

# COOPER LIGHTING - METALUX®

## 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. 2OP-IC is designed for installations when the housing will be in direct contact with insulation. 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 for Type IC Recessed Luminaire (Rated for direct contact with insulation) 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.

### Hinging/Latching

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

### Optics

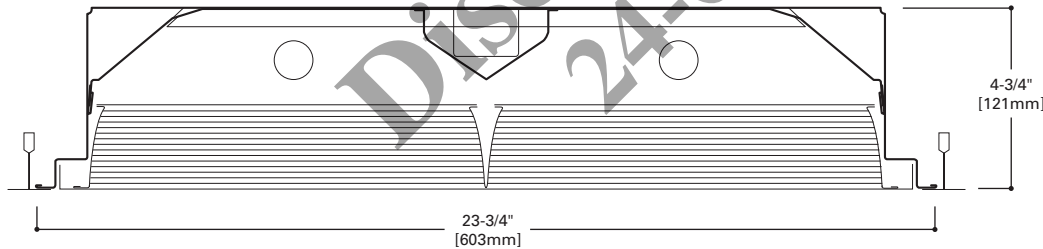
Die formed white louver w/faceted straight-blade cross-members are engineered for optimal efficiency and performance. True-cut mitered corners and interlocking features provide strength and durability. Louver is protected by polyethylene cover when shipped w/fixture.

### Controls

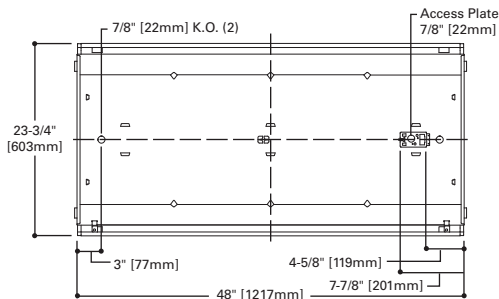
Fifth Light ballast options are offered for both 0-10V continuous dimming and DALI applications. Combine with energy-saving products like occupancy sensors, daylighting controls, and lighting relay panels from Cooper Controls ([www.cooperlighting.com](http://www.cooperlighting.com)) to maximize energy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

### Compliance

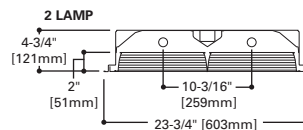
Options to meet Buy American and other domestic preference requirements.



## MOUNTING DATA



## LAMP CONFIGURATIONS



## CEILING COMPATIBILITY

G Grid/Lay-in Standard	F Aluminum Flange Trim With Supporting Swing Gates	MZ Modular Trim With Supporting Swing Gates	Ceiling Type	Trim Type
			Exposed Grid	G
			Concealed T	G
			Slot Grid	G
			Flange	F
			Concealed "T" or "Z"	MZ
			Metal Pan	MZ
			(Verify compatibility/ consult Pre Sales Technical Support.)	



Catalog #	Type
Project	
Comments	Date
Prepared by	



**2OP-IC**  
**228T8**  
**232**

**12 Cell**

**2' X 4'**  
**2 LAMP**  
**FOR USE IN**  
**INSULATED CEILINGS**

**OPTICA™**  
ARCHITECTURAL LIGHTING MEDIA



## ENERGY DATA

Input Watts:

## HB Ballast & HL Lamps

228T8 (48)

232 (56)

Luminaire Efficacy Rating

**LER = FP-84**

**Catalog Number: 2OPG-IC-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**

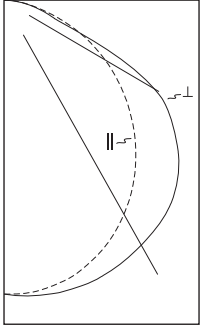
**LINEAR DISCONNECT**

Safe and convenient means of disconnecting power.

ADF110361



## PHOTOMETRICS


**2OPG-IC-232-UNV**  
 Electronic Ballast

 F32T8 32W lamps  
 3100 lumens.

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

Efficiency = 87.1%.

 Test Report:  
 2OPG-IC-232FB26W

LER = FP-84

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

## Coefficients of Utilization

Effective floor cavity reflectance										20%								
rc	80%				70%				50%			30%			10%			0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	104	104	104	104	101	101	101	101	97	97	97	93	93	93	89	89	89	87
1	95	91	87	84	93	89	86	83	85	83	80	82	80	78	79	77	75	74
2	87	80	74	69	84	78	73	68	75	70	66	72	68	65	69	66	64	62
3	79	70	63	57	77	69	62	57	66	60	56	64	59	55	61	57	54	52
4	72	62	54	48	70	61	54	48	59	52	47	56	51	47	55	50	46	44
5	66	55	47	42	65	54	47	41	52	46	41	51	45	40	49	44	40	38
6	61	50	42	36	60	49	41	36	47	41	36	46	40	35	44	39	35	33
7	57	45	37	32	55	44	37	32	43	36	32	42	36	31	40	35	31	29
8	53	41	33	28	51	40	33	28	39	33	28	38	32	28	37	32	28	26
9	49	37	30	25	48	37	30	25	36	30	25	35	29	25	34	29	25	23
10	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
0-30	1463	23.6	27.1
0-40	2425	39.1	44.9
0-60	4397	70.9	81.4
0-90	5400	87.1	100.0
90-180	0	0.0	0.0
0-180	5400	87.1	100

## Typical VCP Percentages

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

## Candela

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

## ORDERING INFORMATION

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

<b>Domestic Preferences</b> <sup>(13)</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>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> __=T8 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>Wattage (Length)</b> <b>28T8</b> =28W T8 (48") <sup>(4)</sup> <b>32</b> =32W T8 (48")	<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>(5), (12)</sup>	<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>Cross Blade</b> <b>FB</b> =Faceted Blade
<b>Width</b> <b>2</b> =2' Width	<b>Cell Configuration</b> <b>26</b> =2 Rows of 6, 12 Cell	<b>Louvers Finish</b> <b>W</b> =Matte White	<b>Option – Aluminum Flange Trim</b> <sup>(7)</sup> <b>Blank</b> =SW (Single White) <b>Type</b> <b>Color</b> 'S' Single 'N' Natural 'R' In Row 'W' White 'E' End of Row	<b>ACCESSORIES</b> <sup>(14)</sup> <b>EQ-CLIP-U</b> =T-BAR Safety Earthquake Clips <sup>(1)</sup>	
<b>OP</b> =Optica HP Series			<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](http://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>(13)</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](http://DOMESTIC.PREFERENCES) website for more information. Components shipped separately may be separately analyzed under domestic preference requirements. <sup>(14)</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 INFORMATION

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