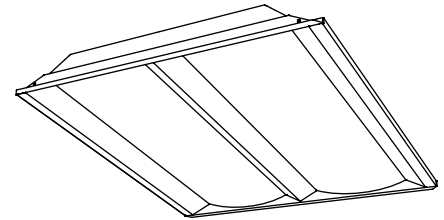


Architectural style with efficiency and visual comfort

DUALED RECESSED LED 2X2



PHILIPS DAY-BRITE / PHILIPS CFI DUALED RECESSED LED 2x2 WITH SPACEWISE TECHNOLOGY OPTION

DuaLED is a highly efficient, visually comfortable, architecturally styled recessed LED luminaire designed with a minimalistic strategy to achieve sustainable objectives. Its clean modern design offers a fresh variation on the popular dual chamber theme and provides architectural styling compatible with virtually any area. SpaceWise Technology is optional for additional energy savings and control.

Project: _____
 Location: _____
 Catalog No: _____
 Fixture Type: _____
 Mfg: _____
 Notes: _____

Ordering guide

example: 2DLG21L840-2-D-24VDC

Width	Family	Ceiling Type	Lumen Package	Color	Length	Diffusers	Voltage	Options
2	DL	G			2	D		
2 2'	DL DuaLED	G Grid	21L¹ 2100 nominal delivered lumens 27L¹ 2700 nominal delivered lumens 30L^{1,2} 3000 nominal delivered lumens 34L¹ 3400 nominal delivered lumens 38L 3800 nominal delivered lumens 44L¹ 4400 nominal delivered lumens	840 80 CRI, 4000K 835 80 CRI, 3500K	2 2'	D Diffuse (Opal)	UNV Universal voltage, 120-277 volt 347³ 347 volt 24VDC 24 volt DC (EMerge Registered)	CC Custom color F1 3/8" Flex, 3 Wire 18 gauge F2 3/8" Flex, 4 Wire 18 gauge GLR1 Fusing, Fast Blow DIM 0-10V dimming driver EMLED16³ Integral emergency battery pack (1600 lumens, requires ballast enclosure on top of luminaire) OCC⁴ Integral sensor, occupancy DAY⁵ Integral sensor, daylighting SWZ^{6,7} SpaceWise automated wireless technology for integrated occupancy and daylight harvesting DLC-CS⁸ 25W Xitanium driver

Footnotes:

- ¹ Not available with the SWZ option.
- ² Only available in 24VDC voltage option.
- ³ 347V not available with EMLED16.
- ⁴ OCC option allows individual auto shutoff per luminaire and is not recommended for applications with multiple luminaires.
- ⁵ DAY option requires manual light level calibration.
- ⁶ SWZ option provides occupancy sensing suitable for rooms with multiple luminaires, along with daylight harvesting with auto-calibration. See page 2 for more information.
- ⁷ Must order SWZ-REMOTE with each system order.
- ⁸ Only available for 21L and 27L lumen packages.

Accessories (order separately)

- **SWZ-REMOTE** – SpaceWise programming tool
- **LRM1743** – External sensor to increase occupancy coverage area of SpaceWise luminaire groups
- **FMA22** – 2'x2' "F" mounting frame for NEMA "F" mounting



PHILIPS
Day-Brite

PHILIPS
CFI

DUALED RECESSED LED 2X2

Application

- A highly efficient, visually comfortable, architecturally styled recessed LED luminaire designed with a minimalistic strategy to achieve sustainable objectives.
- Low profile configuration is only 2-11/16" high and is compatible with virtually any plenum.
- Clean, modern design offers a fresh variation on the popular dual chamber theme and provides architectural styling compatible with virtually any area.
- Soft opal diffusers with large luminous area minimize apparent brightness and provide high visual comfort perfect for a wide variety of general lighting applications like offices, schools, retail, or healthcare.
- Multiple lumen packages over a wide range provide significant application flexibility over light levels and/or luminaire spacing.
- A high lumen package can be used in conjunction with wide luminaire spacing to reduce luminaire quantities and overall cost while maintaining good uniformity.
- High efficiency source and luminaire design create significant energy savings over conventional solutions. Recommended light levels can frequently be achieved with lighting power densities of 0.5 to 0.85 Watts per square foot, complying with any known energy code.
- Directs a controlled amount of light to the higher angles in the room to balance the brightness of the surfaces and eliminate "cave effect" while creating the impression of a larger, brighter space without glare.
- Excellent color rendering with a CRI of 80.
- LEDs are an excellent source for use with controls since dimming or frequent switching does not degrade the performance or life of the source. Integral or external sensors are available for use.
- Designed for use with standard Grid (NEMA "G") or Narrow Grid (NEMA "NFG") ceiling T-bars. Drywall or plaster requirements can be accommodated by using an FMA22 "F" mounting frame (sold separately.)
- Listed for use in insulated ceilings (Type IC.)
- Some DuaLED luminaires are DesignLights Consortium® qualified. Please see the DLC QPL list for exact catalog numbers.

Construction/Finish

- Uncomplicated design is well under 3" in depth and only requires a few parts outside of the electrical system and hardware, creating several benefits:
 - Less material required
 - Less packaging required
 - Reduced weight
 - Less energy required for construction and assembly
 - More luminaires can be shipped per truck to reduce fuel use and emissions
- Luminaire is painted after fabrication with a matte white polyester powder coating for a high quality, durable finish with no unfinished edges to create an installation hazard or potential for corrosion.
- T-bar grid clips are included for easy installation

Electrical

- Integral sensor options for occupancy sensing and/or daylight harvesting are available for additional energy savings with no reduction of life or increase in installation labor.
- Total luminaire efficacy as high as 105 LPW (lumens per Watt) significantly reduces energy usage compared to conventional 2x2 sources.
- Driver and LED boards are easily accessible from below without tools. Multiple LED boards are individually replaceable if needed via plug-in connectors to ensure long service life.
- 0-10V dimming and emergency options are available to add even more application flexibility. Emergency models require a top mounted driver enclosure that increases luminaire depth.
- Five year luminaire warranty includes components, LED boards, and driver (emergency driver and batteries were a three year warranty in models so equipped.)

- High efficiency LEDs have a minimum 50,000 hour rated life (L70). Predicted L70 lifetime based on LED manufacturer's supplied LM-80 data and in-situ laboratory testing
- ETL listed to UL and CSA standards. Standard DuaLED suitable for damp locations. **SpaceWise is not suitable for damp locations.**

Enclosure

- Dual chamber configuration utilizes two diffusers with large surface area for brightness control.
- Opal diffusers provide soft, comfortable lighting while maintaining high efficiency.
- Diffusers require no frames or fasteners and can be easily removed from below without tools if needed.

SpaceWise Technology (SWZ)

- Optional SpaceWise automated wireless technology provides integrated occupancy and daylight harvesting for additional control and energy savings with no reduction of life. Requiring no system re-wiring, SpaceWise technology is appropriate for retrofit or new design and is an ideal replacement system for typical office layouts.
- Occupancy and daylight sensors are integral to each luminaire. Luminaires in large rooms and open plan areas are grouped together up to a maximum of 50 using a handheld remote so room lighting turns on at first sign of occupancy.
- Upon first entry, grouped luminaires brighten up gently to a background level. Once occupants arrive at their workstations, luminaires in the immediate area brighten up to full illumination and will dim down when no presence is detected. Grouped luminaires will dim to off when no presence is detected in the group.
- Daylight sensing is automatic and re-calibration occurs daily when luminaires turn on.

Energy Data

Standard DuaLED				DuaLED with SpaceWise Technology (SWZ option)									
Model	Initial Delivered Lumens at 25°C Ambient ⁹	Input Power	Lumens Per Watt ⁹	High Power Setting			Medium Power Setting ¹⁰			Low Power Setting			
				Initial Delivered Lumens at 25°C Ambient ⁹	Input Power Max Output	Input Power Background Output 277V / 120V	Approx. Initial Delivered Lumens at 25°C Ambient	Input Power Max Output	Input Power Background Output 277V / 120V	Approx. Initial Delivered Lumens at 25°C Ambient	Input Power Max Output 277V / 120V	Input Power Background Output 277V / 120V	
2DLG21L840-2-D	2,183	26W	85LPW										
2DLG27L840-2-D	2,839	29W	97LPW										
2DLG30L840-2-D	3,055	29W	105LPW										
2DLG34L840-2-D	3,546	38W	93LPW										
2DLG38L840-2-D	3,914	43W	92LPW	3,914	43W	16W / 15W	3,444	37W	14W / 13W	3,014	34W / 33W	13W / 12W	
2DLG44L840-2-D	4,511	51W	88LPW										

Fluorescent Configuration	Approx. Total Delivered Lumens	DuaLED Equivalent ⁹
2 lamp T8 31U6	3,500	2DLG34L8xx-2-D
2 lamp T8 31U1	3,900	2DLG38L8xx-2-D
3 lamp T8 31U1	5,500	n/a max. lumens would be 2DLG44L8xx-2-D
2 lamp T12 40U6	2,800	2DLG27L8xx-2-D
3 lamp T12 40U3	3,800	2DLG38L8xx-2-D

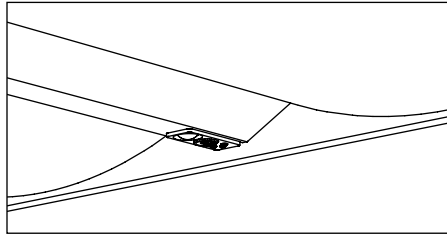
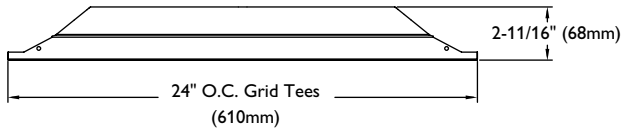
Fluorescent Configuration	Approx. Total Delivered Lumens	DuaLED Equivalent ⁹
2 lamp T8 17W	2,000	2DLG21L8xx-2-D
3 lamp T8 17W	2,850	2DLG27L8xx-2-D
4 lamp T8 17W	3,650	2DLG34L8xx-2-D
2 lamp CF40	4,800	2DLG44L8xx-2-D
3 lamp CF40	6,900	n/a, max. lumens would be 2DLG44L8xx-2-D

⁹DuaLED equivalent will provide similar delivered lumens and light levels. Analysis to determine appropriate light levels for the space is highly recommended.

¹⁰Medium power is the default setting. Users can change to high or low power using remote control when luminaires are grouped.

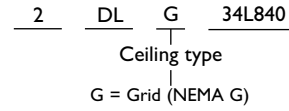
DUALED RECESSED LED 2X2

Dimensions

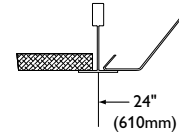


SpaceWise (SWZ) automated wireless technology is available for integrated occupancy and daylight harvesting. Individual options for dimming, occupancy detection, and daylight harvesting are also available if SpaceWise option is not selected.

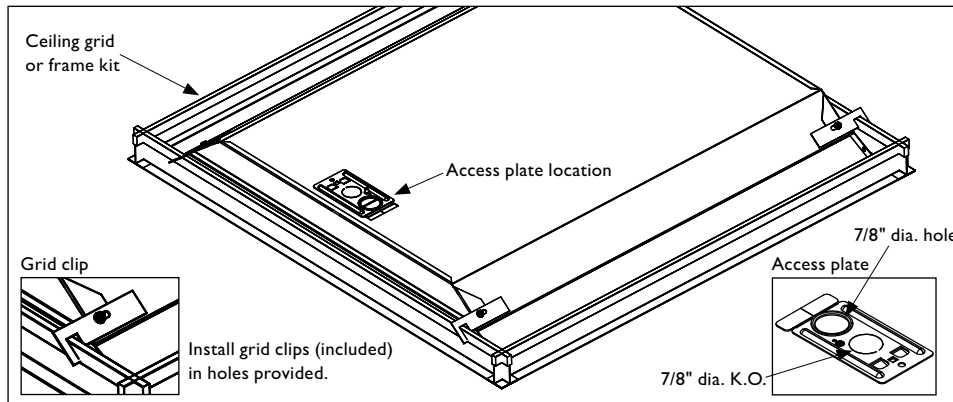
Ceiling Configuration



SIDE



(NEMA Type G)
Lay-in acoustical ceilings using exposed grid suspension, with tees for luminaires on 24" x 24" spacing.



DUALED RECESSED LED 2X2

Photometry

2x2 DuaLED, 2100 nominal delivered lumens

LER – 85

Catalog No.	2DLG21L840-2-D-UNV	Candlepower				Light Distribution			Average Luminance			
		Angle	End	45	Cross	Degrees	Lumens	% Luminaire	Angle	End	45°	Cross
Test No.	31712	0	759	759	759	0-30	589	27.0	45	2540	2598	2655
S/MH	1.3	5	757	755	756	0-40	965	44.2	55	2423	2505	2575
Lamp Type	26WLED	10	745	745	746	0-60	1708	78.3	65	2270	2380	2431
Lumens/Lamp	2183	15	727	727	731	0-90	2183	100.0	75	2020	2096	2127
Input Watts	25.8	20	702	705	710				85	1475	1650	1863
		25	673	677	682	Coefficients of Utilization						
Comparative yearly lighting energy cost per 1000 lumens – \$2.82 based on 3000 hrs. and \$.08 pwr KWH.		30	635	640	648	EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)						
		35	594	599	609	pcc	80	70	50			
		40	546	555	566	pw	70	50	30	70	50	30
		45	495	506	517	RCR						
		50	441	452	464	0	118	118	118	115	115	115
		55	383	396	407	1	109	104	98	106	101	96
		60	324	338	347	2	98	90	82	95	88	81
		65	264	277	283	3	90	79	70	86	78	69
		70	203	214	215	4	81	69	60	80	68	59
		75	144	149	152	5	75	61	53	72	60	53
		80	87	90	95	6	69	56	46	68	55	46
		85	35	40	45	7	65	51	41	63	50	41
The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.						8	59	46	38	58	46	38
						9	56	42	34	55	41	34
Photometric values based on test performed in compliance with LM-79.						10	53	39	30	51	39	30

2x2 DuaLED, 2700 nominal delivered lumens

LER – 97

Catalog No.	2DLG27L840-2-D-UNV	Candlepower				Light Distribution			Average Luminance			
		Angle	End	45	Cross	Degrees	Lumens	% Luminaire	Angle	End	45°	Cross
Test No.	31903	0	1044	1044	1044	0-30	810	28.5	45	3408	3498	3581
S/MH	1.3	5	1040	1038	1040	0-40	1323	46.6	55	3126	3263	3348
Lamp Type	29WLED	10	1024	1025	1025	0-60	2306	81.3	65	2700	2889	2930
Lumens/Lamp	2839	15	1000	1001	1005	0-90	2838	100.0	75	1966	2220	2307
Input Watts	29.4	20	965	969	976				85	888	1254	1450
		25	923	932	937	Coefficients of Utilization						
Comparative yearly lighting energy cost per 1000 lumens – \$2.47 based on 3000 hrs. and \$.08 pwr KWH.		30	871	878	889	EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)						
		35	809	818	833	pcc	80	70	50			
		40	739	754	769	pw	70	50	30	70	50	30
		45	664	681	697	RCR						
		50	582	602	617	0	118	118	118	115	115	115
		55	494	515	529	1	109	105	101	106	102	98
		60	405	427	437	2	100	92	84	96	90	83
		65	314	336	341	3	91	81	72	88	79	71
		70	224	244	247	4	82	70	63	81	69	61
		75	140	158	164	5	77	64	55	75	63	54
		80	69	85	93	6	70	57	48	68	56	47
		85	21	30	35	7	66	52	44	64	51	42
The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.						8	60	47	39	59	46	39
						9	56	44	35	56	42	34
Photometric values based on test performed in compliance with LM-79.						10	54	40	33	52	40	32

2x2 DuaLED, 3000 nominal delivered lumens

LER – 105

Catalog No.	2DLG30L840-2-D-24VDC	Candlepower				Light Distribution			Average Luminance			
		Angle	End	45	Cross	Degrees	Lumens	% Luminaire	Angle	End	45°	Cross
Test No.	31932	0	1129	1129	1129	0-30	873	28.6	45	3659	3740	3828
S/MH	1.3	5	1124	1123	1125	0-40	1424	46.6	55	3361	3477	3575
Lamp Type	29WLED	10	1106	1107	1109	0-60	2477	81.1	65	2911	3094	3184
Lumens/Lamp	3055	15	1082	1080	1086	0-90	3054	100.0	75	2130	2440	2564
Input Watts	29	20	1041	1045	1054				85	975	1446	1721
		25	994	1006	1011	Coefficients of Utilization						
Comparative yearly lighting energy cost per 1000 lumens – \$2.29 based on 3000 hrs. and \$.08 pwr KWH.		30	937	943	956	EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)						
		35	870	878	894	pcc	80	70	50			
		40	794	807	825	pw	70	50	30	70	50	30
		45	713	728	745	RCR						
		50	626	642	659	0	118	118	118	115	115	115
		55	531	549	565	1	109	105	100	106	102	98
		60	436	455	470	2	98	91	84	96	90	82
		65	339	360	371	3	91	80	71	88	79	70
		70	242	266	270	4	82	70	63	81	69	61
		75	152	174	183	5	77	64	55	73	63	54
		80	75	95	106	6	70	57	48	68	56	47
		85	23	35	41	7	66	52	44	64	51	42
The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.						8	60	47	39	59	46	39
						9	56	44	35	56	42	34
Photometric values based on test performed in compliance with LM-79.						10	54	40	33	52	40	32

DUALED RECESSED LED 2X2

2x2 DuaLED, 3400 nominal delivered lumens

LER – 93

Catalog No. 2DLG34L840-2-D-UNV Test No. 31369 S/MH 1.3 Lamp Type 38WLED Lumens/Lamp 3546 Input Watts 38.2 Comparative yearly lighting energy cost per 1000 lumens – \$2.58 based on 3000 hrs. and \$.08 pwr KWH. The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology. Photometric values based on test performed in compliance with LM-79.	Candlepower				Light Distribution			Average Luminance																																																																																																																																		
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2x2 DuaLED, 3800 nominal delivered lumens

LER – 92

Catalog No. 2DLG38L840-2-D-UNV Test No. 31370 S/MH 1.3 Lamp Type 43WLED Lumens/Lamp 3914 Input Watts 42.7 Comparative yearly lighting energy cost per 1000 lumens – \$2.61 based on 3000 hrs. and \$.08 pwr KWH. The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology. Photometric values based on test performed in compliance with LM-79.	Candlepower				Light Distribution			Average Luminance																																																																																																																																		
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2x2 DuaLED, 4400 nominal delivered lumens

LER – 88

Catalog No. 2DLG44L840-2-D-UNV Test No. 31371 S/MH 1.3 Lamp Type 51WLED Lumens/Lamp 4511 Input Watts 51 Comparative yearly lighting energy cost per 1000 lumens – \$2.73 based on 3000 hrs. and \$.08 pwr KWH. The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology. Photometric values based on test performed in compliance with LM-79.	Candlepower				Light Distribution			Average Luminance																																																																																																																																		
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DUALED RECESSED LED 2X2

Sample Applications

Spacing	Number of Luminaires	Model	Maintained Average Illumination in fc	Max./Min.	Input Power per lum.	Watts/ Sq. foot
Open Area						
8'x8'	15	2DLG27L840-2-D-UNV	33.08	2.17	29.4	0.459
		2DLG34L840-2-D-UNV	40.66	2.13	38.2	0.597
		2DLG38L840-2-D-UNV	44.89	2.13	42.7	0.667
		2DLG44L840-2-D-UNV	51.73	2.13	51.0	0.797
8'x10'	15	2DLG27L840-2-D-UNV	30.88	1.83	29.4	0.459
		2DLG34L840-2-D-UNV	38.04	1.80	38.2	0.597
		2DLG38L840-2-D-UNV	41.99	1.80	42.7	0.667
10'x10'	12	2DLG44L840-2-D-UNV	48.39	1.79	51.0	0.797
		2DLG27L840-2-D-UNV	24.79	2.06	29.4	0.367
		2DLG34L840-2-D-UNV	30.52	2.00	38.2	0.478
10'x12'	12	2DLG38L840-2-D-UNV	33.68	2.00	42.7	0.534
		2DLG44L840-2-D-UNV	38.82	2.00	51.0	0.637
		2DLG27L840-2-D-UNV	23.12	1.71	29.4	0.367
Corridor	9	2DLG34L840-2-D-UNV	28.52	1.65	38.2	0.478
		2DLG38L840-2-D-UNV	31.48	1.65	42.7	0.534
		2DLG44L840-2-D-UNV	36.29	1.66	51.0	0.637
Corridor						
12'	9	2DLG27L840-2-D-UNV	21.25	1.96	29.4	0.529
		2DLG34L840-2-D-UNV	25.85	1.91	38.2	0.688
		2DLG38L840-2-D-UNV	28.53	1.92	42.7	0.769
		2DLG44L840-2-D-UNV	32.88	1.91	51.0	0.918
14'	8	2DLG27L840-2-D-UNV	18.35	2.71	29.4	0.470
		2DLG34L840-2-D-UNV	22.31	2.59	38.2	0.611
		2DLG38L840-2-D-UNV	24.62	2.59	42.7	0.683
16'	7	2DLG44L840-2-D-UNV	28.37	2.60	51.0	0.816
		2DLG27L840-2-D-UNV	16.23	3.48	29.4	0.412
		2DLG34L840-2-D-UNV	19.74	3.30	38.2	0.535
		2DLG38L840-2-D-UNV	21.79	3.29	42.7	0.598
		2DLG44L840-2-D-UNV	25.11	3.31	51.0	0.714

Open Area:

The controlled high angle lighting distribution of DualLED provides diffuse uniform lighting in large spaces and creates significant vertical illumination. Wide luminaire spacing is possible.

A sample area:

40' long x 24' wide x 9' ceiling
80/50/20 reflectances
Calculation grid at 2.5'
Maintenance factors 0.85 LLD, 0.94 LDD, 0.799 LLF

Uniformity is excellent at 2.2 or less, even when moving to extended 10'x12' luminaire spacing. High delivered lumen options allow the extended spacing to provide IES recommended illumination levels for many tasks. Smooth, uniform lighting at recommended light levels with good vertical illumination is available with power density between 0.5 and 0.85 Watts per square foot, satisfying any known energy codes.

Corridor:

DualLED allows uniform corridor lighting with wide luminaire spacing and good vertical illumination with reduced scalloping.

A sample corridor:

100' long x 5' wide x 9' ceiling
80/50/20 reflectances
Calculation grid at 2.5'
Maintenance factors 0.85 LLD, 0.94 LDD, 0.799 LLF

Uniformity is excellent at less than 3 to 1 with 12' or 14' spacing and only 3.3 to 1 at extended 16' spacing. Smooth, uniform lighting at recommended light levels with good vertical illumination is available with power density less than 0.5 Watts per square foot.

