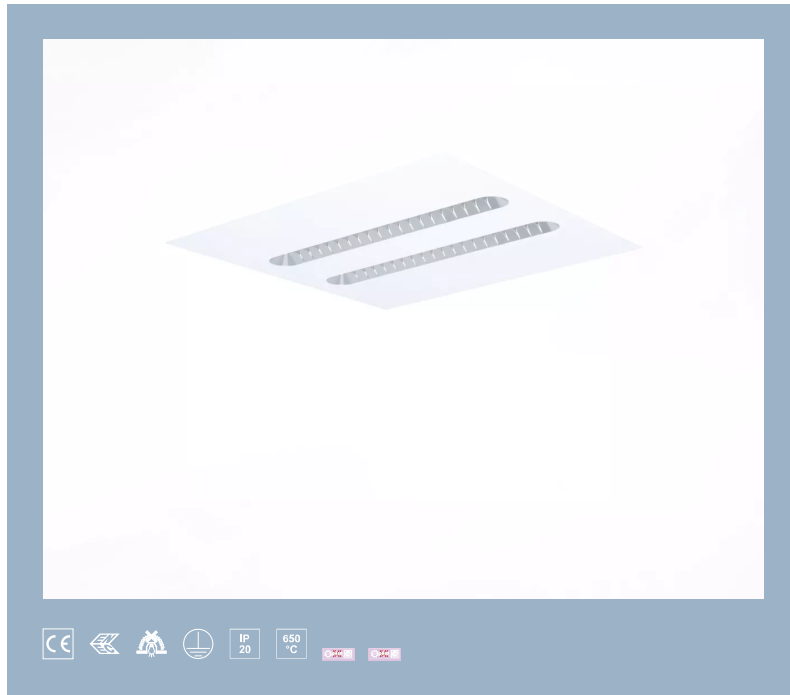


# U3112/LEDN220S



## Einbauleuchte • quadratisch

Anwendung : Arbeitsbereiche, Klassenräume

Gehäuse: Lackiertes Stahlblech

Lichtquelle : LED • 4000 K

Optik : Shielded lens • Polycarbonat (PC)  
Aluminium-bedampft • mittelbreit strahlend

UGR-Klassifizierung : <=19

Lichtstrom: 2000 lm

Spezifischer Lichtstrom : 134 lm/W

LLMF: 98% @ 50khrs (Tq=25°C)

## Product information

### Mechanische Merkmale

Abmessungen : 596 mm x 596 mm x 58 mm

min. Deckenausschnitt : 596 mm x 596 mm x 70 mm

Deckenmodulation : M600

Farbe: RAL9003 - signalweiß (Strukturlack)

Typ : Einzelleuchte

IP: IP20

### Elektrische Ausrüstung

Betriebsgerät: nicht dimmbar

Anschlussleistung : 14.9 W

Spannung : 220-240V

Frequenz : 50-60Hz AC

Fotobiologische Sicherheit : EN 62471: RISK GROUP 1  
UNLIMITED

## Leuchtdichte

Lichtstrom : 2000 lm

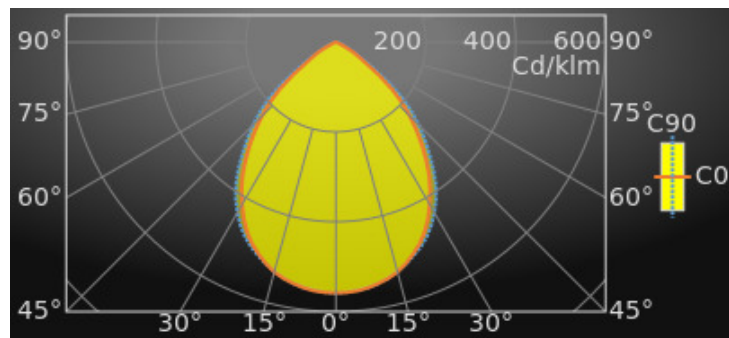
Spezifischer Lichtstrom : 134 lm/W

Leuchtdichte @ 65° = : 3000 cd/m²

UGR-Klassifizierung =: <=19

leuchtende Fläche : 0.06 m²

| Gamma | Average Luminances (Cd/m²) for 2000lm |       |       |       |       |
|-------|---------------------------------------|-------|-------|-------|-------|
|       | C0                                    | C30   | C45   | C60   | C90   |
| 45°   | 11049                                 | 12594 | 13277 | 12831 | 12411 |
| 50°   | 8525                                  | 10628 | 11451 | 11093 | 10110 |
| 55°   | 4813                                  | 7649  | 9489  | 8964  | 6246  |
| 60°   | 3005                                  | 4683  | 6559  | 4963  | 2974  |
| 65°   | 915                                   | 1852  | 2964  | 2356  | 2054  |
| 70°   | 528                                   | 671   | 985   | 1463  | 1335  |
| 75°   | 383                                   | 440   | 540   | 834   | 1099  |
| 80°   | 105                                   | 223   | 312   | 452   | 875   |
| 85°   | 1                                     | 0     | 15    | 89    | 619   |



## Klassifikationen

CIE: 681 / 963 / 997 / 1000 / 1000

CIE FLUXCODE : 0.68 / 0.96 / 1.00 / 1.00 / 1.00

BZ: BZ2

CAE: Symmetrical

DIN: A50 (Nach Arbeitsblatt 7)

DIN\_U:  $\Phi_u = 1.00$

DIN\_SU:  $\Phi_{su} = 0.70$

UTE: 1.00 C + 0.00 T

Lifetime Data (Tq=25.0°C)

| Time(khrs) | LLMF(%) | Cx(%) |
|------------|---------|-------|
| 10         | 100     | 2     |
| 20         | 99      | 4     |
| 30         | 99      | 6     |
| 40         | 99      | 8     |
| 50         | 98      | 10    |
| 60         | 98      | 12    |

## Lichtstärken in cd

Intensity for 2000lm

| Gamma | C0     | C45    | C90    |
|-------|--------|--------|--------|
| 0°    | 1117.2 | 1117.2 | 1117.2 |
| 5°    | 1111.3 | 1108.4 | 1107.5 |
| 10°   | 1091.4 | 1090.1 | 1090.3 |
| 15°   | 1059.1 | 1057.4 | 1055.9 |
| 20°   | 1004.5 | 1010.7 | 1011.6 |
| 25°   | 933.9  | 952.6  | 956.9  |
| 30°   | 834.3  | 870.9  | 876.7  |
| 35°   | 721.9  | 780.6  | 775.5  |
| 40°   | 593.4  | 668.4  | 646.4  |
| 45°   | 464.1  | 557.7  | 521.3  |
| 50°   | 325.5  | 437.2  | 386.0  |
| 55°   | 164.0  | 323.3  | 212.8  |
| 60°   | 89.2   | 194.8  | 88.3   |
| 65°   | 23.0   | 74.4   | 51.6   |
| 70°   | 10.7   | 20.0   | 27.1   |
| 75°   | 5.9    | 8.3    | 16.9   |
| 80°   | 1.1    | 3.2    | 9.0    |
| 85°   | 0.0    | 0.1    | 3.2    |
| 90°   | 0.0    | 0.0    | 0.0    |

## UGR-Klassifizierung =

Corrected Glare Ratings for a Total Lamp Flux of 2000lm (S = 0.25H)

|                 | Room Reflection Factors (%)                                    |      |       |      |      |                |      |      |      |      |
|-----------------|----------------------------------------------------------------|------|-------|------|------|----------------|------|------|------|------|
| Ceiling         | 70                                                             | 70   | 50    | 50   | 30   | 70             | 70   | 50   | 50   | 30   |
| Walls           | 50                                                             | 30   | 50    | 30   | 30   | 50             | 30   | 50   | 30   | 30   |
| Floor           | 20                                                             | 20   | 20    | 20   | 20   | 20             | 20   | 20   | 20   | 20   |
| Room Dimensions | Viewed Crosswise                                               |      |       |      |      | Viewed Endwise |      |      |      |      |
| X = 2H Y = 2H   | 18.3                                                           | 19.9 | 18.6  | 20.1 | 20.4 | 18.7           | 20.3 | 19.0 | 20.6 | 20.8 |
| Y = 3H          | 18.1                                                           | 19.6 | 18.4  | 19.8 | 20.1 | 18.7           | 20.1 | 19.0 | 20.4 | 20.7 |
| Y = 4H          | 18.0                                                           | 19.4 | 18.4  | 19.7 | 20.0 | 18.6           | 19.9 | 19.0 | 20.2 | 20.5 |
| Y = 6H          | 18.0                                                           | 19.2 | 18.3  | 19.5 | 19.8 | 18.5           | 19.8 | 18.9 | 20.1 | 20.4 |
| Y = 8H          | 17.9                                                           | 19.1 | 18.3  | 19.4 | 19.8 | 18.5           | 19.7 | 18.9 | 20.0 | 20.4 |
| Y = 12H         | 17.9                                                           | 19.0 | 18.3  | 19.3 | 19.7 | 18.5           | 19.6 | 18.9 | 19.9 | 20.3 |
| X = 4H Y = 2H   | 18.4                                                           | 19.8 | 18.8  | 20.1 | 20.4 | 18.8           | 20.1 | 19.2 | 20.4 | 20.7 |
| Y = 3H          | 18.3                                                           | 19.4 | 18.7  | 19.8 | 20.1 | 18.8           | 19.9 | 19.2 | 20.2 | 20.6 |
| Y = 4H          | 18.2                                                           | 19.2 | 18.6  | 19.6 | 19.9 | 18.8           | 19.7 | 19.2 | 20.1 | 20.5 |
| Y = 6H          | 18.2                                                           | 19.0 | 18.6  | 19.4 | 19.8 | 18.7           | 19.6 | 19.2 | 20.0 | 20.4 |
| Y = 8H          | 18.1                                                           | 18.9 | 18.6  | 19.3 | 19.7 | 18.7           | 19.5 | 19.1 | 19.9 | 20.3 |
| Y = 12H         | 18.1                                                           | 18.8 | 18.5  | 19.2 | 19.7 | 18.7           | 19.4 | 19.1 | 19.8 | 20.3 |
| X = 8H Y = 4H   | 18.1                                                           | 18.9 | 18.6  | 19.3 | 19.8 | 18.7           | 19.5 | 19.1 | 19.9 | 20.3 |
| Y = 6H          | 18.1                                                           | 18.7 | 18.5  | 19.2 | 19.6 | 18.7           | 19.3 | 19.1 | 19.7 | 20.2 |
| Y = 8H          | 18.1                                                           | 18.6 | 18.5  | 19.1 | 19.6 | 18.6           | 19.2 | 19.1 | 19.7 | 20.1 |
| Y = 12H         | 18.0                                                           | 18.5 | 18.5  | 19.0 | 19.5 | 18.6           | 19.1 | 19.1 | 19.6 | 20.1 |
| X = 12H Y = 4H  | 18.1                                                           | 18.8 | 18.6  | 19.3 | 19.7 | 18.6           | 19.4 | 19.1 | 19.8 | 20.2 |
| Y = 6H          | 18.1                                                           | 18.6 | 18.5  | 19.1 | 19.6 | 18.6           | 19.2 | 19.1 | 19.6 | 20.1 |
| Y = 8H          | 18.0                                                           | 18.5 | 18.5  | 19.0 | 19.5 | 18.6           | 19.1 | 19.1 | 19.6 | 20.1 |
|                 | UGR Variations with Observer Position for Luminaire Spacings S |      |       |      |      |                |      |      |      |      |
| S = 1.0H        | +1.0                                                           |      | -2.3  |      |      | +0.7           |      | -1.4 |      |      |
| S = 1.5H        | +2.2                                                           |      | -7.4  |      |      | +2.1           |      | -6.4 |      |      |
| S = 2.0H        | +3.6                                                           |      | -14.2 |      |      | +3.3           |      | -8.1 |      |      |

## Colour properties

Correlated Colour Temperature : 4000

Farbwiedergabeindex Ra: CRI (Ra) 80

Leuchten-Betriebwirkungsgrad

| Utilisation Factors according to IES (%) |                             |     |     |     |     |    |    |    |    |    |
|------------------------------------------|-----------------------------|-----|-----|-----|-----|----|----|----|----|----|
|                                          | Room Reflection Factors (%) |     |     |     |     |    |    |    |    |    |
| Ceiling                                  | 80                          | 80  | 80  | 50  | 50  | 50 | 30 | 30 | 30 | 0  |
| Walls                                    | 50                          | 30  | 10  | 50  | 30  | 10 | 50 | 30 | 10 | 0  |
| Floor                                    | 20                          | 20  | 20  | 20  | 20  | 20 | 20 | 20 | 20 | 0  |
| RCR = 1                                  | 108                         | 106 | 104 | 102 | 100 | 99 | 98 | 97 | 96 | 90 |
| 2                                        | 97                          | 93  | 90  | 92  | 89  | 87 | 89 | 86 | 84 | 80 |
| 3                                        | 88                          | 83  | 79  | 83  | 79  | 76 | 81 | 77 | 75 | 71 |
| 4                                        | 80                          | 74  | 69  | 76  | 71  | 67 | 74 | 70 | 66 | 63 |
| 5                                        | 72                          | 66  | 61  | 69  | 64  | 60 | 67 | 63 | 59 | 56 |
| 6                                        | 66                          | 59  | 54  | 64  | 58  | 54 | 62 | 57 | 53 | 50 |
| 7                                        | 61                          | 54  | 49  | 59  | 53  | 48 | 57 | 52 | 48 | 46 |
| 8                                        | 56                          | 49  | 44  | 54  | 48  | 44 | 53 | 47 | 43 | 41 |
| 9                                        | 52                          | 45  | 40  | 50  | 44  | 40 | 49 | 44 | 40 | 38 |
| 10                                       | 48                          | 41  | 37  | 47  | 41  | 37 | 46 | 40 | 36 | 35 |

| Utilisation Factors according to LiTG (%) |                             |     |     |     |     |     |    |    |    |    |
|-------------------------------------------|-----------------------------|-----|-----|-----|-----|-----|----|----|----|----|
|                                           | Room Reflection Factors (%) |     |     |     |     |     |    |    |    |    |
| Ceiling                                   | 80                          | 80  | 80  | 50  | 50  | 50  | 50 | 50 | 30 | 0  |
| Walls                                     | 50                          | 30  | 50  | 30  | 50  | 30  | 50 | 30 | 30 | 0  |
| Floor                                     | 30                          | 30  | 10  | 10  | 30  | 30  | 10 | 10 | 10 | 0  |
| k = 0.60                                  | 59                          | 51  | 56  | 50  | 57  | 50  | 55 | 49 | 49 | 43 |
| 0.80                                      | 71                          | 63  | 67  | 60  | 68  | 61  | 65 | 60 | 59 | 54 |
| 1.00                                      | 80                          | 72  | 74  | 68  | 76  | 69  | 72 | 67 | 66 | 61 |
| 1.25                                      | 90                          | 82  | 82  | 77  | 85  | 79  | 80 | 76 | 75 | 70 |
| 1.50                                      | 95                          | 88  | 87  | 82  | 90  | 84  | 84 | 80 | 79 | 75 |
| 2.00                                      | 103                         | 96  | 92  | 88  | 96  | 91  | 89 | 86 | 85 | 80 |
| 2.50                                      | 108                         | 102 | 96  | 92  | 100 | 96  | 93 | 90 | 89 | 85 |
| 3.00                                      | 112                         | 108 | 98  | 96  | 104 | 101 | 96 | 94 | 92 | 88 |
| 4.00                                      | 116                         | 112 | 100 | 98  | 107 | 104 | 97 | 96 | 94 | 90 |
| 5.00                                      | 119                         | 115 | 102 | 100 | 109 | 106 | 99 | 98 | 96 | 93 |

## Vermaßte Skizze

