

Infra BPCX vs. DUO LA/LT

BPCX light curtains from Infra are no longer available. The LA-Series from DUOmetric is largely compatible with these products even in its standard configuration. Some specifics of the BPCX can be reproduced with the LA-Series choosing the proper configuration options.

DUOmetric light grids offer a large product variety and can be customized and parameterized according to your requirements.

In the standard configuration, DUOmetric light grids offer „PNP“-outputs. Optionally, the grids can be configured in a „NPN“-variation or - alternatively – with relays.

With the LT20 light grid DUOmetric offers a cost effective alternative specifically addressing the needs of the elevator industry:

- 2 short-circuit proof, PNP outputs
- Plug & Play implementation via factory set configuration parameters
- Automatic range adjustment
- Increased monitoring density via beam crossing
- Monitoring height compliant with EN81-70 requirements

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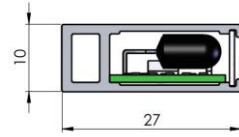
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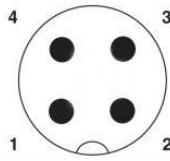
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Comparison of technical data:

Manufacturer	INFRA	DUOmetric
Enclosure rating	IP65	IP54, optional IP65
Outputs	BPCX-#-A-##-?? PNP NO BPCX-#-B-##-?? PNP NC BPCX-3 Solid State + Relais BPCX-5 Relais	PNP optional NPN or relays in different variations (NO, NC ...)
Light/dark	dark switching: BPCX-#-A-##-?? PNP NO Light switching: BPCX-#-B-##-?? PNP NC	configurable (parameters)
Number of beams physical logical	4 ... 32 10 ... 94	4 ... 160
Beam configuration and cross-over modes (N: number of physical beams) (see also table "Beam Configurations" on page 6)	3n-2	• n • 2n-1 • 3n-2 • 4n-4 • 5n-6 (e.g. LT-20)
Cycle time	3,125 ms/beams (physical beams/LED)	1 ms/logical_beam + 4ms (base)
Beam spacing	28 mm 58 mm	5 mm 10 mm 12,5 mm 25 mm 28 (27,94) mm 50 mm 56 (55,88) mm 94 mm 100 mm 112 (111,76) mm
Lowest beam at	24,5 mm	20 mm
Cross section	40,2 mm x 11,4 mm	10 mm x 27 mm 
Range	4 m	0,7 ... 4m ¹
Voltage	12-24 VAC/DC	24 Vdc (-15%...+20%)
Short-circuit proof	Yes	yes
Temperature range	-10 ... +60 °C	-10 ... +45 °C
Sensitivity adjustment	Trimmer	Via calibration; automatically with LT
Compliance	EN954-1 (cat. 2) UL CE	- - CE

¹ LT 1,2 ... 4m; 4m preconfigured; please ask for wider ranges

M8-Connector



	Infra		DUO	
Type	BPCX-#-?-?-?K		AC: 0000000M	
	Tx	Rx	Tx	Rx
1	PLUS	PLUS	PLUS	PLUS
2	IN	-	-	light
3	MINUS	MINUS	MINUS	MINUS
4		PNP	IN/OUT	dark

Example DUOmetric part number: LA8/28-380Q; AC:000000M

Cable

	Infra	DUO
Material	PUR, flex	PVC Optional AC: 0000000H: Halogen free
Length	5 m	4 m Optional 5m: AC 00500000

Example DUOmetric part number: LA8/28-380Q; AC:005000H

Pin assignment:

	Infra	DUO	Infra	DUO			
	Function				Relays	PUR	Cable M8
Tx							
PLUS			brown	brown	brown	white	brown
MINUS			blue	blue	blue	brown	blue
Test a			black				
Test b			white				
OUT/IN				green	green	green	black
Rx							
PLUS			brown	brown	brown	white	brown
MINUS			blue	blue	blue	brown	blue
OUT1	NPN/PNP	Light switching (NC)	black	yellow	yellow	yellow	weiss
OUT2		Dark switching (NO)		black		grey	black
IN				yellow	yellow	yellow	weiss
COM			red		black		
NC			white		green		

Mounting

Infra

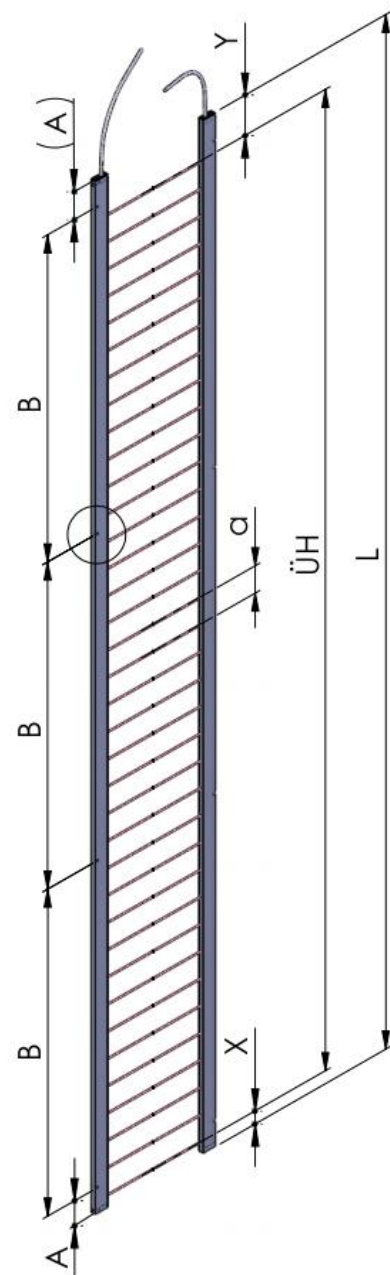
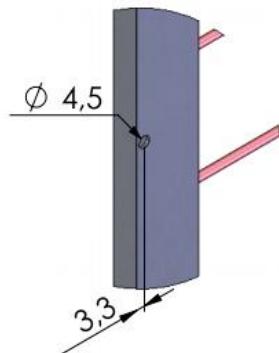
Cross hole diameter Ø 3,2

Length	Number	Hole positions
589	3x	89 - 200,75 - 200,75 - 98,5
1053	3x	89 - 432,75 - 432,75 - 98,5
1517	4x	89 - 443 - 443,5 - 443 - 98,5
1981	4x	110,5 - 548,2 - 548,5 - 503 - 270,8

DUOmetric

Cross hole diameter Ø 4,5 in "Q"-Type

Length	Number	Hole positions
380	2x	40 - 300 - 40
600	2x	100 - 400 - 100
830	2x	65 - 700 - 65
820	2x	60 - 700 - 60
1050	3x	125 - 400- 400 - 125
1940	4x	70 - 600- 600 - 600 - 70
2000	4x	100 - 600- 600 - 600 - 100



Cross-Reference Table

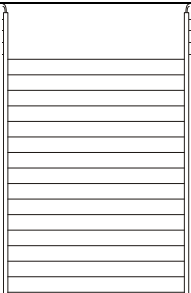
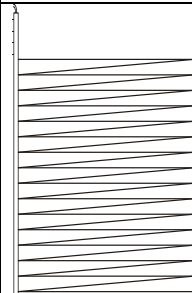
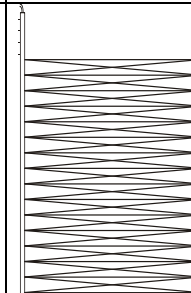
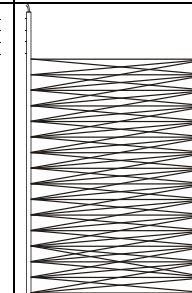
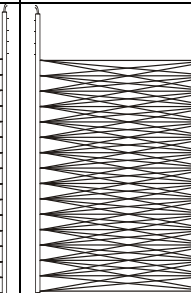
Number of beams	Infra						DUOmetric		
	Type	Bar Length	ÜH	Solid-State	Relays	PNO / NPN	Bar Length	ÜH	Type
Beam spacing 28 (Infra) bzw. 27,94 (DUO) mm									
8	BPCX-1-A-08-AK	589	196	x		NO / NC	380	196	LA8/28-380Q
8	BPCX-1-B-08-AK	589	196	x		NC / NO	380	196	LA8/28-380Q
8	BPCX-3-A-08-A	589	196	x	x	NO / NC	380	196	LA8/28-380Q
8	BPCX-3-B-08-A	589	196	x	x	NC / NO	380	196	LA8/28-380Q
8	BPCX-5- -08-AK	589	196		x		380	196	LA8/28-380Q
16	BPCX-1-A-16-BK	1053	420	x		NO / NC	600	419	LA16/28-600Q
16	BPCX-1-B-16-BK	1053	420	x		NC / NO	600	419	LA16/28-600Q
16	BPCX-3-A-16-B	1053	420	x	x	NO / NC	600	419	LA16/28-600Q
16	BPCX-3-B-16-B	1053	420	x	x	NC / NO	600	419	LA16/28-600Q
16	BPCX-5- -16-BK	1053	420		x		600	419	LA16/28-600Q
24	BPCX-1-A-24-CK	1517	644	x		NO / NC	830	643	LA24/28-830Q
24	BPCX-1-B-24-CK	1517	644	x		NC / NO	830	643	LA24/28-830Q
24	BPCX-3-A-24-C	1517	644	x	x	NO / NC	830	643	LA24/28-830Q
24	BPCX-3-B-24-C	1517	644	x	x	NC / NO	830	643	LA24/28-830Q
24	BPCX-5--24-CK	1517	644		x		830	643	LA24/28-830Q
Beam spacing 58 (Infra) bzw. 55,88 (DUO) mm									
4	BPCX-1-A-04-AK	589	174	x		NO / NC	380	168	LA4/56-380Q
4	BPCX-1-B-04-AK	589	174	x		NC / NO	380	168	LA4/56-380Q
4	BPCX-3-A-04-A	589	174	x	x	NO / NC	380	168	LA4/56-380Q
4	BPCX-1-B-04-A	589	174	x	x	NC / NO	380	168	LA4/56-380Q
4	BPCX-5- -04-AK	589	174		x		380	168	LA4/56-380Q
8	BPCX-1-A-08-BK	1053	406	x		NO / NC	600	391	LA8/56-600Q
8	BPCX-1-B-08-BK	1053	406	x		NC / NO	600	391	LA8/56-600Q
8	BPCX-3-A-08-B	1053	406	x	x	NO / NC	600	391	LA8/56-600Q
8	BPCX-3-B-08-B	1053	406	x	x	NC / NO	600	391	LA8/56-600Q
8	BPCX-5--08-BK	1053	406		x		600	391	LA8/56-600Q
12	BPCX-1-A-12-CK	1517	638	x		NO / NC	820	615	LA12/56-820Q
12	BPCX-1-B-12-CK	1517	638	x		NC / NO	820	615	LA12/56-820Q
12	BPCX-3-A-12-C	1517	638	x	x	NO / NC	820	615	LA12/56-820Q
12	BPCX-3-B-12-C	1517	638	x	x	NC / NO	820	615	LA12/56-820Q
12	BPCX-5--12-CK	1517	638		x		820	615	LA12/56-820Q
16	BPCX-1-A-16-DK	1981	870	x		NO / NC	1050	838	LA16/56-1050Q
16	BPCX-1-B-16-DK	1981	870	x		NC / NO	1050	838	LA16/56-1050Q
16	BPCX-3-A-16-D	1981	870	x	x	NO / NC	1050	838	LA16/56-1050Q
16	BPCX-3-B-16-D	1981	870	x	x	NC / NO	1050	838	LA16/56-1050Q
16	BPCX-5--16-DK	1981	870		x		1050	838	LA16/56-1050Q
32	BPCX-1-A-32-DK	1981	1798	x		NO / NC	1940	1732	LA32/56-1940Q
32	BPCX-1-B-32-DK	1981	1798	x		NC / NO	1940	1732	LA32/56-1940Q
32	BPCX-3-A-32-D	1981	1798	x		NO / NC	1940	1732	LA32/56-1940Q
32	BPCX-3-B-32-D	1981	1798	x		NC / NO	1940	1732	LA32/56-1940Q
32	BPCX-5--32-DK	1981	1798		x		1940	1732	LA32/56-1940Q
LT									
20							2000	1786	LT20/94-2000Q

Additional Information about DUOmetric light grids

General

- Number of beams, beam spacing, monitoring height (UH) and profile length according to cross-reference table on page 5.
- Functions like light-switching (NC) or dark-switching (NO) can be configured via parameter set.
- Variety of options: relays, NPN, transmitter shutoff, protection class

Beam configurations

Parameter "Diagonal"	0	1	2	3	4
Description	Parallel beams	Diagonal beams	Single beam crossing	Multiple beam crossing	Multiple beam crossing
Number of logical beams	n	2n-1	3n-2	4n-4	5n-6
Max. number of physical beams	128	64	43	33	26
Sketch					

Note:

- There is an upper limit of 160 logical beams.
- Increasing the number of beams raises the cycle time!
- Configurations Diagonal 2 ...4 are only possible with Syncbeam = "last"

Relays

Technical data of the relays output: max. 1 A, max. 30 Vdc / 30 Vac.

Connection of receiver via 5 core cable. No M8-connector possible. Second connectors stays PNP.

Profile length increases by 20mm (exception: LT20-2000Q).

Relay Connector State	NO (-RÖ)
state when no power	closed 
state when interrupted beam	closed
State when monitoring range unobstructed	open

Example DUOmetric part number: LA8/28-400Q-RÖ

For further information see Amendment LA relays outputs

NPN

For the NPN variation add an “-NPN” suffix to the part number.

Example DUOmetric part number: LA8/28-380Q-NPN

For further information see Amendment LA NPN

Transmitter Shutoff

During special test situations a dedicated switching functionality is desirable in which the entire transmitter can be turn off. Contrary to the Infra product the DUOmetric light grids offer a digital input to control this function (not a contact) .

For further information see Amendment LA transmitter shutoff

Enclosure rating

DUOmetric's IP65 implementation includes a protective coating of the electronics as well as a pressure balance membrane to avoid condensation.

Example DUOmetric part number: LA8/28-380Q-IP65

Configuration values / Parameterisation

DUOmetric light grids can be parameterised with a configuration tool (SW). A separate programming interface device is needed in order to connect the PC to the light grid.

For a direct substitution of the Infra light curtain we recommended the following predefined parameter set: PA-60-00028

Excerpt from the Configuration Table

		Description
Output function		light switching
Output assignment		antivalent
Diagonal	3	
Relative Threshold	84	84 equals 33% (256 equals 100%)
Maxdefect	0	Max. number of allowed defective beams
Delay for Autoblanking	60	Time in seconds until a beam interruption can be blanked
Max. Autoblanked	0	Number of consecutive identical beams available for blanking
Syncbeam	last	Sync via last beam
OutDelay	30	Duration in ms between output state changes. (range: 0 ... 255 ms)
Weak signal threshold	147	Threshold for contamination warning. equals 57% (Wert x 256)
Weak signal delay	60	Time in seconds after which a contamination is signaled.

For further information see Technical information LT

Further Information:

Please see additional information provided at:

<http://www.duometric.com/Dokus/>

- Technical information LA
- Amendment LA relays outputs
- Amendment LA NPN
- Technical information LT
- Technical information light grid bars
- Amendment LA transmitter shutoff
- Amendment Ingress Protection Rating

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