

LIBUS SBL13WB LPP-BL IP20

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

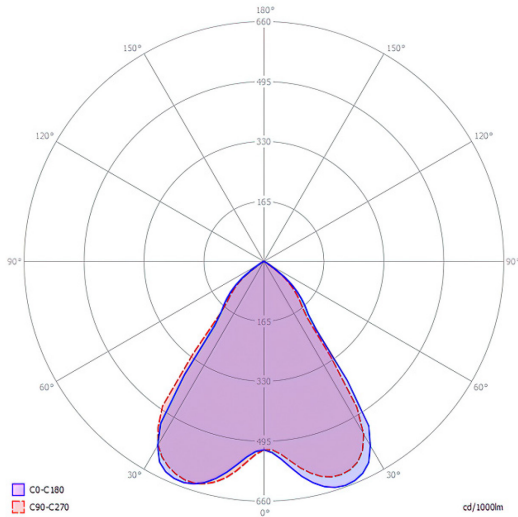
| | |
|---|-----------------|
| Light output ratio – L.O.R. | 95,3 % |
| Efficacy – lm/w (range depending on the luminaire driving power) | 164 – 175 |
| Utilization factor (TM5 UF table average) | 93,8 |
| Glare level – UGR (4Hx8H – refl. 70-50-20) | 7,8 |
| Beam angle | 2x40.0° = 80.0° |
| Degree of protection | IP20 |



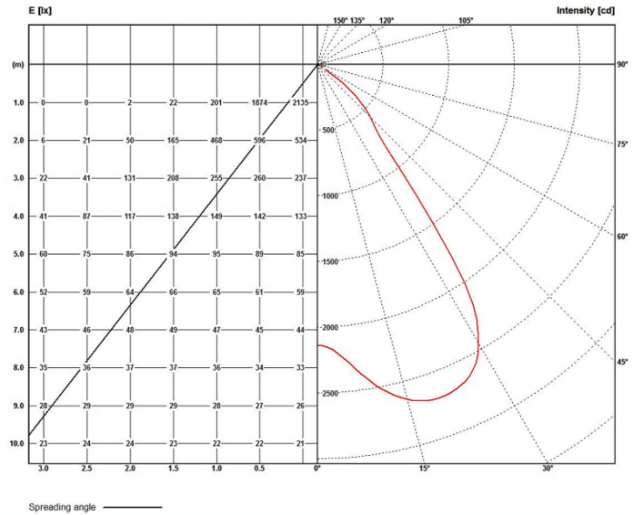
| LPP_BL IP20 | | BEAM ANGLE | | L.O.R. | | DIMENSIONS / POWER OPTIONS | | | | | | | | | | OPTIMAL | SAFE | NOT AVAILABLE | | |
|----------------|----------|------------|-----------|---------|---------------------------|----------------------------|-------|-------|-----------------------------|------|------|------|-----------------------------|------|------|---------|--------|---------------|--|--|
| | | 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 | - | - | - | - | - | 174 | 171 | 169 | 169 | 168 | 166 | 164 | | | | |
| | 620 | 588 | | | - | - | - | - | - | 2502 | 3114 | 3450 | 3379 | 4033 | 4303 | 4778 | | | | |
| 1 x 6 | 310 | 278 | | | - | - | - | 169 | 168 | 166 | 164 | 163 | - | - | - | - | - | - | | |
| | 334 | 302 | | | - | - | - | 1249 | 1756 | 2390 | 2995 | 3287 | - | - | - | - | - | - | | |
| 1 x 5 | 269 | 237 | | | - | - | - | 169 | 168 | 166 | 164 | 163 | - | - | - | - | - | - | | |
| | 293 | 261 | | | - | - | - | 1035 | 1239 | 1735 | 2364 | 2974 | - | - | - | - | - | - | | |
| 1 x 4 | 228 | 197 | | | 595 | 563 | - | 168 | 166 | 164 | 164 | 161 | - | - | - | - | - | - | | |
| | 252 | 220 | | | 620 | 588 | - | 815 | 1014 | 1198 | 1716 | 2323 | - | - | - | - | - | - | | |
| 1 x 3 | 187 | 156 | | | - | - | - | 168 | 166 | 164 | 163 | - | - | - | - | - | - | - | | |
| | 212 | 180 | | | - | - | - | 807 | 1004 | 1198 | 1722 | - | - | - | - | - | - | - | | |
| 1 x 2 | 147 | 115 | | | 168 | 166 | 164 | 163 | - | - | - | - | - | - | - | - | - | - | | |
| | 171 | 139 | | | 607 | 797 | 993 | 1190 | - | - | - | - | - | - | - | - | - | - | | |
| 1 x 1 | 106 | 74 | | | 166 | 164 | 163 | - | - | - | - | - | - | - | - | - | - | - | | |
| | 130 | 98 | | | 603 | 788 | 986 | - | - | - | - | - | - | - | - | - | - | - | | |
| 2 x 6 | 310 | 278 | - | - | - | - | - | - | 175 | 174 | 171 | 169 | 169 | 166 | 165 | 164 | | | | |
| | 334 | 302 | - | - | - | - | - | - | 1833 | 2502 | 3114 | 3450 | 3362 | 3984 | 4277 | 4753 | | | | |
| 2 x 5 | 269 | 237 | - | - | - | - | - | - | 172 | 171 | 169 | 168 | 166 | 165 | 164 | 163 | | | | |
| | 293 | 261 | - | - | - | - | - | - | 1802 | 2459 | 3080 | 3405 | 3347 | 3960 | 4256 | 4696 | | | | |
| 2 x 4 | 228 | 197 | - | - | - | 171 | 169 | 169 | 168 | 166 | 164 | 163 | - | - | - | - | | | | |
| | 252 | 220 | 1125 | 1093 | - | 1259 | 1779 | 2439 | 3065 | 3381 | 3293 | 3913 | - | - | - | - | | | | |
| 2 x 3 | 187 | 156 | 1150 | 1118 | - | 169 | 168 | 166 | 164 | 163 | - | - | - | - | - | - | | | | |
| | 212 | 180 | - | - | - | 1242 | 1765 | 2390 | 2995 | 3287 | - | - | - | - | - | - | | | | |
| 2 x 2 | 147 | 115 | - | - | 168 | 166 | 164 | 163 | 161 | - | - | - | - | - | - | - | | | | |
| | 171 | 139 | - | - | 807 | 1004 | 1123 | 1713 | 2323 | - | - | - | - | - | - | - | | | | |
| 2 x 1 | 106 | 74 | 167 | 166 | 164 | 163 | - | - | - | - | - | - | - | - | - | - | | | | |
| | 130 | 98 | 604 | 797 | 993 | 1190 | - | - | - | - | - | - | - | - | - | - | | | | |

• 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 | 8,5 | 9,6 | 8,8 | 10,0 | 10,3 | 8,3 | 9,5 | 8,7 | 9,8 | 10,1 | | |
| | 3H | 8,3 | 9,3 | 8,7 | 9,7 | 10,0 | 8,1 | 9,1 | 8,5 | 9,5 | 9,8 | | |
| | 4H | 8,2 | 9,2 | 8,6 | 9,5 | 9,9 | 8,0 | 9,0 | 8,4 | 9,3 | 9,7 | | |
| | 6H | 8,2 | 9,0 | 8,6 | 9,4 | 9,8 | 8,0 | 8,8 | 8,4 | 9,2 | 9,6 | | |
| | 8H | 8,1 | 8,9 | 8,5 | 9,3 | 9,7 | 7,9 | 8,7 | 8,3 | 9,1 | 9,5 | | |
| 4H | 2H | 8,2 | 9,2 | 8,6 | 9,5 | 9,9 | 8,0 | 9,0 | 8,4 | 9,4 | 9,7 | | |
| | 3H | 8,0 | 8,8 | 8,5 | 9,2 | 9,6 | 7,8 | 8,6 | 8,3 | 9,0 | 9,4 | | |
| | 4H | 8,0 | 8,7 | 8,4 | 9,1 | 9,5 | 7,8 | 8,5 | 8,2 | 8,9 | 9,3 | | |
| | 6H | 7,8 | 8,4 | 8,3 | 8,9 | 9,3 | 7,7 | 8,3 | 8,1 | 8,7 | 9,2 | | |
| | 8H | 7,8 | 8,3 | 8,3 | 8,8 | 9,3 | 7,6 | 8,2 | 8,1 | 8,6 | 9,1 | | |
| 8H | 2H | 7,7 | 8,3 | 8,2 | 8,7 | 9,2 | 7,6 | 8,1 | 8,0 | 8,5 | 9,0 | | |
| | 4H | 7,8 | 8,3 | 8,3 | 8,8 | 9,3 | 7,6 | 8,2 | 8,1 | 8,6 | 9,1 | | |
| | 6H | 7,6 | 8,1 | 8,1 | 8,6 | 9,1 | 7,4 | 7,9 | 7,9 | 8,4 | 8,9 | | |
| | 8H | 7,6 | 8,0 | 8,2 | 8,5 | 9,0 | 7,4 | 7,8 | 8,0 | 8,4 | 8,8 | | |
| 12H | 4H | 7,6 | 7,9 | 8,1 | 8,4 | 8,9 | 7,4 | 7,7 | 7,9 | 8,2 | 8,7 | | |
| | 6H | 7,7 | 8,3 | 8,2 | 8,7 | 9,2 | 7,6 | 8,1 | 8,0 | 8,5 | 9,0 | | |
| | 8H | 7,6 | 8,0 | 8,2 | 8,5 | 9,0 | 7,4 | 7,8 | 8,0 | 8,3 | 8,8 | | |
| | 8H | 7,6 | 7,9 | 8,1 | 8,4 | 8,9 | 7,4 | 7,7 | 7,9 | 8,2 | 8,7 | | |

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 | 101 | 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 | 98 | 100 | 101 | 102 |
| | 0.3 | | 77 | 84 | 88 | 91 | 94 | 97 | 98 | 100 | 101 |
| | 0.1 | | 74 | 81 | 86 | 89 | 92 | 95 | 97 | 99 | 100 |
| 0.0 | 0.0 | 0.0 | 73 | 79 | 83 | 86 | 89 | 91 | 93 | 95 | 100 |
| | | | SHR NOM. = 1,25 | | | SHR MAX. = 1,37 | | | SHR MAX TR = 1,40 | | |

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 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 **164 to 175 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** ($t_{j,25^{\circ}\text{C}}$) **>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.

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 **164 to 175 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** ($t_{j,25^{\circ}\text{C}}$) **>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.