

## DESCRIPTION

The Optica HP series is an energy saving solution for new construction applications. It uses a high performance T8 system that can save over 60% of energy costs when compared to standard 3-lamp, 18-cell parabolics. The Optica HP series incorporates a 2" high, 12-cell louver combined with a precision engineered cross blade to create a soft, even distribution while delivering a highly efficient T8 luminaire. The Optica HP is compatible with all of today's popular ceiling systems and is available with a number of options and accessories for increased application versatility. The Optica HP series is an excellent choice for new commercial office spaces, schools, hospitals or retail merchandising areas.

## SPECIFICATION FEATURES

### Construction

4-3/4" deep, para-contoured housing, die formed code gauge, prime cold rolled steel. Full length die formed stiffeners for added strength. Contoured ballast/wireway cover, easily removed without tools. Die formed captive lampholder bracket fully encloses lampholder wiring permitting easy lampholder replacement. Heavy end plates, securely attached with interlocking tabs and screws. Four auxiliary fixture end suspension points provided. KOs for continuous row wiring. End plates have integral Grid-Lock feature for safety and convenience.

### Electrical\*\*

Ballasts are CBM/ETL Class "P" are positively secured by mounting bolts. Pressure lock lampholders. UL/CUL listed. Suitable for damp locations.

### Finish

Cold rolled steel w/multistage iron phosphate pretreatment for maximum bonding and a highly reflective matte white finish on reflective surfaces for increased efficiency.

### Optics

Die formed white louver w/faceted straight-blade cross-members are engineered for optimal efficiency and performance. True-cut mitered corners and interlocking features provide strength and durability. Louver is protected by polyethylene cover when shipped w/fixture.

Catalog #

Project

Comments

Prepared by

Type

Date

### Hinging/Latching

Positive cam action spring loaded, self locking, steel latches with safety lock T-hinges allow hinging and latching from either side.

### Controls

Fifth Light ballast options are offered for both 0-10V continuous dimming and DALI applications. Combine with energy-saving products like occupancy sensors, daylighting controls, and lighting relay panels from Cooper Controls ([www.cooperlighting.com](http://www.cooperlighting.com)) to maximize energy savings.

### Compliance

Options to meet Buy American and other domestic preference requirements.

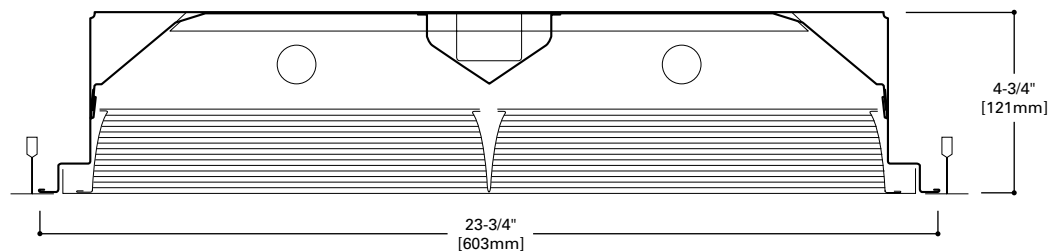


## OPTICA HP SERIES 228T8 232

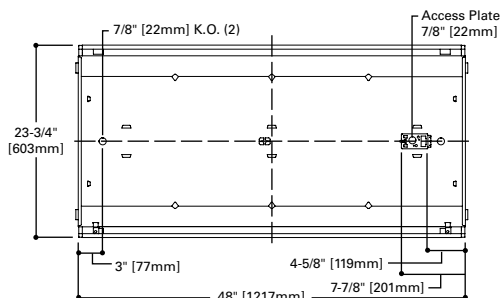
12 Cell

2' X 4'  
2 LAMP

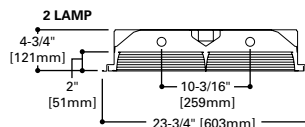
**OPTICA™**  
ARCHITECTURAL LIGHTING MEDIA



## MOUNTING DATA



## LAMP CONFIGURATIONS



## ENERGY DATA

Input Watts:  
**HB Ballast & HL Lamps**  
228T8 (48)  
232 (56)

Luminaire Efficacy Rating  
**LER = FP-84**  
Catalog Number: 20PG-232  
Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$2.86

\*Convertibility applies to housing only. Appropriate shielding media assemblies must be utilized.

\*\*Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements.

LAMPS CONTAIN MERCURY. DISPOSE ACCORDING TO LOCAL, STATE OR FEDERAL LAWS

**LINEAR DISCONNECT**

Safe and convenient means of disconnecting power.



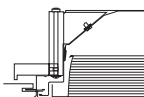
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December 1, 2021 11:21 AM

## CEILING COMPATIBILITY

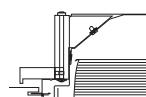
**G**  
Grid/Lay-in  
Standard



**F**  
Aluminum Flange Trim  
With Supporting  
Swing Gates



**MZ**  
Modular Trim  
With Supporting  
Swing Gates



**Ceiling  
Type**

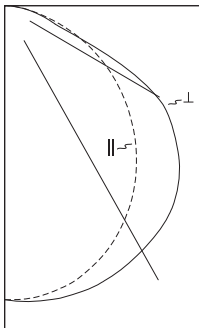
Exposed Grid  
Concealed T  
Slot Grid  
Flange  
Concealed "T" or "Z"  
Metal Pan

(Verify compatibility/ consult Pre Sales Technical Support.)

**Trim  
Type**

G  
G  
G  
F  
MZ  
MZ

PHOTOMETRICS



**2OPG-232-UNV**  
 Electronic Ballast  
 F32T8 32W lamps  
 3100 lumens.

Spacing criterion:  
 (II) 1.2 x mounting  
 height, (L) 1.4 x  
 mounting height.

Efficiency = 87.1%.

Test Report:  
 2OPG-232FB26W

LER = FP-84

Yearly Cost of 1000  
 lumens, 3000 hrs at  
 .08 KWH = \$2.86

**Coefficients of Utilization**

rc	Effective floor cavity reflectance																	
	80%				70%				20%									
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
<b>RCR</b>																		
<b>0</b>	104	104	104	104	101	101	101	101	97	97	97	93	93	93	89	89	89	87
<b>1</b>	95	91	87	84	93	89	86	83	85	83	80	82	80	78	79	77	75	74
<b>2</b>	87	80	74	69	84	78	73	68	75	70	66	72	68	65	69	66	64	62
<b>3</b>	79	70	63	57	77	69	62	57	66	60	56	64	59	55	61	57	54	52
<b>4</b>	72	62	54	48	70	61	54	48	59	52	47	56	51	47	55	50	46	44
<b>5</b>	66	55	47	42	65	54	47	41	52	46	41	51	45	40	49	44	40	38
<b>6</b>	61	50	42	36	60	49	41	36	47	41	36	46	40	35	44	39	35	33
<b>7</b>	57	45	37	32	55	44	37	32	43	36	32	42	36	31	40	35	31	29
<b>8</b>	53	41	33	28	51	40	33	28	39	33	28	38	32	28	37	32	28	26
<b>9</b>	49	37	30	25	48	37	30	25	36	30	25	35	29	25	34	29	25	23
<b>10</b>	46	35	28	23	45	34	27	23	33	27	23	32	27	23	32	26	23	21

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
<b>0-30</b>	1463	23.6	27.1
<b>0-40</b>	2425	39.1	44.9
<b>0-60</b>	4397	70.9	81.4
<b>0-90</b>	5400	87.1	100.0
<b>90-180</b>	0	0.0	0.0
<b>0-180</b>	5400	87.1	100

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
<b>20 x 20</b>	60	66	60	63
<b>30 x 30</b>	59	60	59	61
<b>30 x 60</b>	55	56	57	58
<b>60 x 30</b>	63	64	63	64
<b>60 x 60</b>	58	58	59	59

**Candela**

Angle	Along II	45°	Across L
<b>0</b>	1825	1825	1825
<b>5</b>	1823	1834	1844
<b>10</b>	1797	1823	1848
<b>15</b>	1755	1795	1838
<b>20</b>	1688	1751	1816
<b>25</b>	1607	1690	1781
<b>30</b>	1508	1617	1737
<b>35</b>	1397	1529	1689
<b>40</b>	1273	1432	1624
<b>45</b>	1141	1327	1530
<b>50</b>	1001	1206	1405
<b>55</b>	857	1062	1260
<b>60</b>	711	896	1051
<b>65</b>	562	720	649
<b>70</b>	407	480	333
<b>75</b>	263	250	235
<b>80</b>	155	149	145
<b>85</b>	73	68	62
<b>90</b>	0	0	0

## ORDERING INFORMATION

SAMPLE NUMBER: 2OPG-232FB26W-UNV-HB81-U

<b>Domestic Preferences</b> <sup>(12)</sup> <b>[Blank]</b> =Standard <b>BAA</b> =Buy American Act <b>TAA</b> =Trade Agreements Act	<b>Number of Lamps</b> <b>2</b> =2 Lamps  <b>Wattage (Length)</b> <b>28T8</b> =28W T8 (48") <sup>(4)</sup> <b>32</b> =32W T8 (48")	<b>Voltage</b> <sup>(2)</sup> <b>120V</b> =120 Volt <b>277V</b> =277 Volt <b>347V</b> =347 Volt <b>UNV</b> =Universal Voltage 120-277 <sup>(3)</sup>	<b>Ballast Type</b> <b>EB8</b> _ =T8 Electronic Start. Total Harmonic Distortion < 10% <b>EB8</b> _ / <b>PLUS</b> = T8 Electronic Start. Total Harmonic Distortion < 10%. High Ballast Factor > 1.15. <b>ER8</b> _ =T8 Electronic Program Rapid Start. Total Harmonic Distortion < 10% <b>High Performance T8 Ballasts</b> <b>HB8</b> _ =T8 Electronic Instant Start. Total Harmonic Distortion < 10%. Standard Ballast Factor .86 – .88 <b>HB8</b> _ <b>L</b> =T8 Electronic Instant Start. Total Harmonic Distortion < 10%. Low Ballast Factor .77 – .82 <b>HB8</b> _ <b>N</b> =T8 Electronic Instant Start. Total Harmonic Distortion < 10%. Normal Ballast Factor 1.0 <b>HB8</b> _ <b>H</b> =T8 Electronic Instant Start. Total Harmonic Distortion < 10%. High Ballast Factor 1.15 – 1.20 <b>HR8</b> _ <b>T8</b> Electronic Program Rapid Start. Total Harmonic Distortion < 10%. Standard Ballast Factor .86 – .88 <b>HR8</b> _ <b>DIM</b> =T8 Electronic Program Rapid Start. Total Harmonic Distortion < 10%. Step Dimming. Ballast Factor .88 <b>HR8</b> _ <b>L</b> =T8 Electronic Program Rapid Start. Total Harmonic Distortion < 10%. Low Ballast Factor .71 – .79 <b>HR8</b> _ <b>H</b> =T8 Electronic Program Rapid Start. Total Harmonic Distortion < 10%. High Ballast Factor 1.15 – 1.20 <b>0-10V Dimming Ballasts</b> <sup>(9)</sup> <b>5LTV8</b> _ =T8 0-10V Program Rapid Start. Total Harmonic Distortion < 10%. Ballast Factor 0.87 <sup>(11)</sup> <b>5LTVS8</b> _ =T8 0-10V Spec Grade Program Rapid Start. Total Harmonic Distortion < 10%. Ballast Factor 0.87 <sup>(10)</sup> <b>Fifth Light DALI Ballasts</b> <sup>(8)</sup> <b>5LT8</b> _ =T8 DALI Program Rapid Start. Total Harmonic Distortion < 10%. Ballast Factor 1.0	<b>Options</b> <b>R</b> =Internal Reflector  <b>Packaging</b> <b>U</b> =Unit Pack <b>PAL</b> =Job Pack, out of carton <b>PALC</b> =Job Pack, in carton								
<b>Rating</b> <b>Blank</b> =Standard	<b>Cross Blade</b> <b>FB</b> =Faceted Blade	<b>Options</b> <b>GL</b> =Single Element Fuse <b>GM</b> =Double Element Fuse <b>Flex</b> =Flex Installed (Reference Flex ordering information) <b>EL</b> =Emergency Installed <sup>(6), (12)</sup>	<b>Options</b> <b>GL</b> =Single Element Fuse <b>GM</b> =Double Element Fuse <b>Flex</b> =Flex Installed (Reference Flex ordering information) <b>EL</b> =Emergency Installed <sup>(6), (12)</sup>	<b>ACCESSORIES</b> <sup>(13)</sup> <b>EQ-CLIP-U</b> =T-BAR Safety Earthquake Clips <sup>(11)</sup>								
<b>Width</b> <b>2</b> =2' Width  <b>OP</b> =Optica HP Series	<b>Cell Configuration</b> <b>26</b> =2 Rows of 6, 12 Cell	<b>Lamps Installed</b> <b>Blank</b> =No Lamps Installed <b>L8835</b> =T8 Lamp, 28W and 32W, 3500K <sup>(4)</sup> <b>L8841</b> =T8 Lamp, 28W and 32W, 4100K <sup>(4)</sup> <b>L8835HL</b> =T8 Lamp, 32W, 3500K, 3100 Lumens <b>L8841HL</b> =T8 Lamp, 32W, 4100K, 3100 Lumens	<b>Lamps Installed</b> <b>Blank</b> =No Lamps Installed <b>L8835</b> =T8 Lamp, 28W and 32W, 3500K <sup>(4)</sup> <b>L8841</b> =T8 Lamp, 28W and 32W, 4100K <sup>(4)</sup> <b>L8835HL</b> =T8 Lamp, 32W, 3500K, 3100 Lumens <b>L8841HL</b> =T8 Lamp, 32W, 4100K, 3100 Lumens									
<b>Trim Type</b> <b>G</b> =Grid/Lay-in (Standard) <sup>(6)</sup> <b>F</b> =Aluminum Flange Trim <sup>(7)</sup> <b>MZ</b> =Modular Trim	<b>Louver Finish</b> <b>W</b> =Matte White  <b>Option – Aluminum Flange Trim</b> <sup>(7)</sup> <b>Blank</b> =SW (Single White) <table border="1"> <thead> <tr> <th>Type</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>'S' Single</td> <td>'N' Natural</td> </tr> <tr> <td>'R' In Row</td> <td>'W' White</td> </tr> <tr> <td>'E' End of Row</td> <td></td> </tr> </tbody> </table>	Type	Color	'S' Single	'N' Natural	'R' In Row	'W' White	'E' End of Row				
Type	Color											
'S' Single	'N' Natural											
'R' In Row	'W' White											
'E' End of Row												
<b>Number of Ballasts</b> <b>1</b> =1 Ballast <b>2</b> =2 Ballasts <b>3</b> =3 Ballasts												

**NOTES:** <sup>(1)</sup> An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. <sup>(2)</sup> Products also available in non-US voltages and frequencies for international markets. <sup>(3)</sup> Not available when specifying emergencies, voltage must be specific. <sup>(4)</sup> When utilizing 28W T8 lamps, HPT8 Ballast must be specified. <sup>(5)</sup> Fixtures equipped with "EL" option may require a 5-1/2" housing depth. If installing in field, must use low profile battery pack. <sup>(6)</sup> Louver is recessed by 5/16" in Concealed T or Slot Grid. <sup>(7)</sup> Specify row configuration, type in catalog number when ordering complete fixture. <sup>(8)</sup> For a complete listing of Fifthlight Technology products and other solutions from Cooper Controls, visit www.coopercontrol.com. <sup>(9)</sup> 0-10V ballast do not include DALI feature. Please select DALI ballast for use with Fifth Light system. <sup>(10)</sup> Specification grade 0-10V dimming ballast are NEMA premium and CEE listed. They are compatible with low mercury and energy saving lamps. <sup>(11)</sup> Standard 0-10V ballast not available for 28W T8 lamps. <sup>(12)</sup> Please specify required voltage, 120V or 277V.

<sup>(12)</sup> Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to **DOMESTIC PREFERENCES** website for more information. Components shipped separately may be separately analyzed under domestic preference requirements. <sup>(13)</sup> Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.

Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Solutions Representative for availability and ordering information.

## SHIPPING DATA

Catalog No.	Wt.
2OPG-228T8	28 lbs.
2OPG-232	28 lbs.