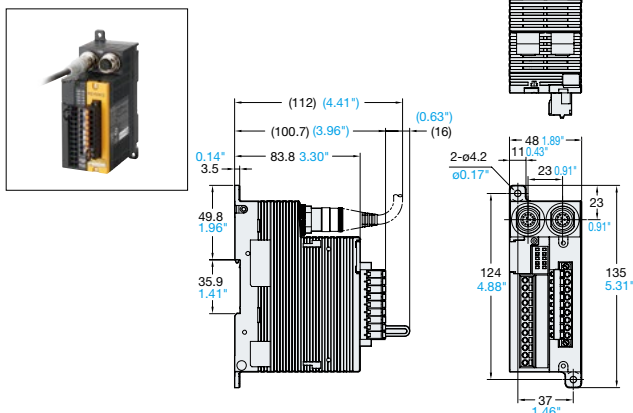


Mounted state



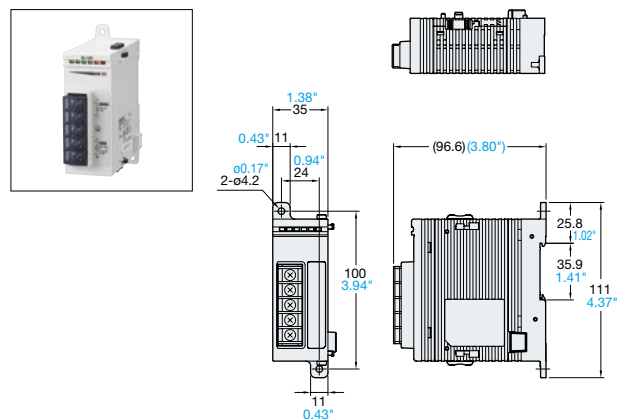
GL-T11R SERIES DEDICATED RELAY FOR THE GL-R

GL-T11R



SL-U2 DEDICATED POWER SUPPLY
FOR KEYENCE LIGHT CURTAINS (CLASS 2 OUTPUT)

SL-U2



RELATED PRODUCT

SLIM/FLAT SAFETY LIGHT CURTAIN

GL-S Series

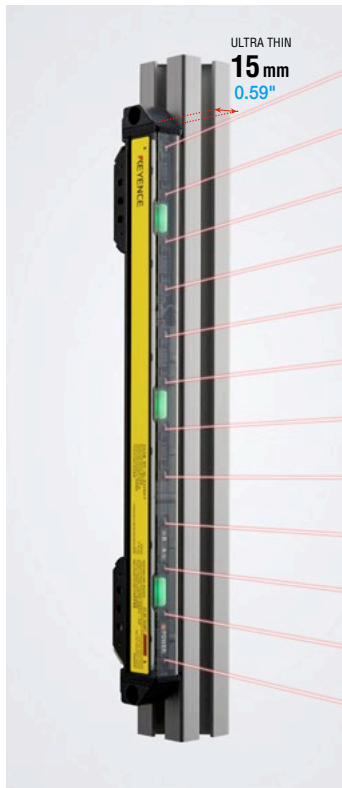
Type4

SIL3

PLe



COMPACT DESIGNS FEATURING TWO DIFFERENT MOUNTING OPTIONS

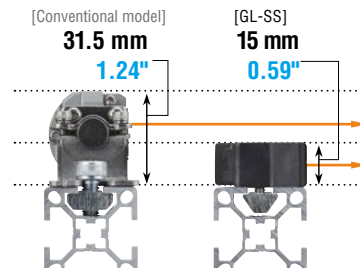


SLIM

The slim type GL-SS models are designed to be installed in front of or behind a machine opening.

The slim type models occupy minimal space while maintaining full functionality.

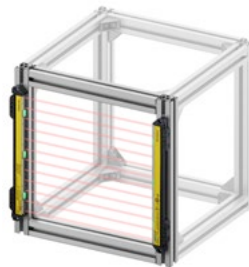
The depth is a mere 15 mm 0.59" compared to the 31.5 mm 1.24" of the conventional model.



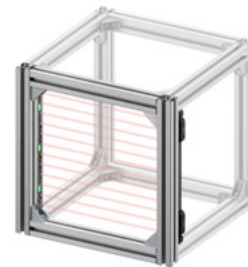
**52%
LESS**

OCCUPIED SPACE

Compared to conventional models



In front of a machine opening



Behind a machine opening

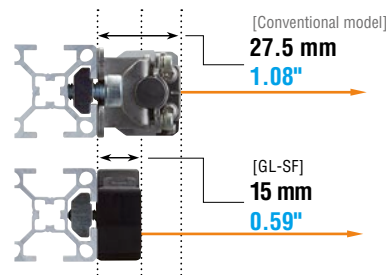


FLAT

The flat type GL-SF models are designed to be installed inside a machine opening.

The flat type models allow for mounting without obstructing the machine opening.

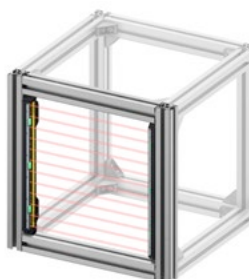
When this type is installed inside a machine opening, the full width of the opening can still be used!



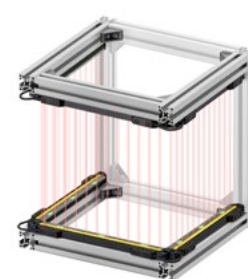
**45%
LESS**

OCCUPIED SPACE

Compared to conventional models



Inside a machine opening



Multiple side protection with no dead zone

DIRECT MOUNTING BRACKET

The light curtain can be installed with only two screws; no bracket assembly is required.

Direct mounting brackets (GL-SB01) come pre-attached on the light curtain

Simple
two-step
installation

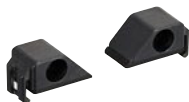


WHEN NO ANGLE ADJUSTMENT IS REQUIRED

DIRECT MOUNTING BRACKET

Included with the light curtains and can be reordered if needed

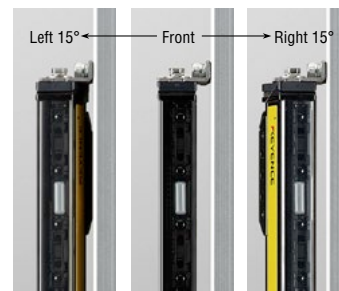
Quantity: 1 pair
Model: GL-SB01



WHEN ANGLE ADJUSTMENT IS REQUIRED

ADJUSTABLE ANGLE MOUNTING BRACKET (adjustment range: $\pm 15^\circ$)

Quantity: 2 pairs
Model: GL-SB04



SIMPLE-INSTALLATION CABLE

Simply connect the cable to the curtain and use the slide mechanism to fix the cable in place. No tools are required to securely fix the cable to the light curtain. This significantly reduces the amount of installation time necessary.

Simple
two-step
installation



Connect the cable to the curtain.



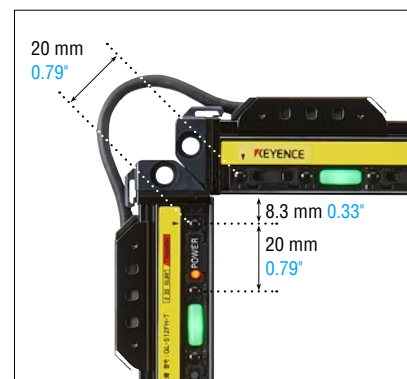
Use the slide mechanism to secure the cable in place.

BUILT-IN SERIES CONNECTION AND INTERFERENCE PREVENTION

Up to three GL-S Series light curtains can be connected together in-line without the concern of interference between the curtains. When not using series connection, interference prevention is available for up to two units with no additional wiring*.

This makes it possible to mount light curtains based on equipment needs and not on light curtain restrictions.

* By switching the channels, the GL-S Series will not interfere with the next unit.



Type 3 Safety Laser Scanner

SZ-V Series

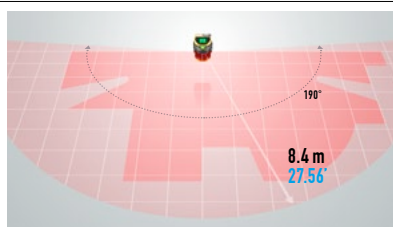


INDUSTRY LEADING SAFETY LASER SCANNER

Versatile, Easy to Use,
and Truly Superior

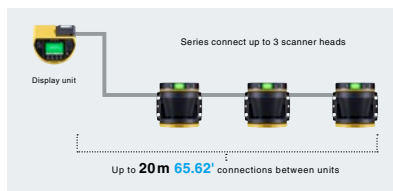
Impressively Stable Detection Over 8.4m (27') Range

With an industry leading range of 8.4m (27') over a 190° field of view, the SZ-V boasts the longest and most stable detection around.



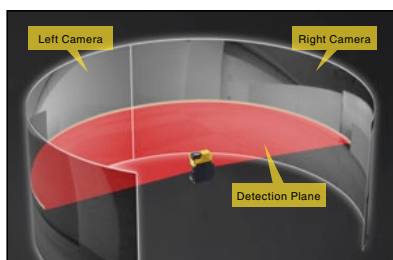
Connect up to 3 Units in Series

Seamlessly and simply guard multiple sides of a machine by cascading up to 3 units together.



Industry's First Built-in Camera

This industry first, ensures proper zone configuration and allows users to pinpoint the cause of any trip. Monitoring has never been easier.



Models

Integrated models

Function		Model
 Multi-function type	Camera	SZ-V04X
	Standard	SZ-V04
 Multi-bank type	Camera	SZ-V32X
	Standard	SZ-V32
 Network type	Camera	SZ-V32NX
	Standard	SZ-V32N

Separate systems



Separate systems are available to utilize the detachable display and cascading functionality of the SZ-V Series.



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SAFETY INFORMATION

Please read the instruction manual carefully in order to safely operate any KEYENCE product.

CONTACT YOUR NEAREST OFFICE FOR RELEASE STATUS

KEYENCE CORPORATION OF AMERICA

Head Office 500 Park Boulevard, Suite 200, Itasca, IL 60143, U.S.A.

PHONE: +1-201-930-0100 **FAX:** +1-855-539-0123

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KEYENCE CANADA INC.

Head Office PHONE: +1-905-366-7655 FAX: +1-905-366-1122 E-mail: keyencecanada@keyence.com

Montreal PHONE: +1-514-694-4740 FAX: +1-514-694-3206 Windsor PHONE: +1-905-366-7655 FAX: +1-905-366-1122

KEYENCE MEXICO S.A. DE C.V.

PHONE: +52-55-8850-0100 FAX: +52-81-8220-9097

E-mail: keyencemexico@keyence.com

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