

Lichttechnischer Prüfbefund

**Familie**  
**Highbay 11**

**Bestell-Nr.: 51HN12DA4MMA**  
**EAN: 4069025349804**

**LP-Nummer**  
**59710\_4**



**Ausführung** primäre Lichtlenkung mit Linse, PMMA, Gehäuse, weiß, für Modario® Schiene, breit strahlend  
  
**Bestückung** LED 4000 K | CRI ≥ 80  
**Betriebsgerät** EVG-DALI  
**Bemessungswerte** Nettolichtstrom = 28000 lm  
Systemleistung = 146.6 W  
Lichtausbeute = 191 lm/W

**Seriodokumentation**  
29.01.2025





| Klassifizierungen |                    | Leuchtenbetriebswirkungsgrade |        |
|-------------------|--------------------|-------------------------------|--------|
| DIN 5040          | A 6 0              | $\eta_{LB}$                   | 100,0% |
| CIE               | N1=88 N2=98 N3=100 | $\phi_u$                      | 100,0% |
|                   | N4=100 N5=100      | $\phi_o$                      | 0,0%   |

| Messbedingungen           |
|---------------------------|
| DIN EN 13032 und DIN 5032 |

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|                                 |                                                 |                      |
|---------------------------------|-------------------------------------------------|----------------------|
| Familie<br>Highbay 11           | Bestell-Nr.: 51HN12DA4MMA<br>EAN: 4069025349804 | LP-Nummer<br>59710_4 |
| Wertetabelle Lichtstärkemessung | Maximale Lichtstärke                            | siteco               |

| C-<br>Ebenen | 0°<br>180°            | 15°<br>165°<br>195°<br>345° | 30°<br>150°<br>210°<br>330° | 45°<br>135°<br>225°<br>315° | 60°<br>120°<br>240°<br>300° | 75°<br>105°<br>255°<br>285° | 90°<br>270° | Phi-Zone             | Summe<br>Phi-Zone |
|--------------|-----------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|----------------------|-------------------|
| γ            | Lichtstärke in cd/klm |                             |                             |                             |                             |                             |             | Lichtstrom in lm/klm |                   |
| 0,0°         | 643.6                 | 643.6                       | 643.6                       | 643.6                       | 643.6                       | 643.6                       | 643.6       | 1.0                  | 1.0               |
| 2,5°         | 644.5                 | 645.1                       | 645.0                       | 644.3                       | 644.2                       | 643.7                       | 641.7       | 7.7                  | 8.7               |
| 5,0°         | 651.5                 | 652.3                       | 650.7                       | 647.5                       | 645.3                       | 643.2                       | 640.4       | 15.5                 | 24.1              |
| 7,5°         | 669.6                 | 669.1                       | 664.2                       | 657.2                       | 651.2                       | 645.8                       | 641.3       | 23.5                 | 47.6              |
| 10,0°        | 693.4                 | 691.0                       | 681.5                       | 670.0                       | 659.9                       | 651.2                       | 645.8       | 31.9                 | 79.6              |
| 12,5°        | 711.8                 | 709.4                       | 700.3                       | 685.9                       | 671.9                       | 660.7                       | 654.0       | 40.7                 | 120.2             |
| 15,0°        | 721.3                 | 721.7                       | 717.1                       | 704.9                       | 689.4                       | 675.9                       | 667.7       | 49.7                 | 169.9             |
| 17,5°        | 743.8                 | 740.8                       | 737.9                       | 726.5                       | 708.9                       | 693.0                       | 684.2       | 59.4                 | 229.3             |
| 20,0°        | 761.9                 | 761.9                       | 759.6                       | 745.2                       | 724.0                       | 705.6                       | 696.8       | 69.2                 | 298.5             |
| 22,5°        | 772.0                 | 771.2                       | 770.0                       | 754.7                       | 731.1                       | 710.8                       | 702.6       | 78.2                 | 376.7             |
| 25,0°        | 758.1                 | 756.6                       | 756.3                       | 743.6                       | 722.7                       | 703.3                       | 695.6       | 85.1                 | 461.8             |
| 27,5°        | 706.7                 | 709.5                       | 709.5                       | 700.0                       | 685.7                       | 672.3                       | 667.0       | 87.8                 | 549.7             |
| 30,0°        | 640.4                 | 635.6                       | 633.7                       | 626.6                       | 621.7                       | 614.1                       | 609.9       | 85.8                 | 635.5             |
| 32,5°        | 530.6                 | 537.6                       | 535.6                       | 526.2                       | 530.2                       | 524.1                       | 520.8       | 78.1                 | 713.6             |
| 35,0°        | 428.2                 | 426.4                       | 425.9                       | 411.9                       | 420.8                       | 414.2                       | 411.4       | 66.0                 | 779.6             |
| 37,5°        | 322.5                 | 323.4                       | 327.0                       | 311.0                       | 319.4                       | 310.8                       | 308.2       | 53.0                 | 832.6             |
| 40,0°        | 236.1                 | 234.0                       | 241.6                       | 230.8                       | 230.9                       | 219.8                       | 218.4       | 40.7                 | 873.3             |
| 42,5°        | 162.3                 | 165.3                       | 172.9                       | 171.1                       | 161.7                       | 151.3                       | 150.8       | 30.2                 | 903.5             |
| 45,0°        | 117.3                 | 114.9                       | 119.4                       | 122.5                       | 109.3                       | 102.6                       | 102.3       | 21.9                 | 925.4             |
| 47,5°        | 80.5                  | 81.4                        | 82.8                        | 85.5                        | 75.2                        | 71.4                        | 70.8        | 15.9                 | 941.3             |
| 50,0°        | 59.4                  | 58.0                        | 58.0                        | 59.0                        | 52.9                        | 50.5                        | 49.6        | 11.7                 | 953.0             |
| 52,5°        | 43.3                  | 42.8                        | 42.8                        | 43.0                        | 39.3                        | 37.2                        | 36.6        | 8.9                  | 961.8             |
| 55,0°        | 33.3                  | 32.4                        | 32.9                        | 33.7                        | 30.5                        | 28.7                        | 28.3        | 7.1                  | 968.9             |
| 57,5°        | 25.9                  | 25.4                        | 25.9                        | 26.8                        | 24.5                        | 22.9                        | 22.9        | 5.8                  | 974.7             |
| 60,0°        | 20.9                  | 20.2                        | 21.2                        | 21.8                        | 20.4                        | 18.9                        | 19.2        | 4.9                  | 979.5             |
| 62,5°        | 16.9                  | 16.2                        | 17.4                        | 18.0                        | 17.2                        | 15.9                        | 16.4        | 4.1                  | 983.6             |
| 65,0°        | 14.9                  | 13.6                        | 14.4                        | 15.1                        | 14.8                        | 13.6                        | 14.4        | 3.6                  | 987.2             |
| 67,5°        | 12.3                  | 11.4                        | 12.5                        | 12.4                        | 13.0                        | 11.7                        | 12.6        | 3.1                  | 990.3             |
| 70,0°        | 10.4                  | 9.5                         | 10.5                        | 10.1                        | 11.1                        | 10.1                        | 11.0        | 2.7                  | 993.0             |
| 72,5°        | 8.2                   | 7.7                         | 7.9                         | 8.2                         | 8.7                         | 8.6                         | 9.5         | 2.2                  | 995.2             |
| 75,0°        | 6.5                   | 6.0                         | 6.0                         | 6.4                         | 6.6                         | 7.1                         | 7.9         | 1.7                  | 996.9             |
| 77,5°        | 4.5                   | 4.3                         | 4.4                         | 4.7                         | 5.1                         | 5.6                         | 6.3         | 1.3                  | 998.2             |
| 80,0°        | 2.9                   | 2.7                         | 2.9                         | 3.1                         | 3.5                         | 4.1                         | 4.7         | 0.9                  | 999.1             |
| 82,5°        | 1.3                   | 1.4                         | 1.6                         | 1.8                         | 2.2                         | 2.7                         | 3.3         | 0.5                  | 999.7             |
| 85,0°        | 0.6                   | 0.6                         | 0.6                         | 0.7                         | 1.0                         | 1.4                         | 1.8         | 0.3                  | 999.9             |
| 87,5°        | 0.3                   | 0.3                         | 0.3                         | 0.3                         | 0.3                         | 0.4                         | 0.5         | 0.1                  | 1000.0            |
| 90,0°        | 0.0                   | 0.0                         | 0.0                         | 0.0                         | 0.0                         | 0.0                         | 0.0         | 0.0                  | 1000.0            |

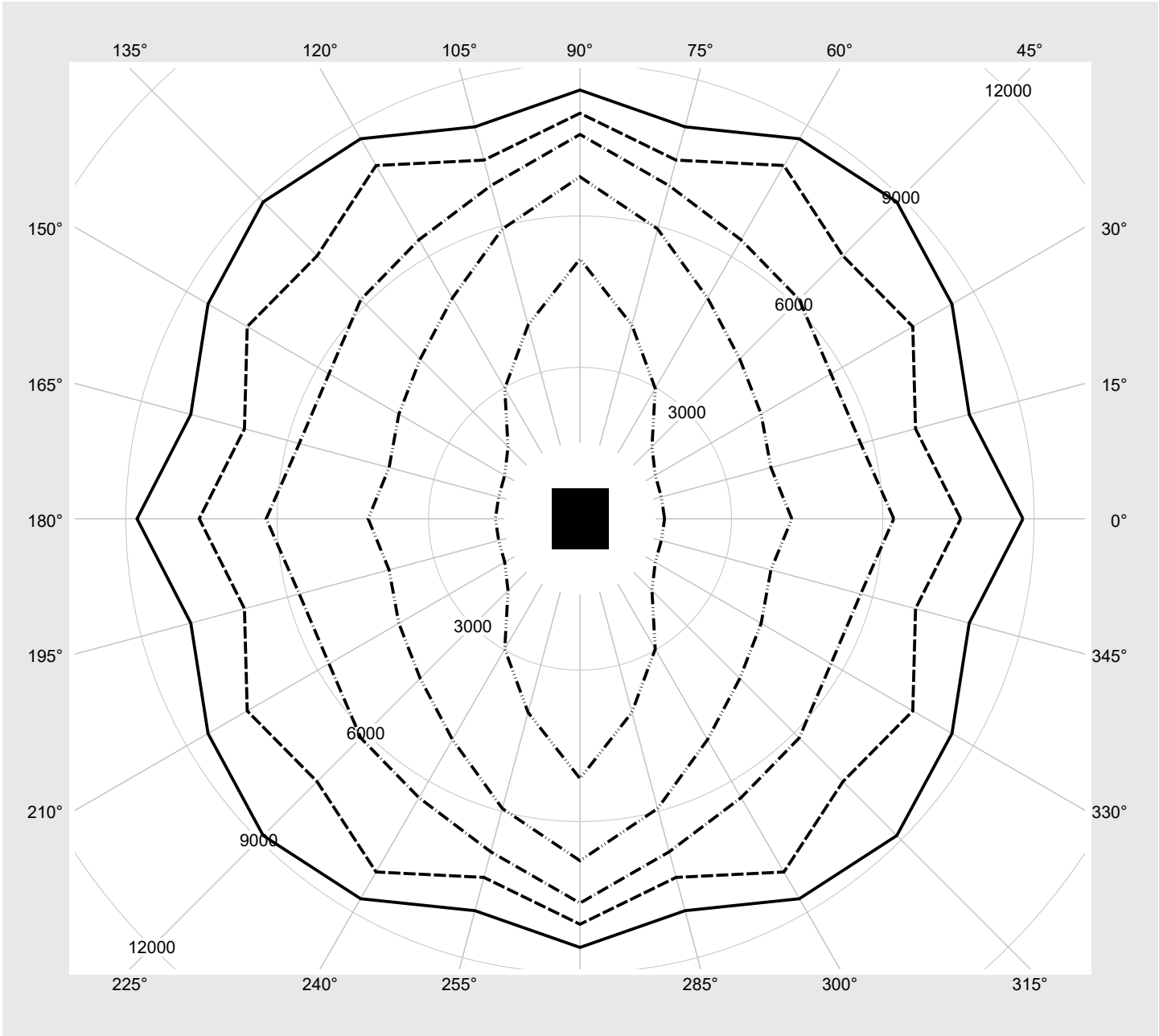
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|                       |     |                                     |                                                 |      |      |      |                                       |      |                      |      |      |
|-----------------------|-----|-------------------------------------|-------------------------------------------------|------|------|------|---------------------------------------|------|----------------------|------|------|
| Familie<br>Highbay 11 |     |                                     | Bestell-Nr.: 51HN12DA4MMA<br>EAN: 4069025349804 |      |      |      |                                       |      | LP-Nummer<br>59710_4 |      |      |
| UGR-Tabelle           |     |                                     | Standardraum                                    |      |      |      |                                       |      | siteco               |      |      |
| Reflexionsgrad Decke  |     | 0,7                                 | 0,7                                             | 0,5  | 0,5  | 0,3  | 0,7                                   | 0,7  | 0,5                  | 0,5  | 0,3  |
| Reflexionsgrad Wände  |     | 0,5                                 | 0,3                                             | 0,5  | 0,3  | 0,3  | 0,5                                   | 0,3  | 0,5                  | 0,3  | 0,3  |
| Reflexionsgrad Boden  |     | 0,2                                 | 0,2                                             | 0,2  | 0,2  | 0,2  | 0,2                                   | 0,2  | 0,2                  | 0,2  | 0,2  |
| Raumabmessungen       |     | Blickrichtung quer zur Leuchte (C0) |                                                 |      |      |      | Blickrichtung längs zur Leuchte (C90) |      |                      |      |      |
| x                     | y   |                                     |                                                 |      |      |      |                                       |      |                      |      |      |
| 2H                    | 2H  | 22,1                                | 23,4                                            | 22,5 | 23,7 | 24,0 | 21,8                                  | 23,1 | 22,2                 | 23,4 | 23,7 |
|                       | 3H  | 22,1                                | 23,2                                            | 22,5 | 23,6 | 23,9 | 21,8                                  | 22,9 | 22,2                 | 23,3 | 23,6 |
|                       | 4H  | 22,1                                | 23,1                                            | 22,5 | 23,5 | 23,9 | 21,8                                  | 22,9 | 22,2                 | 23,2 | 23,6 |
|                       | 6H  | 22,1                                | 23,0                                            | 22,5 | 23,4 | 23,8 | 21,9                                  | 22,8 | 22,3                 | 23,2 | 23,6 |
|                       | 8H  | 22,1                                | 22,9                                            | 22,6 | 23,3 | 23,7 | 22,0                                  | 22,8 | 22,4                 | 23,1 | 23,5 |
|                       | 12H | 22,1                                | 22,8                                            | 22,5 | 23,2 | 23,6 | 21,9                                  | 22,7 | 22,4                 | 23,1 | 23,5 |
| 4H                    | 2H  | 22,0                                | 23,0                                            | 22,4 | 23,4 | 23,8 | 21,7                                  | 22,7 | 22,1                 | 23,1 | 23,5 |
|                       | 3H  | 22,0                                | 22,9                                            | 22,4 | 23,3 | 23,7 | 21,8                                  | 22,6 | 22,2                 | 23,0 | 23,4 |
|                       | 4H  | 22,0                                | 22,8                                            | 22,5 | 23,2 | 23,6 | 21,8                                  | 22,6 | 22,3                 | 23,0 | 23,4 |
|                       | 6H  | 22,0                                | 22,6                                            | 22,5 | 23,1 | 23,6 | 21,9                                  | 22,5 | 22,3                 | 22,9 | 23,4 |
|                       | 8H  | 22,0                                | 22,6                                            | 22,5 | 23,0 | 23,5 | 21,9                                  | 22,5 | 22,3                 | 22,9 | 23,4 |
|                       | 12H | 22,0                                | 22,5                                            | 22,5 | 22,9 | 23,4 | 21,9                                  | 22,4 | 22,4                 | 22,8 | 23,3 |
| 8H                    | 4H  | 22,0                                | 22,5                                            | 22,4 | 23,0 | 23,5 | 21,8                                  | 22,3 | 22,2                 | 22,8 | 23,3 |
|                       | 6H  | 21,9                                | 22,4                                            | 22,4 | 22,9 | 23,4 | 21,8                                  | 22,3 | 22,3                 | 22,8 | 23,3 |
|                       | 8H  | 21,9                                | 22,3                                            | 22,4 | 22,8 | 23,3 | 21,8                                  | 22,2 | 22,3                 | 22,7 | 23,3 |
|                       | 12H | 21,9                                | 22,2                                            | 22,4 | 22,7 | 23,3 | 21,9                                  | 22,2 | 22,4                 | 22,7 | 23,2 |
| 12H                   | 4H  | 22,0                                | 22,4                                            | 22,5 | 22,9 | 23,4 | 21,8                                  | 22,2 | 22,3                 | 22,7 | 23,2 |
|                       | 6H  | 21,9                                | 22,3                                            | 22,4 | 22,8 | 23,3 | 21,8                                  | 22,2 | 22,3                 | 22,7 | 23,2 |
|                       | 8H  | 21,9                                | 22,2                                            | 22,4 | 22,7 | 23,3 | 21,8                                  | 22,1 | 22,3                 | 22,6 | 23,2 |

| Leuchtdichten-Tabelle |                       | Max. für $\gamma \geq 65^\circ$ |                             | Lichttechnische<br>Abmessungen in mm: |                             | L = 426<br>B = 264          |             |
|-----------------------|-----------------------|---------------------------------|-----------------------------|---------------------------------------|-----------------------------|-----------------------------|-------------|
| C-<br>Ebenen          | 0°<br>180°            | 15°<br>165°<br>195°<br>345°     | 30°<br>150°<br>210°<br>330° | 45°<br>135°<br>225°<br>315°           | 60°<br>120°<br>240°<br>300° | 75°<br>105°<br>255°<br>285° | 90°<br>270° |
| $\gamma$              | Leuchtdichte in cd/m² |                                 |                             |                                       |                             |                             |             |
| 45,0°                 | 41309.5               | 40449.3                         | 42046.4                     | 43124.2                               | 38472.7                     | 36122.1                     | 36015.8     |
| 50,0°                 | 23016.1               | 22471.9                         | 22448.3                     | 22849.2                               | 20503.5                     | 19549.5                     | 19214.1     |
| 55,0°                 | 14464.3               | 14077.5                         | 14278.5                     | 14606.2                               | 13249.8                     | 12455.0                     | 12305.3     |
| 60,0°                 | 10403.4               | 10042.9                         | 10552.3                     | 10869.0                               | 10176.3                     | 9424.0                      | 9544.0      |
| 65,0°                 | 8778.3                | 7985.4                          | 8511.5                      | 8878.5                                | 8694.1                      | 8040.2                      | 8494.4      |
| 70,0°                 | 7545.1                | 6884.1                          | 7614.9                      | 7367.4                                | 8082.3                      | 7357.2                      | 8035.0      |
| 75,0°                 | 6218.0                | 5759.1                          | 5743.7                      | 6143.0                                | 6382.5                      | 6831.7                      | 7615.7      |
| 80,0°                 | 4198.0                | 3917.0                          | 4145.0                      | 4477.6                                | 5054.0                      | 5944.3                      | 6775.9      |
| 85,0°                 | 1676.8                | 1668.3                          | 1722.5                      | 2016.8                                | 2982.3                      | 3973.5                      | 5147.6      |

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|                                                                                                                                 |                                                               |                                    |                   |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------------------------|-------------------|
| <b>Familie</b><br><b>Highbay 11</b>                                                                                             | <b>Bestell-Nr.: 51HN12DA4MMA</b><br><b>EAN: 4069025349804</b> | <b>LP-Nummer</b><br><b>59710_4</b> |                   |
| <b>Leuchtdichten in cd/m²</b> <div> <div>γ 65°</div> <div>γ 70°</div> <div>γ 75°</div> <div>γ 80°</div> <div>γ 85°</div> </div> |                                                               |                                    | <div>siteco</div> |



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|                                                        |                                                               |                                    |
|--------------------------------------------------------|---------------------------------------------------------------|------------------------------------|
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| <b>Dimmstufen-Tabelle</b><br>Umgebungstemperatur: 25°C |                                                               | <b>sit</b> eco                     |

| Lichtstrom [%] | Dimmstufe linear | Dimmstufe logarithmisch | Lichtstrom [lm] | Systemleistung [W] |
|----------------|------------------|-------------------------|-----------------|--------------------|
| 100            | ----             | ----                    | ----            | ----               |
| 95             | 240              | 252                     | 26584           | 138.2              |
| 90             | 227              | 250                     | 25246           | 130.3              |
| 85             | 213              | 248                     | 23796           | 121.9              |
| 80             | 200              | 245                     | 22443           | 114.2              |
| 75             | 186              | 243                     | 20975           | 105.9              |
| 70             | 173              | 240                     | 19598           | 98.3               |
| 65             | 160              | 237                     | 18213           | 90.7               |
| 60             | 147              | 234                     | 16807           | 83.1               |
| 55             | 134              | 231                     | 15399           | 75.7               |
| 50             | 121              | 227                     | 13971           | 68.3               |
| 45             | 109              | 223                     | 12641           | 61.5               |
| 40             | 96               | 218                     | 11192           | 54.1               |
| 35             | 84               | 213                     | 9836            | 47.3               |
| 30             | 71               | 207                     | 8355            | 40.2               |
| 25             | 59               | 201                     | 6969            | 33.5               |
| 20             | 47               | 192                     | 5572            | 27.0               |
| 15             | 35               | 181                     | 4154            | 20.6               |
| 10             | 24               | 168                     | 2843            | 14.6               |
| 5              | 12               | 142                     | 1395            | 7.8                |
| 2              | 5                | 110                     | 539             | 3.9                |