



OpticaHP Series  
2HP Series  
Accord Series  
Ovation Series

# High Performance T8 Solutions

# Enhanced Illumination.... Lower Operating Costs

Working today to reduce energy costs does not mean that the quality of the lighting has to be sacrificed. Metalux has combined the latest T8 lamp and ballast technology with the newest recessed architectural products that not only enhance the work environment but will lower operating and maintenance costs.

The Accord™, Ovation™, OpticaHP and 2HP families provide exciting alternatives to traditional fluorescent recessed lighting products. Each family balances the lighting in the vertical and horizontal zones to give the space a softer, more comfortable feel. The combination of luminaire efficiency and a high performance T8 system allows the flexibility to meet a wide range of light levels with a two lamp system while providing significant reduction in energy usage.



# T8



Technology

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# Solutions



## Accord™

Distributing light throughout the space, the Accord eliminates uneven distribution and makes the room feel comfortable and inviting. Its smooth curved surfaces and matte white finish provide a design that is attractive but subtle in application.



## OpticaHP

Building on the Metalux Optica Series, the OpticaHP family combines a precision faceted blade design with new high efficient T8 technology to produce optimal performance and aesthetic styling.



## Ovation™

Carefully balanced design elements combine to provide an efficient and inviting high performance alternative to traditional general lighting. The Ovation utilizes a matte white indirect reflector and a perforated direct lamp shield to provide optimum brightness control.



## 2HP

Precision formed white or semi-specular louver that creates a soft, even distribution while delivering high efficiency. The 2HP luminaire is compatible with all of today's popular ceiling systems and is available with a number of options and accessories for increased application versatility.



# Maximizing Energy Savings

High Performance T8 systems allow the flexibility to tune the light output and energy usage by changing the luminaire ballast factor to adapt to needed light levels and energy requirements within an application. Using fewer lamps will help reduce future maintenance and recycling costs.

**COOPER Controls**  
 Combine HPT8 Step Dimming Ballasts with Cooper Control products for optimal energy savings.

## HPT8 Lamp Advantages

- Higher Lumens
- Longer Life
- Higher CRI Rating
- No Issues with Temperature or Dimming

## HPT8 Ballast Advantages

- Reduced Energy Consumption
- Flexible Light Output\*
- Instant and Program Start Designs

### HPT8 Lamping Advantages (4', T8 Lamps)

	32 Watt Standard	32 Watt High Performance	25/28/30 Watt Energy Saving
Initial Lumens	2750+	3100	2500+
Lamp Life	20,000+	24,000+	24,000+
Starting Temp. (°F)	0	-20	<b>60</b>
CRI	>75	>80	>80
Emergency	Yes	Yes	<b>Limited</b>
Dimming	Yes	Yes	<b>Limited</b>

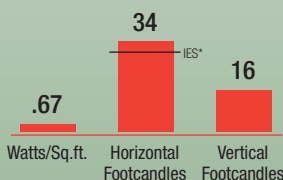
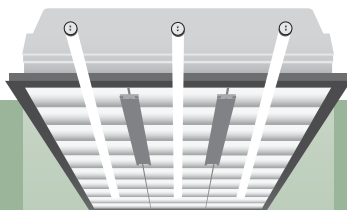
### Parabolic Comparison (3 Lamp vs. 2 Lamp HPT8)

Ballast	Ballast Factor	Light Levels	Energy Savings
HB81L, HR81L	.77 – .77	▼	▲
HB81, HR81	.88	=	▲
HB81N	1.0	=	▲
HB81H, HR81H	1.15 – 1.2	▲	▼

\* Also available with Step Dimming Ballasts for additional light output control.

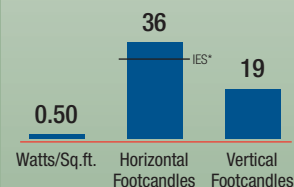
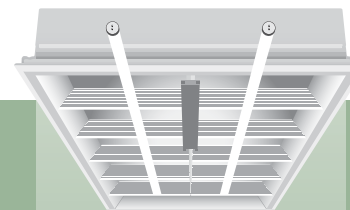
## Standard Parabolic

(3) 32W T8 Lamps, 12 Fixtures  
 Electronic Ballast (.87 Ballast Factor)  
 83 Watts per Fixture



## OpticaHP Parabolic

(2) 32W T8 Lamps, 12 Fixtures  
 Electronic Ballast (1.0 Ballast Factor)  
 62 Watts per Fixture



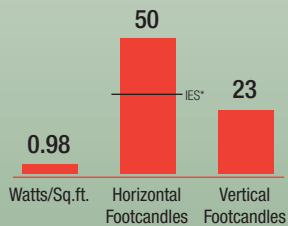
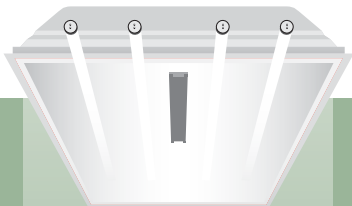
Based on:  
 Room Size: 50' x 30'  
 Ceiling Height: 10'  
 Work Plane: 2.5'  
 Reflectances: 80/50/20

\* IES recommends 30–35 footcandles in open office environments.



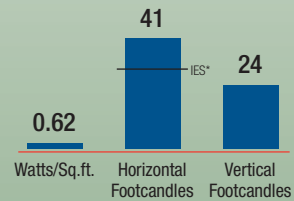
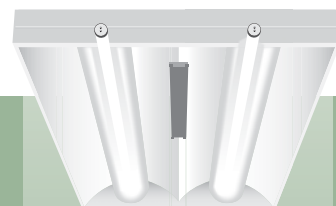
### Standard Troffer

(4) 32W T8 Lamps, 12 Fixtures  
 Electronic Ballast (.87 Ballast Factor)  
 122 Watts per Fixture



### Accord™

(2) 32W T8 Lamps, 12 Fixtures  
 Electronic Ballast (1.20 Ballast Factor)  
 77 Watts per Fixture



Based on:  
 Room Size: 50' x 30'  
 Ceiling Height: 10'  
 Work Plane: 2.5'  
 Reflectances: 80/50/20

\*IES recommends 30–35 footcandles in open office environments.

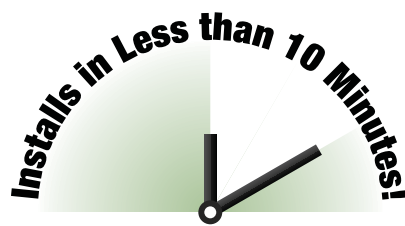
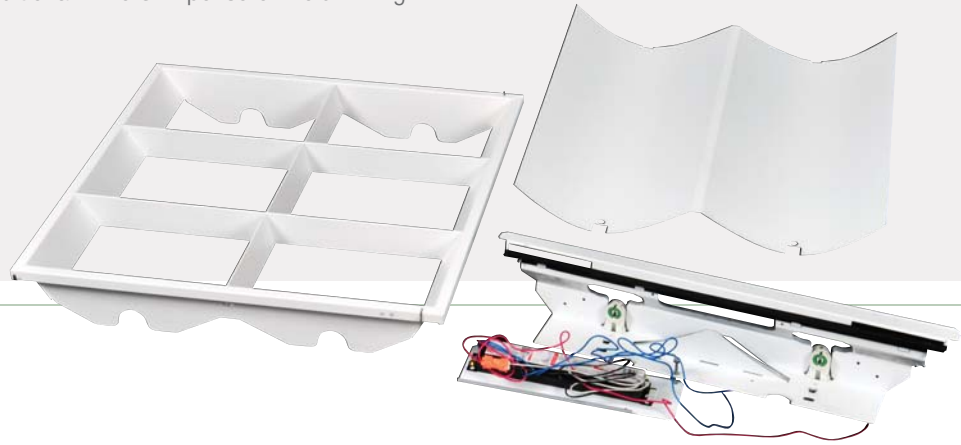
# OpticaHP Retrofit Kit

The OpticaHP retrofit kit has been designed to balance performance and energy savings in an environmentally friendly solution. The kit not only offers a visual improvement over traditional parabolics, there will be significant savings from lowered energy consumption and reduced maintenance. The OpticaHP is readily available in unit packs and, in order to optimize savings and further reduce waste, the kits are also available in bulk pack configurations that are recommended for larger jobs.



## Key Advantages of the OpticaHP Retrofit Kit:

- Lower Energy Costs: Save up to 40% Compared to Standard 3-Lamp Parabolics
- Improved Lighting: Even Delivery of Light that Eliminates Shadows
- Less Waste: Reusing Existing Housing results in Less Handling and a Lower Disposal Cost
- Pre-Wired Kits: Avoids Additional Time & Expense of Field Wiring



## OpticaHP Retrofit Kit Installation



1. Install the Socket Track Flange.



2. Secure Ballast and Socket Tracks.



3. Attach Supply Wires to Quick Disconnect.



### Lighting *before* OpticaHP

- Efficiency: 69.1%
- Input Watts: 86
- Lumens/Watt: .59.4
- Vertical Illumination: 1:2.5
- Lamp Life: 20,000 hours
- CRI (Color Rendering Index): >75



### Lighting *with* OpticaHP

- Efficiency: 87.6%
- Input Watts: 53
- Lumens/Watt: 88.5
- Vertical Illumination: 1:1.9
- Lamp Life: 24,000+ hours
- CRI (Color Rendering Index): >80



## Ordering Information

SAMPLE NUMBER: 20PRK-232-UNV-HB81L-4

<b>Width</b> 2=2' Nominal	<b>Number of Lamps</b> 2=2 lamps (Not Included)	<b>Voltage<sup>(1)</sup></b> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277	<b>Ballast Type<sup>(1)</sup></b> <b>HPT8 Ballast</b> <b>HB8_L=T8 Electronic Instant Start. Low Ballast Factor &gt;.71-.77</b> <b>HB8_=T8 Electronic Instant Start. Ballast Factor .88</b> <b>HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0</b> <b>HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2</b> <b>HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88</b> <b>HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77</b> <b>HR8_=T8 Electronic Program Start. Ballast Factor .88</b> <b>HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2</b>	<b>Packaging</b> <b>B=Bulk Pack, Palletized</b> (48" – 20 per Pallet) (24" – 40 per Pallet) <b>U=Unit Pack</b>  (For large jobs order Bulk Pack for maximum savings and reduced packaging waste)
<b>Series</b> OPRK=Optica HP Retrofit Kit	<b>Wattage (Length)</b> 17=17W T8 (24") 32=32W T8 (48") 28T8=28W T8 (48") <sup>(2)</sup>			

**NOTES:** <sup>(1)</sup>Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(2)</sup>When utilizing 28W T8 lamps, HPT8 Ballast must be specified. For complete product data, go to [www.metalux-lighting.com](http://www.metalux-lighting.com). Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.



4. Insert Reflector and attach to Socket Tracks (install lamps).



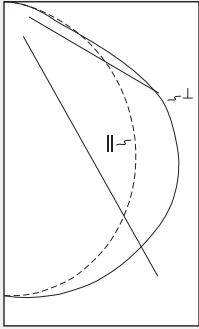
5. Position Louver Hinges into Existing Slots.



6. Secure Louver by engaging Spring Latches.



OpticaHP 2' x 4' Photometrics



2OPG-232-UNV

Electronic Ballast  
(2) 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-232FB26W.IES  
LER = FP-84

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

Coefficients of Utilization

rc	Effective floor cavity reflectance																							
	80%				70%				50%				30%				10%				0%			
	rw	70	50	30	10	70	50	30	10	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	87	87	87		
	1	95	91	87	84	93	89	86	83	85	83	80	82	80	78	79	77	75	74	74	74	74		
	2	87	80	74	69	84	78	73	68	75	70	66	72	68	65	69	66	64	62	62	62	62		
	3	79	70	63	57	77	69	62	57	66	60	56	64	59	55	61	57	54	52	52	52	52		
	4	72	62	54	48	70	61	54	48	59	52	47	56	51	47	55	50	46	44	44	44	44		
	5	66	55	47	42	65	54	47	41	52	46	41	51	45	40	49	44	40	38	38	38	38		
	6	61	50	42	36	60	49	41	36	47	41	36	46	40	35	44	39	35	33	33	33	33		
	7	57	45	37	32	55	44	37	32	43	36	32	42	36	31	40	35	31	29	29	29	29		
	8	53	41	33	28	51	40	33	28	39	33	28	38	32	28	37	32	28	26	26	26	26		
	9	49	37	30	25	48	37	30	25	36	30	25	35	29	25	34	29	25	23	23	23	23		
	10	46	35	28	23	45	34	27	23	33	27	23	32	27	23	32	26	23	21	21	21	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
0-180	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

Illuminance Estimator

Choose the spacing and ballast factor to determine the average footcandle and watts per square foot values. All calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from the content of the manufacturer's photometric files.

Illuminance Levels (FC) & Watts Per Sq. Ft. (LPD)

20PG-232FB26W

Based on 100 ft. x 100 ft. Open Room

Fixture Spacing	Ballast Factor		0.77		0.88		1.0		1.15	
	FC	LPD	FC	LPD	FC	LPD	FC	LPD	FC	LPD
	8' x 10'	46	0.58	52	0.64	60	0.74	69	0.88	
10' x 10'	38	0.48	43	0.53	49	0.62	57	0.73		
10' x 12'	31	0.38	35	0.42	40	0.50	46	0.58		

Ordering Information

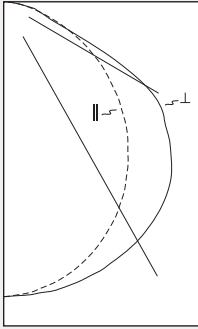
SAMPLE NUMBER: 20PG-232FB26W-UNV-HB81-U

<p><b>Rating</b> Blank=Standard</p>	<p><b>Number of Lamps</b> 2=2 Lamps</p>	<p><b>Voltage</b><sup>(2)</sup> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277<sup>(3)</sup></p>	<p><b>Ballast Type</b><sup>(2)</sup> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_=T8 Electronic Instant Start. Ballast Factor .88 HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_=T8 Electronic Program Start. Ballast Factor .88 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2</p>	<p><b>Options</b> R=Internal Reflector</p>	<p><b>Packaging</b> U=Unit Pack PAL=Job Pack, out of carton PALC=Job Pack, in carton</p>
<p><b>Width</b> 2=2' Width</p>	<p><b>Wattage (Length)</b> 28T8=28W T8 (48")<sup>(4)</sup> 32=32W T8 (48")</p>	<p><b>Options</b> GL=Single Element Fuse GM=Double Element Fuse Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed<sup>(5)</sup></p>	<p><b>Lamps Installed</b><sup>(8)</sup> Blank=No Lamps Installed L8835=T8 Lamp, 28W and 32W, 3500K<sup>(4)</sup> L8841=T8 Lamp, 28W and 32W, 4100K<sup>(4)</sup> L8835HL=T8 Lamp, 32W, 3500K, 3100 Lumens L8841HL=T8 Lamp, 32W, 4100K, 3100 Lumens</p>	<p><b>ACCESSORIES</b> EQ-CLIP-U=T-BAR Safety Earthquake Clips<sup>(1)</sup></p>	
<p>OP=Optica HP Series</p>	<p><b>Cross Blade</b> FB=Faceted Blade</p>				
<p><b>Trim Type</b> G=Grid/Lay-in (Standard)<sup>(6)</sup> F=Aluminum Flange Trim<sup>(7)</sup> MZ=Modular Trim</p>	<p><b>Cell Configuration</b> 26=2 Rows of 6, 12 Cell</p>				
	<p><b>Louver Finish</b> W=Matte White</p>				
	<p><b>Option - Aluminum Flange Trim</b><sup>(7)</sup> Blank=SW (Single White) Type Color 'S' Single 'N' Natural 'R' In Row 'W' White 'E' End of Row</p>				

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. Standard ballast configurations also available. <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> Other lamp options available.

For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

## OpticaHP 2' x 2' Photometrics



### 20PG-217FB23MW-UNV-EB81-U

Electronic Ballast  
(2) F17T8 17W lamps  
1450 lumens

Spacing criterion:  
(H) 1.2 x mounting height,  
(L) 1.4 x mounting height  
Efficiency = 82.5%

Test Report:  
OPG-217FB23MW.IES  
LER = FP-65

Yearly Cost of 1000  
lumens, 3000 hrs at .08  
KWH = \$3.69

### Coefficients of Utilization

rc	Effective floor cavity reflectance						20%								
	80%		70%		50%		30%		10%		0%				
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0
<b>RCR</b>															
0	98	98	98	98	96	96	96	96	92	92	92	88	88	88	82
1	90	87	83	80	88	85	82	79	81	79	76	78	76	74	70
2	82	76	70	66	80	74	69	65	71	67	64	69	65	62	59
3	75	67	60	55	73	65	59	55	63	58	54	61	56	53	50
4	69	59	52	47	67	58	51	46	56	50	46	54	49	45	43
5	63	53	46	40	62	52	45	40	50	44	40	49	43	39	37
6	58	48	40	35	57	47	40	35	45	39	35	44	38	34	32
7	54	43	36	31	53	42	36	31	41	35	31	40	34	30	29
8	50	39	32	28	49	39	32	27	38	32	27	37	31	27	25
9	47	36	29	25	46	36	29	25	35	29	25	34	28	24	23
10	44	33	27	22	43	33	27	22	32	26	22	31	26	22	21

### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	672	23.2	28.1
0-40	1108	38.2	46.3
0-60	1982	68.3	82.9
0-90	2392	82.5	100.0
90-180	0	0	0
0-180	2392	82.5	100.0

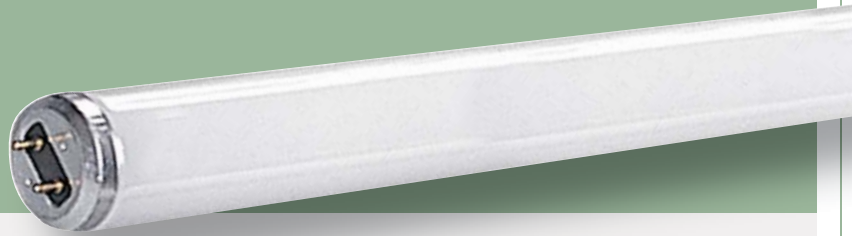
### Luminance Data

Angle In Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2361	2772	3249
55	2121	2657	3285
65	1775	2339	2010
75	1315	1303	1328
85	986	986	910

### Candela

Angle	Along H	45°	Across L
0	862	862	862
5	854	857	860
10	835	844	857
15	809	827	847
20	774	802	835
25	731	771	817
30	682	734	798
35	626	691	772
40	565	643	740
45	505	593	695
50	438	531	634
55	368	461	570
60	298	381	462
65	227	299	257
70	159	183	142
75	103	102	104
80	61	60	61
85	26	26	24
90	0	0	0

# OpticaHP



## Ordering Information

SAMPLE NUMBER: 20PG-217FB23W-UNV-HB81-U

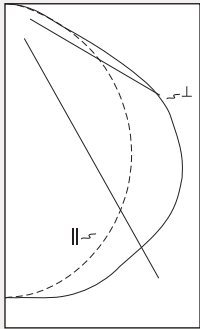
<b>Rating Blank</b> Standard	<b>Number of Lamps</b> 2=2 Lamps	<b>Voltage<sup>(2)</sup></b> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277 <sup>(3)</sup>	<b>Ballast Type<sup>(2)</sup></b> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_N=T8 Electronic Instant Start. Ballast Factor .88 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2	<b>Options</b> R=Internal Reflector (Not available for U1-5/8 lamp)	<b>Packaging</b> U=Unit Pack PAL=Job Pack, out of carton PALC=Job Pack, in carton
<b>Width</b> 2=2' Width	<b>Wattage (Length)</b> 17=17W T8 (24") U1-5/8=31W T8 (24")	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> R=Internal Reflector (Not available for U1-5/8 lamp)	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>
<b>OP=Optica HP Series</b>	<b>Cross Blade</b> FB=Faceted Blade	<b>Lamps Installed<sup>(7)</sup></b> L8835=T8 Lamp, 17W, 3500K L8841=T8 Lamp, 17W, 4100K	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>
<b>Trim Type</b> G=Grid/Lay-in (Standard) <sup>(6)</sup> F=Aluminum Flange Trim <sup>(6)</sup> MZ=Modular Trim	<b>Cell Configuration</b> 23=2 Rows of 3, 6 Cell	<b>Option - Aluminum Flange Trim<sup>(6)</sup></b> Blank=SW (Single White) Type Color 'S' Single 'N' Natural 'R' In Row 'W' White 'E' End of Row	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>
<b>OP=Optica HP Series</b>	<b>Louver Finish</b> W=Matte White	<b>ACCESSORIES</b> EQ-CLIP-U=T-BAR Safety Earthquake Clips <sup>(1)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(4)</sup>

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. Standard ballast configurations also available. <sup>(3)</sup> Not available when specifying emergencies, voltage must be specific. <sup>(4)</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>(5)</sup> Specify row configuration, type in catalog number when ordering complete fixture. <sup>(6)</sup> Louver is recessed by 5/16" in Concealed T or Slot Grid. <sup>(7)</sup> Other lamp options available.

For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.



## 2HP 2' x 4' Photometrics



### 2HP2-232W26P

Electronic Ballast  
 (2) F32T8/840 lamps  
 2850 lumens  
 Spacing criterion:  
 (II) 1.2 x mounting height,  
 (L) 1.4 x mounting height  
 Efficiency = 84.8%  
 Test Report:  
 2HP2-232W26PIES  
 LER = FP-79  
 Yearly Cost of 1000  
 lumens, 3000 hrs at .08  
 KWH = \$3.04

### Coefficients of Utilization

rc	Effective floor cavity reflectance																	
	80%				70%				20%									
	70	50	30	10	70	50	30	10	50	30	10	50	30	10				
0	101	101	101	101	99	99	99	99	94	94	94	90	90	90	87	87	87	85
1	93	89	85	82	90	87	84	81	83	81	78	80	78	76	77	75	74	72
2	84	78	72	67	82	76	71	67	73	69	65	70	67	64	68	65	62	60
3	77	68	62	56	75	67	61	56	65	59	55	62	58	54	60	56	53	51
4	71	61	53	48	69	59	53	47	57	51	47	55	50	46	54	49	45	44
5	65	54	47	41	63	53	46	41	51	45	40	50	44	40	48	43	39	38
6	60	49	41	36	58	48	41	35	46	40	35	45	39	35	43	38	35	33
7	55	44	37	31	54	43	36	31	42	36	31	41	35	31	40	35	31	29
8	52	40	33	28	50	40	33	28	38	32	28	37	32	28	36	31	27	26
9	48	37	30	25	47	36	30	25	35	29	25	34	29	25	33	28	25	23
10	45	34	27	23	44	33	27	23	33	27	23	32	26	22	31	26	22	21

### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1323	23.3	27.5
0-40	2200	38.6	45.5
0-60	3975	69.7	82.3
0-90	4833	84.8	100.0
0-180	4833	84.8	100.0

### Luminance Data

Angle In Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2331	2792	3312
55	2123	2747	3333
65	1782	2430	2266
75	1191	1318	1350
85	945	1059	1172

### Candela

Angle	Along II	45°	Across L
0	1674	1674	1674
5	1660	1673	1680
10	1625	1665	1697
15	1571	1646	1694
20	1502	1603	1667
25	1422	1543	1619
30	1331	1462	1585
35	1231	1374	1552
40	1120	1288	1501
45	1000	1198	1421
50	870	1090	1306
55	739	956	1160
60	604	797	967
65	457	623	581
70	316	400	301
75	187	207	212
80	112	123	135
85	50	56	62
90	0	0	0

### Illuminance Estimator

Choose the spacing and ballast factor to determine the average footcandle and watts per square foot values. All calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from the content of the manufacturer's photometric files.

### Illuminance Levels (FC) & Watts Per Sq. Ft. (LPD)

#### 2HP2GX-232W26P

Based on 100 ft. x 100 ft. Open Room

Fixture Spacing	Ballast Factor		0.77		0.88		1.0		1.15	
	FC	LPD	FC	LPD	FC	LPD	FC	LPD		
	8' x 10'	45	0.58	51	0.64	58	0.74	67	0.88	
10' x 10'	37	0.48	42	0.53	48	0.62	55	0.73		
10' x 12'	30	0.38	34	0.42	39	0.50	45	0.58		

## Ordering Information

SAMPLE NUMBER: 2HP2GX-232W26P-UNV-HB81H-U

<b>Rating</b> Blank=Standard NY=New York City Rated ATW-SW4=Chicago Rated  <b>HR</b> =Heat Removal <sup>(1)</sup>  <b>Width</b> 2=2' Width  <b>H</b> =High Performance  <b>P</b> =Paralux Louver  2=2" Louver Depth  <b>Trim Type</b> G=Grid/Lay-in (Standard) G or T=Concealed T G or T=Slot Grid <sup>(2)</sup> F=Aluminum Flange Trim <sup>(5)</sup> MZ=Modular Trim  <b>AX</b> =Air Supply Floating Louver <b>X</b> =Blank Side/Floating Louver - Non-Air Supply (Omit A) <b>AVX</b> =Air Supply Floating Louver with Directional Air Vane (Add V)	<b>Number of Lamps</b> 2 or 3 lamps  <b>Wattage (Length)</b> 28T8=28WT8 (48") <sup>(5)</sup> 32=32WT8 (48")  <b>Louver Color</b> W=White (Standard) S=Silver  <b>Cell Configuration</b> 26=2 Rows of 6, 12 Cell (2' x 4') 36=3 Rows of 6, 18 Cell (2' x 4')  <b>Louver Finish</b> P=Painted White (Standard) I=Semi-Specular/Haze (Low Iridescent) (Silver Only)  <b>Option - Aluminum Flange Trim<sup>(7)</sup></b> Blank=SW (Single White) Type Color 'S' Single 'N' Natural 'R' In Row 'W' White 'E' End of Row	<b>Voltage<sup>(3)</sup></b> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277 <sup>(4)</sup>  <b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed <sup>(8)</sup>  <b>Lamps Installed<sup>(8)</sup></b> Blank=No Lamps Installed L8835=T8 Lamp, 28W and 32W, 3500K <sup>(5)</sup> L8841=T8 Lamp, 28W and 32W, 4100K <sup>(5)</sup> L8835HL=T8 Lamp, 32W, 3500K, 3100 Lumens L8841HL=T8 Lamp, 32W, 4100K, 3100 Lumens	<b>Ballast Type<sup>(3)</sup></b> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_=T8 Electronic Instant Start. Ballast Factor .88 HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_=T8 Electronic Program Start. Ballast Factor .88 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2	<b>Options</b> RIF1=Radio Interference Suppressor 20GA/REP=20 Gauge Riveted Endplates. For use in New York City. RLS=Rotor-Lock Socket (T8 Lamps Only) (Additional options available)	<b>Packaging</b> U=Unit Pack PAL=Job Pack, out of carton PALC=Job Pack, in carton
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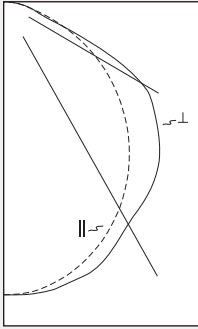
### ACCESSORIES

EQ-CLIP-U=T-BAR Safety Earthquake Clips<sup>(2)</sup>

**NOTES:** <sup>(1)</sup>Integral end plate grid lock feature not available in heat removal. <sup>(2)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. <sup>(3)</sup>Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(4)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(5)</sup>When utilizing 28W T8 lamps, HPT8 Ballast must be specified. <sup>(6)</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>(7)</sup>Specify row configuration, type in catalog number when ordering complete fixture. <sup>(8)</sup>Other lamp options available.

For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

## 2HP 2' x 2' Photometrics



### 2HP2-217W23P

Electronic Ballast

(2) F17T8/TL835 lamps  
1450 lumens

Spacing criterion:  
(H) 1.2 x mounting height,  
(L) 1.3 x mounting height

Efficiency = 81.9%

Test Report:  
2HP2-217W23PIES

LER = FP67

Yearly Cost of 1000  
lumens, 3000 hrs at .08  
KWH = \$3.58

### Coefficients of Utilization

rc	Effective floor cavity reflectance																	
	80%				70%				20%									
	50			30	50			30	50			30						
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
<b>RCR</b>																		
0	97	97	97	97	95	95	95	95	91	91	91	87	87	87	84	84	84	82
1	90	86	83	80	87	84	81	78	81	78	76	77	75	74	74	73	71	70
2	82	75	70	65	80	74	69	65	71	67	63	68	65	62	66	63	60	59
3	75	66	60	55	73	65	59	54	63	58	53	60	56	52	58	55	51	50
4	68	59	52	47	67	58	51	46	56	50	46	54	49	45	52	48	44	43
5	63	53	46	40	61	52	45	40	50	44	40	48	43	39	47	42	39	37
6	58	47	40	35	57	47	40	35	45	39	35	44	38	34	43	38	34	32
7	54	43	36	31	53	42	36	31	41	35	31	40	34	30	39	34	30	29
8	50	39	32	28	49	39	32	28	38	32	27	37	31	27	36	31	27	25
9	47	36	29	25	46	36	29	25	35	29	25	34	28	25	33	28	24	23
10	44	33	27	23	43	33	27	22	32	26	22	31	26	22	31	26	22	21

### Candela

Angle	Along H	45°	Across L
0	883	883	883
5	879	880	885
10	861	871	880
15	834	848	864
20	798	819	844
25	755	786	803
30	706	736	763
35	650	676	736
40	589	619	705
45	524	567	664
50	455	510	608
55	384	444	550
60	310	370	467
65	233	295	288
70	158	195	130
75	94	99	93
80	59	61	63
85	29	30	29
90	0	0	0

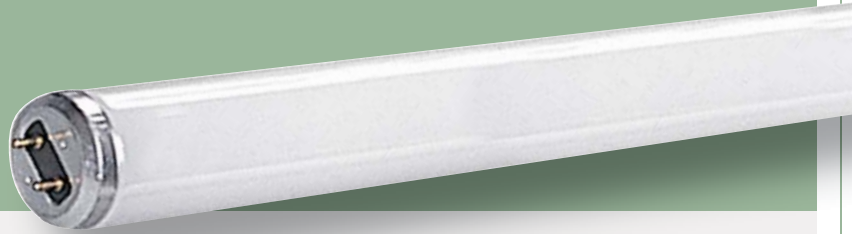
### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	683	23.6	28.8
0-40	1112	38.4	46.9
0-60	1963	67.7	82.7
0-90	2374	81.9	100.0
90-180	0	0	0
0-180	2374	81.9	100.0

### Luminance Data

Angle In Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2541	2750	3220
55	2296	2655	3288
65	1891	2394	2337
75	1245	1312	1232
85	1141	1180	1141

# 2HP



## Ordering Information

SAMPLE NUMBER: 2HP2GX-217W23P-UNV-HB81H-U

<p><b>Rating</b> Blank=Standard NY=New York City Rated ATW-SW4=Chicago Rated</p> <p><b>HR</b>=Heat Removal<sup>(1)</sup></p> <p><b>Width</b> 2=2' Width</p> <p><b>H</b>=High Performance</p> <p><b>P</b>=Paralux Louver</p> <p>2=2" Louver Depth</p> <p><b>Trim Type</b> G=Grid/Lay-in (Standard) G or T=Concealed T G or T=Slot Grid<sup>(2)</sup> F=Aluminum Flange Trim<sup>(6)</sup> MZ=Modular Trim</p> <p><b>AX</b>=Air Supply Floating Louver <b>X</b>=Blank Side/Floating Louver - Non-Air Supply (Omit A) <b>AVX</b>=Air Supply Floating Louver with Directional Air Vane (Add V)</p>	<p><b>Number of Lamps</b> 2 lamps</p> <p><b>Wattage (Length)</b> U1=17W T8 (24") U1-5/8=31WT8 (24")</p> <p><b>Louver Color</b> W=White (Standard) S=Silver</p> <p><b>Cell Configuration</b> 23=2 Rows of 3, 6 Cell (2' x 2') 33=3 Rows of 3, 9 Cell (2' x 2')</p> <p><b>Louver Finish</b> P=Painted White (Standard) I=Semi-Specular/Haze (Low Iridescent) (Silver Only)</p> <p><b>Option - Aluminum Flange Trim<sup>(6)</sup></b> Blank=SW (Single White) Type Color 'S' Single 'N' Natural 'R' In Row 'W' White 'E' End of Row</p>	<p><b>Voltage<sup>(3)</sup></b> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277<sup>(4)</sup></p> <p><b>Options</b> GL=Single Element Fuse GM=Double Element Fuse WTR=White Reveal Flex=Flex Installed (Reference Flex ordering information) EL=Emergency Installed<sup>(5)</sup></p> <p><b>Lamps Installed<sup>(7)</sup></b> Blank=No Lamps Installed L8835=T8 Lamp, 17W, 3500K L8841=T8 Lamp, 17W, 4100K</p>	<p><b>Ballast Type<sup>(3)</sup></b> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_=T8 Electronic Instant Start. Ballast Factor .88 HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HB8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HB8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HB8_=T8 Electronic Program Start. Ballast Factor .88 HB8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2</p>	<p><b>Options</b> RIF1=Radio Interference Suppressor 20GA/REP=20 Gauge Riveted Endplates. For use in New York City. RLS=Rotor-Lock Socket (T8 Lamps Only) (Additional options available)</p>	<p><b>Packaging</b> U=Unit Pack PAL=Job Pack, out of carton PALC=Job Pack, in carton</p>
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### ACCESSORIES

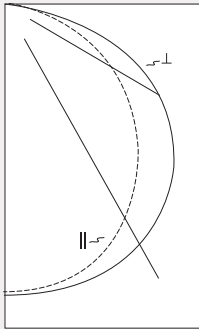
EQ-CLIP-U=T-BAR Safety Earthquake Clips<sup>(2)</sup>

**NOTES:** <sup>(1)</sup> Integral end plate grid lock feature not available in heat removal. <sup>(2)</sup> An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. <sup>(3)</sup> Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(4)</sup> Not available when specifying emergencies, voltage must be specific. <sup>(5)</sup> Specify row configuration, type in catalog number when ordering complete fixture. <sup>(6)</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>(7)</sup> Other lamp options available.

For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.



Ovation 2' x 4' Photometrics



2RDI-232RP

Electronic Ballast  
 (2) F032/830/XP3 lamps  
 3100 lumens  
 Spacing criterion:  
 (H) 1.2 x mounting height,  
 (L) 1.4 x mounting height  
 Efficiency = 70.7%  
 Test Report:  
 2RDI232RPIES  
 LER = FL61  
 Yearly Cost of 1000  
 lumens, 3000 hrs at .08  
 KWH = \$3.93

Coefficients of Utilization

rc	Effective floor cavity reflectance								20%															
	80%				70%				50%				30%				10%				0%			
	rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR	0	84	84	84	84	82	82	82	82	79	79	79	75	75	75	72	72	72	71					
	1	77	73	70	67	75	71	68	66	68	66	64	66	64	62	63	61	60	58					
	2	69	63	58	54	67	62	57	53	59	55	52	57	54	51	55	52	50	48					
	3	63	55	49	44	61	54	48	44	52	47	43	50	46	42	48	45	42	40					
	4	57	49	42	37	56	48	42	37	46	41	36	44	40	36	43	39	35	34					
	5	53	43	37	32	51	42	36	32	41	35	31	39	35	31	38	34	31	29					
	6	48	39	32	28	47	38	32	27	37	31	27	36	31	27	34	30	27	25					
	7	45	35	29	24	44	34	28	24	33	28	24	32	27	24	31	27	24	22					
	8	42	32	26	21	41	31	25	21	30	25	21	30	25	21	29	24	21	20					
	9	39	29	23	19	38	29	23	19	28	23	19	27	22	19	26	22	19	18					
	10	36	27	21	17	36	27	21	17	26	21	17	25	20	17	24	20	17	16					

Candela

Angle	Along H	45°	Across L
0	1372	1372	1372
5	1367	1370	1374
10	1348	1357	1365
15	1316	1334	1351
20	1273	1302	1332
25	1216	1261	1304
30	1148	1212	1271
35	1071	1156	1231
40	984	1092	1182
45	889	1021	1125
50	785	941	1053
55	678	853	958
60	564	753	846
65	448	632	702
70	335	498	539
75	232	342	384
80	139	205	228
85	58	85	94
90	0	0	0

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1089	17.6	24.8
0-40	1811	29.2	41.3
0-60	3339	53.9	76.2
0-90	4384	70.7	100.0
0-180	4384	70.7	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	1801	2068	2279
55	1693	2130	2393
65	1519	2142	2380
75	1284	1893	2125
85	953	1397	1545

Illuminance Estimator

Choose the spacing and ballast factor to determine the average footcandle and watts per square foot values. All calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from the content of the manufacturer's photometric files.

Illuminance Levels (FC) & Watts Per Sq. Ft. (LPD)

2RDI-232RP Based on 100 ft. x 100 ft. Open Room

Fixture Spacing	Ballast Factor		0.77		0.88		1.0		1.15	
	FC	LPD	FC	LPD	FC	LPD	FC	LPD	FC	LPD
	8' x 10'	37	0.58	42	0.64	48	0.74	55	0.88	
10' x 10'	31	0.48	35	0.53	40	0.62	46	0.73		
10' x 12'	25	0.38	28	0.42	32	0.50	37	0.58		

Ordering Information

SAMPLE NUMBER: 2RDI-232RP-UNV-HB81-U

<p><b>Width</b> 2=2' Width</p>	<p><b>Series</b> RDI=Ovation Series (Recessed Direct/Indirect)</p>	<p><b>Trim Type</b> Leave Blank=Grid/Lay-in (Standard)</p>	<p><b>Lamp Position</b> Leave Blank=Center Mounted Lamps (Standard) S=Side Mounted Lamps ASY=Asymmetric</p>	<p><b>Number of Lamps</b> 1=1 Lamp 2=2 Lamp 3=3 Lamp</p>	<p><b>Wattage</b> 28T8=28W T8 (48")<sup>(7)</sup> 32=32W T8 (48")</p>	<p><b>Lamp Shield</b> X=Solid Matte White RP=Round Perforated White Steel RP/TBW=Round Perforated White Steel w/Thin Blade White Baffle<sup>(1)</sup> RP/PLI=Round Perforated White Steel w/Semi-Specular Parabolic Baffle<sup>(1)</sup> RP/PLMI=Round Perforated White Steel w/Specular Parabolic Baffle<sup>(1)</sup> RPD=Round Perforated Steel Below Ceiling Lamp Shield<sup>(4)</sup> RPD/TBW=Round Perforated Steel Below Ceiling Lamp Shield w/Thin Blade White Baffle FLS=Frosted Lamp Shield<sup>(1)</sup> SLS=Split Lamp Shield<sup>(1)</sup></p>	<p><b>Debris Shield</b><sup>(5)</sup> /DS=Debris Shield</p>	<p><b>Voltage</b><sup>(2)</sup> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277<sup>(3)</sup></p>	<p><b>Options</b> GL=Single Element Fuse GM=Double Element Fuse Flex=Flex Installed EL=Emergency Installed</p>	<p><b>Lamps Installed</b><sup>(6)</sup> Blank=No Lamps Installed L8835=T8 Lamp, 28W and 32W, 3500K<sup>(7)</sup> L8841=T8 Lamp, 28W and 32W, 4100K<sup>(7)</sup> L8835HL=T8 Lamp, 32W, 3500K, 3100 Lumens L8841HL=T8 Lamp, 32W, 4100K, 3100 Lumens</p>	<p><b>Ballast Type</b><sup>(2)</sup> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_=T8 Electronic Instant Start. Ballast Factor .88 HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_=T8 Electronic Program Start. Ballast Factor .88 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2</p>	<p><b>Options</b> RLS=Rotor-Lock Socket (T8 Lamps Only) RIF1=Radio Interference Suppressor REP=Riveted Endplates LSC=Lamp Shield Cable ST=Semi-Specular Tannenbaum (other options available)</p>	<p><b>Packaging</b> U=Unit Pack PALC=Palletized Fixtures in Carton</p>
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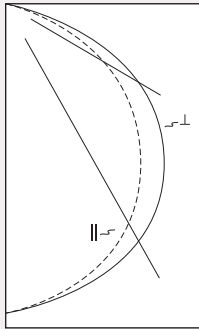
ACCESSORIES

EQ=T-BAR Safety Earthquake Clips<sup>(8)</sup>  
 DF-24-W=Drywall Frame Kit (Order Individually as Accessory)

NOTES: <sup>(1)</sup>2' x 2' and 2' x 4' Center Lamp Shield models only. <sup>(2)</sup>Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(3)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(4)</sup>Not available with emergency battery pack. <sup>(5)</sup>Only compatible with X, FLS and RP lamp shields. <sup>(6)</sup>Other lamp options available. <sup>(7)</sup>When utilizing 28W T8 lamps, HPT8 Ballast must be specified. <sup>(8)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture.

For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

## Ovation 2' x 2' Photometrics



### 2RDI-217RP

Electronic Ballast

(2) FO17/35K lamps  
1300 lumens

Spacing criterion:  
(H) 1.3 x mounting height,  
(L) 1.4 x mounting height

Efficiency = 64.6%

Test Report:  
2RDI217RP.IES

LER = FP

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

### Coefficients of Utilization

rc	Effective floor cavity reflectance																			
	80%				70%				20%											
	50	30	10	0	50	30	10	0	50	30	10	0								
rw	70	50	30	10	70	50	30	10	50	30	10	0	50	30	10	0	50	30	10	0
RCR	0	77	77	77	77	75	75	75	75	72	72	72	69	69	69	66	66	66	65	
	1	70	67	64	62	69	66	63	61	63	61	59	60	59	57	58	57	56	54	
	2	64	59	54	50	62	57	53	50	55	52	49	53	50	48	51	49	46	45	
	3	58	51	46	42	57	50	45	41	48	44	41	47	43	40	45	42	39	38	
	4	53	45	40	35	52	45	39	35	43	38	35	41	37	34	40	37	34	32	
	5	49	41	35	30	48	40	34	30	38	34	30	37	33	30	36	32	29	28	
	6	45	36	31	26	44	36	30	26	35	30	26	34	29	26	33	29	26	24	
	7	42	33	27	23	41	33	27	23	31	27	23	31	26	23	30	26	23	21	
	8	39	30	25	21	38	30	24	21	29	24	21	28	24	20	27	23	20	19	
	9	36	28	22	19	35	27	22	19	26	22	19	26	21	18	25	21	18	17	
	10	34	25	20	17	33	25	20	17	24	20	17	24	20	17	23	19	17	15	

### Candela

Angle	Along H	45°	Across L
0	576	576	576
5	576	575	576
10	569	570	571
15	555	558	562
20	536	542	550
25	511	522	533
30	482	497	513
35	447	469	490
40	408	437	461
45	365	401	428
50	318	361	391
55	268	317	346
60	217	270	293
65	166	219	235
70	120	163	177
75	80	108	124
80	45	63	70
85	19	24	24
90	0	0	0

### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	453	17.4	27.0
0-40	746	28.7	44.4
0-60	1332	51.2	79.3
0-90	1680	64.6	100.0
0-180	1680	64.6	100.0

### Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	1570	1724	1841
55	1421	1679	1834
65	1197	1576	1692
75	938	1264	1453
85	656	827	852

# Ovation



## Ordering Information

SAMPLE NUMBER: 2RDI-217RP-UNV-HB81-U

<b>Width</b> 2=2' Width	<b>Wattage</b> 17=17W T8 (24")	<b>Voltage</b> <sup>(2)</sup> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277 <sup>(3)</sup>	<b>Ballast Type</b> <sup>(2)</sup> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_M=T8 Electronic Instant Start. Ballast Factor .88 HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_M=T8 Electronic Program Start. Ballast Factor .88 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2	<b>Options</b> RLS=Rotor-Lock Socket (T8 Lamps Only) RIF1=Radio Interference Suppressor REP=Riveted Endplates LSC=Lamp Shield Cable ST=Semi-Specular Tannenbaum (other options available)
<b>Series</b> RDI=Ovation Series (Recessed Direct/Indirect)	<b>Lamp Shield</b> X=Solid Matte White RP=Round Perforated White Steel RP/TBW=Round Perforated White Steel w/Thin Blade White Baffle <sup>(1)</sup> RP/PLI=Round Perforated White Steel w/Semi-Specular Parabolic Baffle <sup>(1)</sup> RP/PLMI=Round Perforated White Steel w/Specular Parabolic Baffle <sup>(1)</sup> RPD=Round Perforated Steel Below Ceiling Lamp Shield <sup>(4)</sup> RPD/TBW=Round Perforated Steel Below Ceiling Lamp Shield w/Thin Blade White Baffle FLS=Frosted Lamp Shield <sup>(1)</sup> SLS=Split Lamp Shield <sup>(1)</sup>	<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse Flex=Flex Installed EL=Emergency Installed	<b>Options</b> U=Unit Pack PALC=Palletized Fixtures in Carton	
<b>Trim Type</b> Leave Blank=Grid/Lay-in (Standard)	<b>Debris Shield</b> <sup>(5)</sup> /DS=Debris Shield	<b>Lamps Installed</b> <sup>(6)</sup> L8835=T8 Lamp, 17W and 32W, 3500K L8841=T8 Lamp, 17W and 32W, 4100K		
<b>Lamp Position</b> Leave Blank=Center Mounted Lamps (Standard) S=Side Mounted Lamps ASY=Asymmetric				
<b>Number of Lamps</b> 1=1 Lamp 2=2 Lamp 3=3 Lamp				

### ACCESSORIES

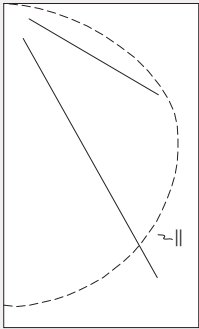
EQ=T-BAR Safety Earthquake Clips<sup>(7)</sup>  
DF-22-W=Drywall Frame Kit (Order Individually as Accessory)

NOTES: <sup>(1)</sup>2' x 2' and 2' x 4' Center Lamp Shield models only. <sup>(2)</sup>Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(3)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(4)</sup>Not available with emergency battery pack. <sup>(5)</sup>Only compatible with X, FLS and RP lamp shields. <sup>(6)</sup>Other lamp options available. <sup>(7)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture.

For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.



Accord 2' x 4' Photometrics



**2AC-232-UNV-EB81**

Electronic Ballast  
 (2) F32T8/835 Lamps  
 3100 Lumens each  
 Spacing criterion:  
 (H) 1.3 x mounting height,  
 (L) 1.5 x mounting height  
 Efficiency 84.9%  
 Test Report:  
 2AC-232-UNV-EB81.IES  
 LER = FL80 LPW  
 Yearly Cost of 1000  
 lumens, 3000 hrs at .08  
 KWH = \$2.90

**Coefficients of Utilization**

rc	Effective floor cavity reflectance						20%								
	80%			70%			50%		30%		10%		0%		
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0
<b>RCR</b>															
0	101	101	101	101	99	99	99	99	94	94	94	90	90	90	85
1	92	87	83	80	89	85	82	79	82	79	76	78	76	74	70
2	83	75	69	64	81	74	68	63	71	66	62	68	64	60	57
3	75	66	58	53	73	64	57	52	62	56	51	59	54	50	47
4	69	58	50	44	66	57	49	44	54	48	43	52	47	42	40
5	63	51	43	38	61	50	43	37	49	42	37	47	41	36	34
6	58	46	38	33	56	45	38	32	44	37	32	42	36	32	30
7	54	42	34	29	52	41	34	28	40	33	28	38	32	28	26
8	50	38	30	25	48	37	30	25	36	30	25	35	29	25	23
9	46	35	28	23	45	34	27	23	33	27	22	32	26	22	21
10	44	32	25	20	42	32	25	20	31	25	20	30	24	20	19

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	1279	20.6	24.3
0-40	2127	34.3	40.4
0-60	3942	63.6	74.9
0-90	5266	84.9	100.0
0-180	5266	84.9	100.0

**Luminance Data**

Angle In Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2186	2425	2628
55	2115	2513	2830
65	1996	2651	2902
75	1743	2524	2574
85	1331	1939	1857

**Candela**

Angle	Along H	45°	Across L
0	1613	1613	1613
5	1605	1610	1616
10	1585	1594	1604
15	1550	1568	1585
20	1501	1530	1557
25	1439	1482	1520
30	1365	1424	1476
35	1279	1357	1424
40	1183	1281	1365
45	1079	1197	1297
50	966	1106	1220
55	847	1006	1133
60	722	898	1021
65	589	782	856
70	452	634	663
75	315	456	465
80	187	280	277
85	81	118	113
90	0	0	0

**Illuminance Estimator**

Choose the spacing and ballast factor to determine the average footcandle and watts per square foot values. All calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from the content of the manufacturer's photometric files.

**Illuminance Levels (FC) & Watts Per Sq. Ft. (LPD)**

**2AC-232**

Based on 100 ft. x 100 ft. Open Room

Fixture Spacing	Ballast Factor		0.77		0.88		1.0		1.15	
	FC	LPD	FC	LPD	FC	LPD	FC	LPD	FC	LPD
	8' x 10'	44	0.58	51	0.64	57	0.74	66	0.88	
10' x 10'	37	0.48	42	0.53	48	0.62	55	0.73		
10' x 12'	30	0.38	34	0.42	39	0.50	45	0.58		

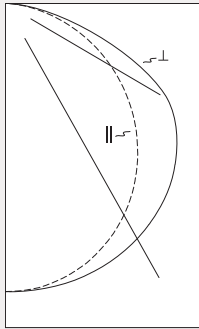
**Ordering Information**

SAMPLE NUMBER: 2AC-232-UNV-HB81-U

<p><b>Rating</b> Blank= Standard NY=New York Rated ATW-SW4= Chicago Rated</p>	<p><b>Type</b> A=Air (optional)</p>	<p><b>Number of Lamps</b> (Not included) 2=2 Lamp</p>	<p><b>Shielding</b> Blank=Frosted Acrylic SQP=Lens with Square Pattern Insert RDP=Lens with Round Pattern Insert</p>	<p><b>Lamps</b><sup>(2)</sup> L8835=T8 Lamp, 28W and 32W, 3500K<sup>(3)</sup> L8841=T8 Lamp, 28W and 32W, 4100K<sup>(3)</sup> L8835HL=T8 Lamp, 32W, 3500K, 3100 Lumens L8841HL=T8 Lamp, 32W, 4100K, 3100 Lumens</p>	<p><b>Ballast Type</b><sup>(1)</sup> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_N=T8 Electronic Instant Start. Ballast Factor .88 HB8_H=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_DIM=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_H=T8 Electronic Program Start. Ballast Factor .88 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2</p>	<p><b>Packaging</b> U=Unit Pack PALC=Job Pack, in carton</p>
<p><b>Wattage (Length)</b> 28T8=28W T8 (48")<sup>(3)</sup> 32=32W T8 (48")</p>	<p><b>Voltage</b><sup>(1)</sup> UNV=Universal Voltage 120-277</p>	<p><b>Options</b> GL=Single Element Fuse GM=Double Element Fuse Flex=Flex installed EL=Emergency Installed</p>	<p><b>Series</b> AC=Accord Series</p>			

NOTES: <sup>(1)</sup> Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(2)</sup> Other lamp options available. <sup>(3)</sup> When utilizing 28W T8 lamps, HPT8 Ballast must be specified. For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

## Accord 2' x 2' Photometrics



### 2AC-217

Electronic Ballast

(2) F17T8/TL841 lamps

1400 lumens

Spacing criterion:

(H) 1.2 x mounting height,

(L) 1.4 x mounting height

Efficiency 84.3%

Test Report: 2AC-217.IES

LER = FL-69 LPW

Yearly Cost of 1000

lumens, 3000 hrs at .08

KWH = \$3.47

### Coefficients of Utilization

rc	Effective floor cavity reflectance								20%																	
	80%				70%				50%				30%				10%				0%					
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
<b>RCR</b>																										
<b>0</b>	100	100	100	100	98	98	98	98	94	94	94	90	90	90	86	86	86	84								
<b>1</b>	91	87	84	80	89	85	82	79	82	79	76	78	76	74	75	73	72	70								
<b>2</b>	83	76	70	65	80	74	68	64	71	66	62	68	64	61	66	62	59	58								
<b>3</b>	75	66	59	53	73	65	58	53	62	56	52	60	55	51	57	53	50	48								
<b>4</b>	69	58	50	45	67	57	50	44	55	49	44	53	47	43	51	46	42	41								
<b>5</b>	63	52	44	38	61	51	43	38	49	42	37	47	41	37	46	41	37	35								
<b>6</b>	58	46	38	33	56	46	38	33	44	37	33	43	37	32	41	36	32	30								
<b>7</b>	54	42	34	29	52	41	34	29	40	33	29	39	33	28	37	32	28	26								
<b>8</b>	50	38	31	26	48	38	30	26	36	30	25	35	30	25	34	29	25	23								
<b>9</b>	46	35	28	23	45	34	28	23	33	27	23	32	27	23	32	26	23	21								
<b>10</b>	44	32	25	21	42	32	25	21	31	25	21	30	24	21	29	24	21	19								

### Candela

Angle	Along H	45°	Across L
0	737	737	737
5	735	735	737
10	724	729	735
15	707	719	729
20	682	703	720
25	652	683	707
30	616	658	690
35	574	628	669
40	527	594	643
45	476	555	613
50	422	511	576
55	366	462	533
60	308	408	475
65	248	349	380
70	188	274	266
75	129	181	169
80	76	99	92
85	32	34	33
90	0	0	0

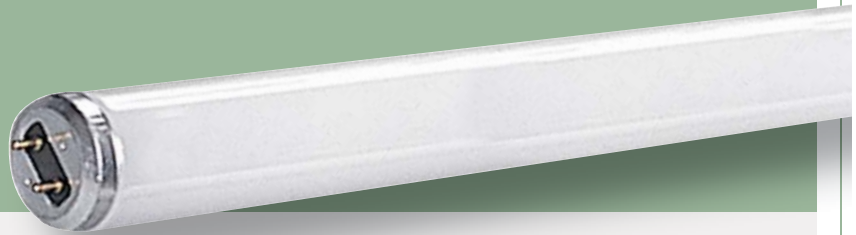
### Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixture
0-30	588	21.0	24.9
0-40	979	35.0	41.5
0-60	1813	64.7	76.8
0-90	2360	84.3	100.0
0-180	2360	84.3	100.0

### Luminance Data

Angle In Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	1830	2134	2357
55	1735	2190	2526
65	1595	2245	2444
75	1355	1901	1775
85	998	1060	1029

# Accord



## Ordering Information

SAMPLE NUMBER: 2AC-217-UNV-HB81-U

<b>Rating</b> Blank= Standard NY=New York Rated ATW-SW4= Chicago Rated	<b>Type</b> A=Air (optional)	<b>Number of Lamps</b> (Not included) 2=2 Lamp  <b>Wattage (Length)</b> 17=17W T8 (24")	<b>Shielding</b> Blank=Frosted Acrylic SQP=Lens with Square Pattern Insert RDP=Lens with Round Pattern Insert  <b>Voltage<sup>(1)</sup></b> UNV=Universal Voltage 120-277	<b>Lamps<sup>(2)</sup></b> L8835=T8 Lamp, 17W, 3500K L8841=T8 Lamp, 17W, 4100K	<b>Ballast Type<sup>(1)</sup></b> HPT8 Ballast HB8_L=T8 Electronic Instant Start. Low Ballast Factor .71-.77 HB8_=T8 Electronic Instant Start. Ballast Factor .88 HB8_N=T8 Electronic Instant Start. Normal Ballast Factor 1.0 HB8_H=T8 Electronic Instant Start. High Ballast Factor 1.15-1.2 HR8_DIM=T8 Electronic Program Start Step Dimming. Ballast Factor .88 HR8_L=T8 Electronic Program Start. Low Ballast Factor .71-.77 HR8_=T8 Electronic Program Start. Ballast Factor .88 HR8_H=T8 Electronic Program Start. High Ballast Factor 1.15-1.2	<b>Packaging</b> U=Unit Pack PALC=Job Pack, in carton
<b>Width</b> 2=2' Width						
<b>Series</b> AC=Accord Series						
<b>Options</b> GL=Single Element Fuse GM=Double Element Fuse Flex=Flex installed EL=Emergency Installed						

NOTES: <sup>(1)</sup> Products also available in non-US voltages and frequencies for international markets. Standard ballast configurations also available. <sup>(2)</sup> Other lamp options available. For complete product data, reference the Fluorescent Specification binder. Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

**Cooper Lighting, LLC.**

Customer First Center  
1121 Highway 74 South  
Peachtree City, GA 30269

P: 770-486-4800

F: 770-486-4801

[www.cooperlighting.com](http://www.cooperlighting.com)

**International Sales, USA**

Cooper Lighting, LLC.  
1121 Highway 74 South  
Peachtree City, GA 30269

P: 770-486-4800

F: 770-486-4801

**Canada**

Cooper Lighting, LLC.  
5925 McLaughlin Road  
Mississauga, Ontario L5R 1B8

P: 905-507-4000

F: 905-568-7049

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**Cooper Industries plc**  
600 Travis, Ste. 5600  
Houston, TX 77002-1001  
P: 713-209-8400  
[www.cooperindustries.com](http://www.cooperindustries.com)