

## LIBUS SBL13WB LPS-BL IP20

**DESCRIPTION** : Libus® *optimum performance - standard* version luminaire configuration **with TR98% PVD silver luminal matt aluminum reflector & without underlay cover** characterized by *unique energy efficiency, no glare, and effective beam control*.

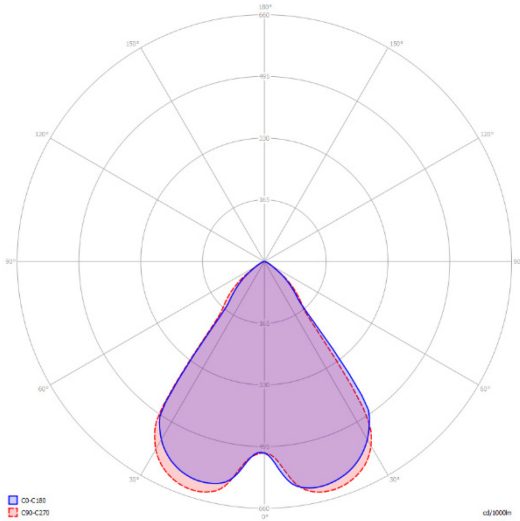
Light output ratio - L.O.R.	95,3%
Efficacy - lm/w (range depending on the luminaire driving power)	152 - 162
Utilization factor (TM5 UF table average)	93,8
Glare level - UGR (4Hx8H - refl. 70-50-20)	7,3
Beam angle	2x40.0° = 80.0°
Degree of protection	IP20



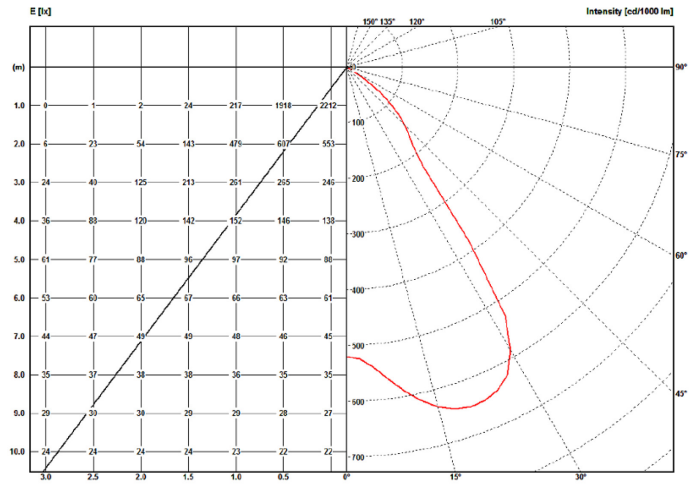
LPS_BL IP20		BEAM ANGLE		L.O.R.	DIMENSIONS / POWER OPTIONS											OPTIMAL	SAFE	NOT AVAILABLE	
		2 x 40.0°		%	EFFICACY / LUMEN OUTPUT											Lm/w	Lm/w	-	
		80.0°		95,3												lumens	lumens	-	
ROW LED STRIPS	WIDTH mm		LENGTH mm		3 - 8 w nominal DIPswitch				11 - 21 w nominal DIPswitch				21 - 30 w nominal DIPswitch						
	OPTIMAL	MINIMUM	OPTIMAL	MINIMUM	3,8 w	5 w	6,3 w	7,6 w	11 w	15 w	19 w	21 w	21 w	25 w	27 w	30 w			
1 x 13	595	563	595	563	-	-	-	-	-	160	158	156	156	155	153	152			
	620	588			-	-	2309	2875	3185	3119	3723	3972	4411						
1 x 6	310	278			-	-	-	156	155	153	152	151	-	-	-	-	-		
	334	302			-	-	1153	1621	2207	2765	3034								
1 x 5	269	237			-	-	-	156	155	153	152	151	-	-	-	-	-		
	293	261			-	-	956	1143	1601	2183	2745								
1 x 4	228	197			595	563	-	155	153	152	152	149	-	-	-	-	-		
	252	220			620	588	-	752	936	1111	1584	2144							
1 x 3	187	156			-	-	-	155	153	152	151	-	-	-	-	-	-		
	212	180			-	-	745	927	1106	1581									
1 x 2	147	115			155	153	152	151	-	-	-	-	-	-	-	-	-		
	171	139			560	736	917	1098											
1 x 1	106	74			153	152	151	-	-	-	-	-	-	-	-	-	-		
	130	98	557	728	910														
2 x 6	310	278	-	-	-	-	-	-	162	160	158	156	156	153	152	152			
	334	302	-	-	-	-	-	-	1692	2309	2875	3185	3103	3678	3948	4388			
2 x 5	269	237	-	-	-	-	-	-	159	158	156	155	153	152	152	151			
	293	261	-	-	-	-	-	-	1664	2270	2843	3143	3089	3656	3929	4334			
2 x 4	228	197	-	-	-	158	156	156	155	153	152	152	151	-	-				
	252	220	1125	1093	-	1162	1643	2252	2829	3121	3040	3612							
2 x 3	187	156	1150	1118	-	156	155	153	152	151	-	-	-	-	-				
	212	180	-	-	-	1147	1629	2207	2765	3034									
2 x 2	147	115	-	-	155	153	152	151	149	-	-	-	-	-	-				
	171	139	-	-	745	927	1037	1581	2144										
2 x 1	106	74	154	153	152	151	-	-	-	-	-	-	-	-	-				
	130	98	557	736	917	1098													

• Due to material properties and processing condition tolerances, photometric data may vary in different production batches within EU directive.

POLAR DIAGRAMME (cd/1000lm)



ILLUMINANCE – CANDELA DIAGRAMME (lux/cd)



UGR GLARE RATIOS

Ceiling reflectance		0.7		0.5		0.3		0.7		0.5		0.3				
Wall reflectance		0.5		0.3		0.5		0.3		0.5		0.3				
Floor cavity reflectance		0.2														
Room dimensions		Viewed crosswise						Viewed endwise								
2H	2H	8,0	9,2	8,4	9,5	9,8	8,0	9,1	8,3	9,4	9,8	8,0	9,1	8,3	9,4	9,8
	3H	7,9	8,9	8,3	9,2	9,6	7,8	8,8	8,2	9,2	9,5	7,8	8,8	8,2	9,2	9,5
	4H	7,8	8,7	8,2	9,1	9,5	7,7	8,7	8,1	9,0	9,4	7,7	8,7	8,1	9,0	9,4
	6H	7,7	8,6	8,1	9,0	9,4	7,6	8,5	8,1	8,9	9,3	7,6	8,5	8,1	8,9	9,3
	8H	7,6	8,5	8,1	8,9	9,3	7,6	8,4	8,0	8,8	9,2	7,6	8,4	8,0	8,8	9,2
	12H	7,6	8,4	8,0	8,8	9,2	7,5	8,3	7,9	8,7	9,1	7,5	8,3	7,9	8,7	9,1
4H	2H	7,8	8,7	8,2	9,1	9,5	7,7	8,7	8,1	9,0	9,4	7,7	8,7	8,1	9,0	9,4
	3H	7,6	8,4	8,0	8,8	9,2	7,5	8,3	7,9	8,7	9,1	7,5	8,3	7,9	8,7	9,1
	4H	7,5	8,2	8,0	8,6	9,1	7,5	8,1	7,9	8,6	9,0	7,5	8,1	7,9	8,6	9,0
	6H	7,4	8,0	7,9	8,5	8,9	7,3	7,9	7,8	8,4	8,8	7,3	7,9	7,8	8,4	8,8
	8H	7,3	7,9	7,8	8,4	8,8	7,3	7,8	7,8	8,3	8,8	7,3	7,8	7,8	8,3	8,8
8H	4H	7,3	7,9	7,8	8,4	8,8	7,3	7,8	7,8	8,3	8,8	7,3	7,8	7,8	8,3	8,8
	6H	7,2	7,7	7,7	8,1	8,6	7,1	7,6	7,6	8,1	8,6	7,1	7,6	7,6	8,1	8,6
	8H	7,2	7,6	7,7	8,1	8,6	7,1	7,5	7,6	8,0	8,5	7,1	7,5	7,6	8,0	8,5
	12H	7,1	7,4	7,7	8,0	8,5	7,1	7,4	7,6	7,9	8,4	7,1	7,4	7,6	7,9	8,4
12H	4H	7,3	7,8	7,8	8,3	8,8	7,2	7,7	7,7	8,2	8,7	7,2	7,7	7,7	8,2	8,7
	6H	7,2	7,6	7,7	8,1	8,6	7,1	7,5	7,6	8,0	8,5	7,1	7,5	7,6	8,0	8,5
	8H	7,1	7,4	7,7	8,0	8,5	7,1	7,4	7,6	7,9	8,4	7,1	7,4	7,6	7,9	8,4

TMS UTILISATION FACTORS

Utilization factors			LOR = 100.0%			DLOR = 100.0%			ULOR = 0.0%		
Room reflection			Room index								
C	W	F	0,75	1,00	1,25	1,50	2,00	2,50	3,00	4,00	5,00
0.7	0.5	0.2	83	90	95	98	102	105	106	109	110
	0.3		79	86	91	94	99	102	104	106	108
	0.1		75	83	88	91	96	99	101	105	107
0.5	0.5	0.2	82	89	93	96	99	102	103	105	106
	0.3		78	85	89	92	96	99	101	103	105
	0.1		75	82	87	90	94	97	99	102	103
0.3	0.5	0.2	81	87	91	93	97	99	100	101	102
	0.3		77	84	88	91	94	97	98	100	101
	0.1		75	81	86	89	92	95	97	99	100
0.0	0.0	0.0	73	79	83	86	89	91	93	95	96
			SHR NOM. = 1,25			SHR MAX. = 1,44			SHR MAX TR = 1,49		

## TECHNICAL SPECIFICATIONS

Rectangular or square shaped, anodized aluminum body, IP20 LED ceiling luminaire, characterized by:

1. **TR98% PVD silver luminal matt** sight blocking light distribution and glare control angled cubic louver **without underlay** diffusing elements.
2. suitability for recessing in T24 600 x 600 and 625 x 625 mm grid ceilings as well as plaster & clip-in system ceilings and pendant, surface and rail track mounting with accessories to be ordered separately
3. providing precise light distribution control over **40.0°** ensures glare-free (**UGR<9**) visual comfort and photometric performance guaranteeing average **93.8%** (TM5 utilization factors table average) of generated light to be conveyed directly to working plane
4. eco-friendly construction enabling easy disassembly & re-cycling of components and easy replacement of lamp unit as required by **ecodesign**.
5. energy efficacy level ranging between **152 to 162 lm/w** combined with high UF values enabling the driving of the luminaires at low current levels which in turn provides low LED junction temperature promising **luminaire efficient service life / L80B10** ( $t_q, 25^\circ\text{C}$ ) **>50.000h.** and chromatic stability / color consistency over the entire luminaire life.
6. 10µm natural anodized aluminum body. Further color anodized and RAL colors painted finishes on request
7. open-circuit proof control gear unit, protected against faulty connection, short circuit, overload and over-temperature
8. replaceable control gear and PCB lamp unit
9. control gear unit **output ripple <5% - PSTLM ≤1 - SVM ≤0.4** for effective control of the LED system and for flicker-free light
10. complying with fundamental requirements of applicable EU regulations and product safety legislation and bears the CE symbol. The luminaire is part of a range of recessed, surface-mounted and suspended luminaires with a harmonized appearance. Project-specific versions with varying luminaire characteristics are possible on request.

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Rectangular and square anodized aluminum body IP20 LED ceiling luminaire with **TR98% PVD silver luminal matt** sight blocking light distribution and glare control angled cubic louver **without underlay** diffusing elements. Suitable for recessing in T24 600 x 600 and 625 x 625 mm grid ceilings as well as plaster & clip-in system ceilings and pendant, surface and rail track mounting with accessories to be ordered separately. Precise light distribution control over **40.0°** ensures glare-free (**UGR<9**) visual comfort and photometric performance guaranteeing average **93.8%** (TM5 utilization factors table average) of generated light to be conveyed directly to working plane. Eco-friendly construction enables easy disassembly & re-cycling of components and easy replacement of lamp unit as required by **ecodesign**. Energy efficacy level ranging between **152 to 162 lm/w** coupled with high UF values enable driving luminaires at low current which in turn provides low LED junction temperature promising **luminaire efficient service life / L80B10** ( $t_q, 25^\circ\text{C}$ ) **>50.000h.** and chromatic stability / color consistency over the entire luminaire life. Luminaire body of 10µm anodized aluminum. Further color anodized and RAL colors painted finishes on request. Control gear unit is open-circuit proof and protected against faulty connection, short circuit, overload and over-temperature. The control gear and PCB lamp unit are replaceable. **Output ripple** of the control gear unit **<5% - PSTLM ≤1 - SVM ≤0.4** for effective control of the LED system and for flicker-free light. The luminaire complies with fundamental requirements of applicable EU regulations and product safety legislation and bears the CE symbol. The luminaire is part of a range of recessed, surface-mounted and suspended luminaires with a harmonized appearance. Project-specific versions with varying luminaire characteristics are possible on request.