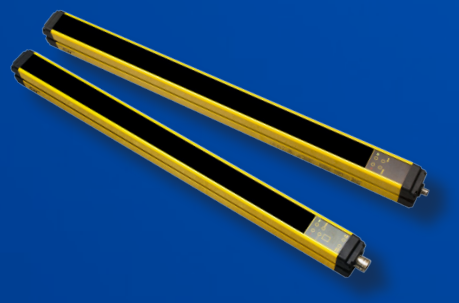
LP4ER series
Light Curtains
Type 4

features

- Type 4 according IEC 61496-1 and IEC 61496-2
- Robust housing (50x60 mm) for applications in presence of heavy shocks and vibrations
- 40 mm resolution for hand protection and 2,3,4 beams for body protection/access control
- Operating distance up to 16 m (standard version) and up to 60 m (LONG RANGE version)
- Integrated functions: MANUAL/AUTOMATIC Restart, EDM and operating distance selectable
- Standard M12 5 poles connector on TX unit and M12 8 poles or M23 9 poles on RX unit



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code description

LP4 ER / 40 - 060 12

series	LP4	Type 4 safety light curtains 50 x 60 mm compact housing
couple	ER	Emitter + Receiver couple
beams	40	40 mm resolution; hand protection
	0A	2 beams resolution; body protection; 500 mm controlled height
	0B	3 beams resolution; body protection; 800 mm controlled height
	0C	4 beams resolution; body protection; 900 mm controlled height
height	050...120	Protected height from 500 to 1,200 mm
range		Standard model with selectable MANUAL/AUTOMATIC Restart and EDM functions
	L	Long range model
	12	Model with M12 connector on receiver unit

available models

2, 3, 4 beams resolution; 0...6 / 1...16 m controlled distance; 7 msec responce time

protected height (mm)	n° of beams	model
510	2	LP4ER/0A-050
810	3	LP4ER/0B-080
910	4	LP4ER/0C-090

available models

40 mm resolution; 8...30 / 18...60 m controlled distance

protected height (mm)	n° of beams	response time (msec)	model
610	20	17	LP4ER/40-050L
910	30	23	LP4ER/40-090L
1,210	40	28.5	LP4ER/40-120L

available models

2, 3, 4 beams resolution; 8...30 / 18...60 m controlled distance

protected height (mm)	n° of beams	response time (msec)	model
510	2	500	LP4ER/0A-050L
			LP4ER/0A-050L12
810	3	800	LP4ER/0B-080L
			LP4ER/0B-080L12
910	4	900	LP4ER/0C-090L
			LP4ER/0C-090L12

technical specifications

	LP4ER/**-***--	
operating voltage	19.2...28.8 Vdc	PELV power supplier according to EN 60204-1 Cap.6.4
power consumption, Receiver	6 W	no load
power consumption, Emitter	3 W	
output type	2 x PNP	OSSD safety outputs
output current	500 mA	higher values are considered overload
equivalent resistive load	48 Ω	lower values are considered short circuit
capacitive load	2 µF	lower values may be considered short circuit
recovery time	15 s	
response time OSSDs	30 ms	
OSSDs self test pulse duration	100 µs	
restart signal duration	100 ms	
Test signal duration	40 ms	
effective aperture angle (EAA)	≤ ± 2,5°	IEC 61496-1
artificial light rejection	according to IEC 61496-2	according to the reported standards
ambient light rejection	according to IEC 61496-2	
IP mechanical protection	IP65	
operating temperature	0...+55°C	
storage temperature	-25...+70°C	to be respected also during transportation
humidity	95%	no condensation
vibrations	according to IEC 61496-1	according to the reported standards
shocks	according to IEC 61496-1	
dimension	50 mm (front) x 60 mm	
S0 connectors Emitter	1 x M12 5p male	
S0 connectors Receiver	1x M23, 19p, male 1x M12, 8p, male (L12 male)	

safety parameters

LP4ER/40-***L	060	090	120
height	610	910	1210
number of beams	20	30	40
response time (ms)	17	23	28,5
type [1]	4		
SIL[2]	3		
SILCL [3]	3		
PL [4]	e		
PFHd	1,02E-08	1,17E-08	1,32E-08
DCavg	98,37%	98,49%	98,57%
MTTFd (years)	100		
CFF	80%		

LP4ER/**-***	0A-050	0B-080	0C-090
height	500	800	900
number of beams	2	3	4
response time (ms)	7	7	7
type [1]	4		
SIL[2]	3		
SILCL [3]	3		
PL [4]	e		
PFHd	7,53E-09	7,70E-09	7,87E-09
DCavg	97,94%	97,99%	98,03%
MTTFd (years)	100		
CFF	80%		

[1] ref. CEI EN 61496-1; CEI EN 61496-2
[2] ref. CEI EN 61508
[3] ref. CEI EN 62061 + CEI EN 62061/EC2
[4] ref. UNI EN ISO 13849-1

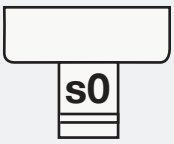
LP4ER/**-***L	0A-050	0B-080	0C-090
height	500	800	900
number of beams	2	3	4
response time (ms)	7	7	7
type [1]	4		
SIL[2]	3		
SILCL [3]	3		
PL [4]	e		
PFHd	7.53E-09	7.70E-09	7.87E-09
DCavg	97.94%	97.99%	98.03%
MTTFd (years)	100		
CFF	80%		

LP4ER/**-***L12	0A-050	0B-080	0C-090
height	500	800	900
number of beams	2	3	4
response time (ms)	7	7	7
type [1]	4		
SIL[2]	3		
SILCL [3]	3		
PL [4]	e		
PFHd	7.53E-09	7.70E-09	7.87E-09
DCavg	97.94%	97.99%	98.03%
MTTFd (years)	100		
CFF	80%		

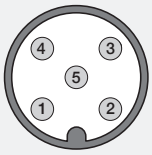
electrical diagrams of the connections

LP4ER series

M12
(5 poles maleTX unit)



LP4ER/ **-***_



pin	color	signal	type	description
1	BN	$24V_{DC}$	POWER	power supply input
2	WH	range H/Test	IN	selection input
3	BU	0V	POWER	supply voltage reference
4	BK	range H/Test	IN	selection input
5	GY	PE	GND	protection earth

possible combinations

pin 2	pin 4	function
LO	LO	test (no emission)
LO	HI	emission with high range
HI	LO	emission with low range
HI	HI	not admitted

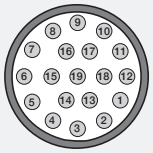
BK	black	OG	orange
BN	brown	GN	green
RD	red	BU	blue
YE	yellow	GY	grey
WH	white	VT	violet
PK	pink		

The Test contact is necessary only if the entire safety chain of the receiver downstream must be tested.
If the Test is not necessary replace the TEST contact with direct wiring at 24 V_{DC}.

electrical diagrams of the connections

LP4ER series

M23
(19 poles male RX unit)



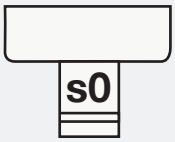
LP4ER/**-***
LP4ER/**-***L

pin	color	signal	type	description
1	WH	N.C.	-	not connected
2	RD	OSSD2	OUT	second safety static output (PNP)
3	GY	OSSD1	OUT	first safety static output (PNP)
4	YE	System Status + Sign. levlel	OUT	repetition of OSSDs status, see note + low signal level indication, see note
5	GN	N.C.	- a b	not connected
6	BU	$0V_{CC}$	POWER	supply voltage reference
7	VT	N.C.	-	not connected
8	GY - PK	N.C.	-	not connected
9	RD - BU	N.C.	-	not connected
10	WH - GN	N.C.	-	not connected
11	BK	Abilitaz. EDM	IN	enabling for external contactor control
12	WH - GN	PE	GND	earth protection connection
13	WH - YE	Man. / Autom.	IN	selection of the Start/Restart mode
14	BN - YE	start	IN	connection to the Start/Restart button
15	WH - GY	N.C.	-	not connected
16	BN - GY	N.C.	-	not connected
17	WH - PK	N.C.	-	not connected
18	BN - GN	EDM	IN	connection to the external control contacts
19	BN	$24V_{CC}$	POWER	supply voltage input

BK	black	**OG**	orange	**YE**	yellow	**GY**	grey
BN	brown	**GN**	green	**WH**	white	**VT**	violet
RD	red	**BU**	blue	**PK**	pink		

serie LP4ER

M12
(8 poles male RX unit L12 models)



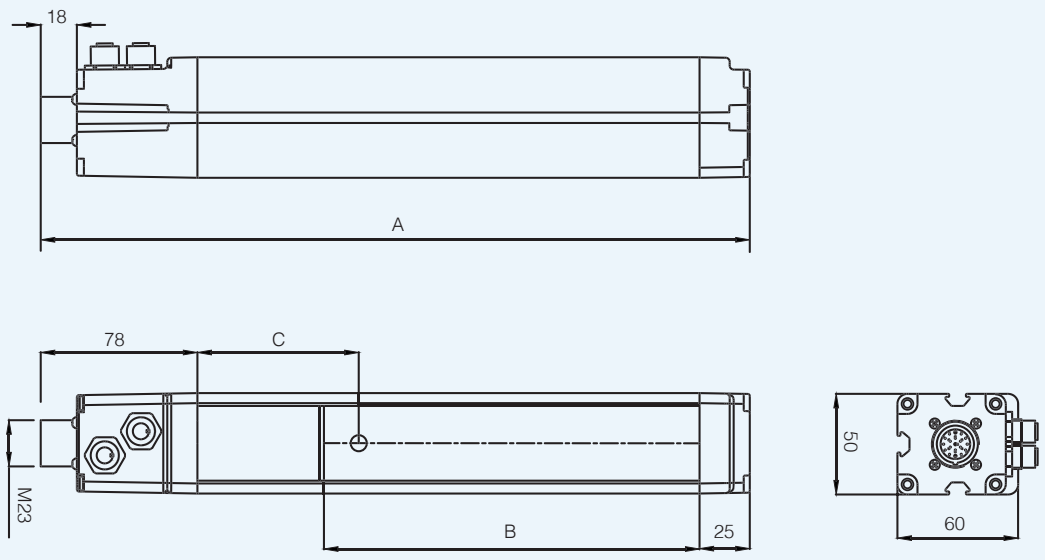
LP4ER/0*-***L12

pin	color	signal	type	description
1	WH	OSSD1	OUT	first safety static output (PNP)
2	BN	$24V_{CC}$	POWER	supply voltage
3	GN	OSSD2	OUT	second safety static output (PNP)
4	YE	EDM	IN	connection to the external control contacts (EDM) or connected at 0V to exclude EDM
5	GY	Mode_A	IN	selection of the manual or automatic Start/Restart mode
6	PK	Mode_B	IN	selection of the manual or automatic Start/Restart mode
7	BU	0V	POWER	supply voltage reference
8	RD	FE	GND	protection earth

NOTE: On these models it is possible to choose the operating modes by changing the wiring. By using the EDM function it is possible to extend the safety control to the contactors controlled downstream, that must be the type with guided contacts and approved for safety applications.

dimensions (mm)

LP4ER/40-***L, LP4ER/0*-*** - Receiver

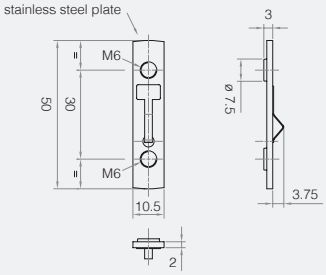


LP4ER/40-***L12, LP4ER/0*-***L, LP4ER/0*-***L12 - Emitter

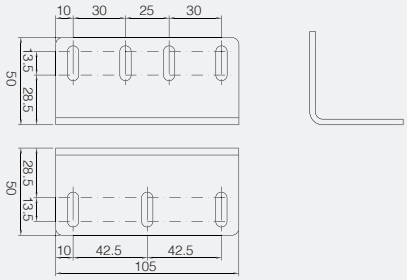
dimensions	LP4ER/**-***			LP4ER/**-***L					
	0A-050	0B-080	0C-090	40-060	40-090	40-120	0A-050	0B-080	0C-090
A (TX)	736	1,036	1,136	736	1,036	1,336	736	1,036	1,136
B (protected height)	510*	810*	910*	610	910	1,210	510*	810*	910*
C (first beam quote)	120			76					

accessories

ST203 / outfit mounting accessories

product	to be used with	dimensions (mm)	description / installation
	LP4 series		**Fastening insert for 50x60 profile. Part of the standard kit** Two pieces are provided for each bracket ST202.

ST202 / outfit mounting accessories

product	to be used with	dimensions (mm)	description / installation
	LP4 series		**L Bracket** Long bracket. Part of the standard kit. Two pieces are provided for each couples. Must be applied in the housin part of the body.