

## LIGHTING FIXTURE SCHEDULE

FIXTURE SYMBOL	DESCRIPTION	LAMP	VOLTAGE	MOUNTING	MODEL NUMBER
△	LENSED TROFFER, #12 PATTERN ACRYLIC, 3-LAMP, EMI/RFI FILTER, ELECTRONIC BALLAST 10%THD	3-F32/T8 3500K	277V	RECESSED	COOPER 2GR8-332A-UNV-GL-TEB81-RIF1-U
△	LENSED TROFFER, #12 PATTERN ACRYLIC, 2-LAMP, EMI/RFI FILTER, ELECTRONIC BALLAST 10%THD	2-F32/T8 3500K	277V	RECESSED	COOPER 2GR8-232A-UNV-GL-TEB81-RIF1-U
△	VAPORTITE STRIP, WET LOCATION, FLUORESCENT, 2-LAMP, EMI/RFI FILTER, ELECTRONIC BALLAST 10%THD	2-F32/T8 3500K	277V	SURFACE	COOPER VT2-232DR-UNV-TEB81-WL
△	LENSED TROFFER, #12 PATTERN ACRYLIC, 2-LAMP, EMI/RFI FILTER, ELECTRONIC BALLAST 10%THD FLANGE FOR GYP CEILING	2-F32/T8 3500K	277V	RECESSED	COOPER 2FR8-232A-UNV-GL-TEB81-RIF1-U
△	FLUORESCENT STRIP WITH WIRE GUARD, EMI/RFI FILTER, ELECTRONIC BALLAST 10%THD	2-F32/T8 3500K	277V	PENDANT	COOPER SS-232-UNV-GL-TEB81-RIF1-U- WG/SS-4FT-B
△	LENSED TROFFER, #12 PATTERN ACRYLIC, 3-LAMP, EMI/RFI FILTER, 2 ELECTRONIC BALLASTS 10%THD BI-LEVEL SWITCHING	3-F32/T8 3500K	277V	RECESSED	COOPER 2GR8-332A-UNV-GL-TEB82-RIF1-U
△	SHOWER LIGHT, COMPACT FLUORESCENT, GLASS ALBALITE LENS, WHITE TRIM RING MAINTAIN 3" CLEARANCE TO ANY INSULATION	1-26W 4-PIN CFL 3000K	277V	RECESSED	COOPER H285E-70PS-26TTT
△	DOWNLIGHT, COMPACT FLUORESCENT, DIMMING BALLAST, CLEAR REFLECTOR, 6" CAN	1-42W 4-PIN CFL 3000K	277V	RECESSED	COOPER PD6-H142-2DMARX-6HC
△	WALL BRACKET, FLUORESCENT, 2-LAMP, EMI/RFI FILTER, ELECTRONIC BALLAST 10%THD	2-F32/T8 3500K	277V	WALL HEIGHT VARIES	COOPER BC-232A-UNV-GL-TEB81-RIF1-U
△	EXTERIOR WALL-MOUNT, CUTOFF, HIGH PRESSURE SODIUM, MULTI-TAP HPF BALLAST, BLACK FINISH	1-250W HPS	277V	WALL HEIGHT VARIES	COOPER HPIP-TM-250-MT-4-F1-BK
△	POLE LIGHT, HIGH PRESSURE SODIUM, CWA BALLAST, TYPE 3 OPTICS, SINGLE ARM-MOUNT TO 40-FOOT ROUND TAPERED ALUMINUM POLE, BLACK FINISH	1-400W HPS	277V	8" ARM MOUNT	COOPER HPTR-3S-400-MT-BRZ RTA-845394-DX-BRZ
△	POLE LIGHT, HIGH PRESSURE SODIUM, CWA BALLAST, TYPE 5 OPTICS, SINGLE ARM-MOUNT TO 40-FOOT ROUND TAPERED ALUMINUM POLE, BLACK FINISH	1-400W HPS	277V	8" ARM MOUNT	COOPER HPTR-5F-400-MT-BRZ RTA-845394-DX-BRZ
△	DOWNLIGHT, COMPACT FLUORESCENT, ELECTRONIC BALLAST 10%THD, 6" CLEAR REFLECTOR	1-42W 4-PIN CFL 3000K	277V	RECESSED	COOPER PD6-H142E-6HC
△	HIGH-BAY FLUORESCENT, 8-FOOT TANDEM, HIGH REFLECTANCE OPTICS, EMI/RFI FILTER, 2 ELECTRONIC BALLASTS 10%THD	8-F32/T8 3500K	277V	PENDANT	COOPER 8T18-832G-UNV-L8835-EB82-RIF1
△	DOWNLIGHT, COMPACT FLUORESCENT, ELECTRONIC BALLAST 10%THD, CLEAR REFLECTOR, 6" CAN	1-26W 4-PIN CFL 3000K	277V	RECESSED	COOPER PD6-H126E-6HC
△	VIDEO CONFERENCE INDIRECT, 2X2 FLUORESCENT, ELECTRONIC DIMMING BALLAST	2-40W BIA 3000K	277V	RECESSED	ELP 240BXVT-TB
⊗	EXIT SIGN, LED, RED LETTERS, WHITE POLYCARBONATE HOUSING, AC ONLY	RED LED	277V	UNIVERSAL	COOPER LPX60RWH



**METALUX®**

**DESCRIPTION**

The GR8 is a T8-dedicated lensed troffer designed to offer premium performance in a low profile housing. T8 dedication and optimized lamp to lens spacing provides the best in energy efficiency and optical control. The GR8's shallow, low profile housing is compatible with even highly restrictive plenums. Luminaires are compatible with today's popular ceiling systems.

**APPLICATION**

The GR8 offers great performance and great quality. The series is an excellent choice for commercial offices, schools, hospitals, retail merchandising and many other applications.

**SPECIFICATION FEATURES**

**A... Construction**  
Unitized low profile recessed housing is die formed of code gauge prime cold rolled steel with full length stiffeners and mechanical endplate attachment for added strength. Off center, ballast cover is easily removed without tools. Die formed captive lampholder bracket fully encloses lampholder wiring for easy lampholder replacement. Ample KOs are provided for continuous row wiring. Built-in grid-lock feature for safety and convenience. Standard unit is NYC Approved. (No modifications necessary).

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

**C... Finish**  
Multistage, iron phosphate pretreatment ensures maximum bonding and rust inhibition. Lighting grade baked white enamel finish with premium reflectance for high efficiency.

**D... Hinging/Latching**  
Positive spring loaded cam action steel latches and safety lock T-hinges provide secure, high quality door fit and allow hinging and latching from either side.

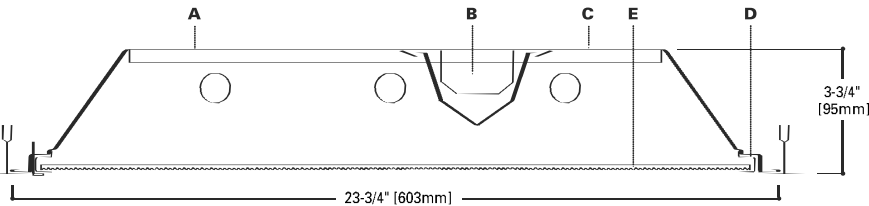
**E... Frame/Shielding**  
Heavy gauge flat steel door is die formed with reinforced mitered corners. Housing and door frame assemblies incorporate full length and width mechanical light traps. Light stabilized, acrylic prismatic lens.



**2GR8332**

**2' X 4' TROFFER  
3 LAMP**

General Purpose  
T8 Commercial Troffer



**ENERGY DATA**

Input Watts:  
**EB Ballast & STD Lamps**  
332 (91)

**ES Ballast & STD Lamps**  
332 (108)

Luminaire Efficacy Rating  
**LER = FL-68**  
Catalog Number: 2GR8-332A

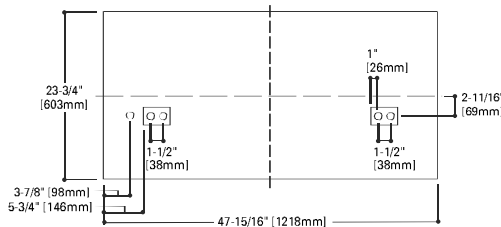
Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$3.53

\*Standard G (Grid) Type Fixtures can be field converted by adding trim kits. See Compatibility Section or Consult Factory.

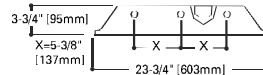
\*\*Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements.

\*\*\*Order FCS-24W-U Flange Kit for installation in drywall ceiling. See options and accessories compatibility section.

**MOUNTING DATA**

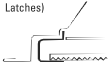


**LAMP CONFIGURATIONS**

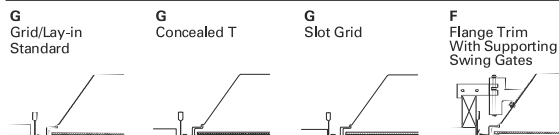


**DOOR FRAMES**

2GR8  
Flat, White  
Steel (White  
Latches)



**CEILING COMPATIBILITY**



Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G
Flange	G***





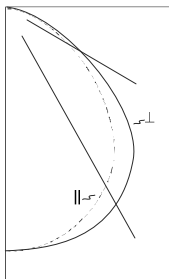
**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
2GR8-332A-UNV-GL-TEB81-RIF1-U  
Notes:

**Type:**  
**A**  
WK08-1600

2GR8

**PHOTOMETRICS**



**2GR8-332A**  
Electronic Ballast  
F32T8/35K lamps  
2800 lumens

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

Efficiency 76.0%

Test Report:  
2GR8332A.IES

LER = FL-68

Yearly Cost of 1000 lumens, 3000 hrs at .08 KWH = \$3.53

**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	91	91	91	91	88	88	88	88	84	84	84	81	81	81	78	78	78	76
1	84	81	78	75	82	79	76	74	76	74	72	73	71	69	70	69	67	66
2	77	72	67	63	75	70	66	63	68	64	61	65	62	60	63	61	59	57
3	71	64	59	54	70	63	58	54	61	57	53	59	55	52	57	54	51	50
4	66	58	52	47	64	57	51	47	55	50	46	53	49	45	51	48	45	43
5	60	51	45	40	59	51	45	40	49	44	40	48	43	39	46	42	39	37
6	56	46	40	35	54	46	40	35	44	39	35	43	38	35	42	38	34	33
7	51	42	35	31	50	41	35	31	40	34	31	39	34	30	38	33	30	29
8	47	37	31	27	46	37	31	27	36	30	27	35	30	26	34	30	26	25
9	44	34	27	23	43	33	27	23	32	27	23	31	26	23	31	26	23	21
10	41	30	24	20	40	30	24	20	29	24	20	29	24	20	28	23	20	19

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	1965	23.4	30.8
0-40	3239	38.6	50.7
0-60	5421	64.5	84.9
0-90	6386	76.0	100.0
0-180	6386	76.0	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	67	71	64	68
30 x 30	60	64	57	61
30 x 60	52	55	47	50
60 x 30	62	66	60	64
60 x 60	52	55	48	51

**Candela**

Angle	Along II	45°	Across ⊥
0	2460	2460	2460
5	2445	2456	2468
10	2416	2440	2464
15	2367	2409	2449
20	2295	2358	2413
25	2194	2281	2352
30	2063	2176	2266
35	1900	2045	2163
40	1705	1879	2015
45	1474	1650	1794
50	1200	1362	1474
55	932	1045	1122
60	710	745	811
65	533	497	566
70	389	326	416
75	275	243	327
80	201	204	251
85	110	122	143
90	0	0	0

**ORDERING INFORMATION**

SAMPLE NUMBER: 2GR8-332A-120V-EB81-U

<p>2=2' Width</p>	<p><b>Number of Lamps<sup>(2)</sup></b> 3=3 Lamps (Not included)</p>	<p><b>Ballast Type<sup>(3)</sup></b> Blank=Standard Magnetic Ballast (Biax &amp; 20W) LEOC8=T8 Magnetic Energy Saving ER8 = T8 Electronic Program Rapid Start. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 EB8 = T8 Electronic Instant Start. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 EB8 / PLUS = T8 Electronic Instant Start. High Ballast Factor &gt;1.13. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 TEB8 = T8 Electronic Instant Start. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 DLS=Digital Lighting System Dimming</p>	<p><b>Options</b> FCS-24W-U=Field Installed Flange Kit FR=Suitable for Fire Rated Applications EQ=T-BAR Safety Earthquake Clips<sup>(1)</sup> (See options &amp; accessories)</p>	<p><b>Packaging</b> U=Unit Pack</p>
<p><b>Series</b> GR8=General Purpose T8 Commercial Troffer<sup>(1)</sup></p>	<p><b>Wattage (Length)</b> 32=32W T8 (48")</p>			
	<p>A=#12 Pattern Acrylic A125=#12 Pattern Acrylic (.125" Thick) A19/156=#19 Pattern Acrylic (.156" Thick) IMA 48=Injection Moldeed Acrylic (.150" Thick) PB1S=Silver Parabolic Louver (1/2" x 1/2" x 1/2") (Additional shielding media available, see accessory section)</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 Lamps=Lamps Installed Flex=Flex Installed Emergency=EM Installed</p>			

NOTES: <sup>(1)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems. <sup>(2)</sup>Standard off-center ballast compartment on 3-lamp fixtures. <sup>(3)</sup>Products also available in non-US voltages and frequencies for international markets. <sup>(4)</sup>Not available when specifying emergencies, voltage must be specific.

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.

**SHIPPING INFORMATION**

Catalog No.	Wt.
2GR8-332A	31 lbs.





# METALUX®

## DESCRIPTION

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## APPLICATION

The GR8 offers great performance and great quality. The series is an excellent choice for commercial offices, schools, hospitals, retail merchandising and many other applications.

## SPECIFICATION FEATURES

### A... Construction

Unitized low profile recessed housing is die formed of code gauge prime cold rolled steel with full length stiffeners and mechanical endplate attachment for added strength. Ballast cover is easily removed without tools. Die formed captive lampholder bracket fully encloses lampholder wiring for easy lampholder replacement. Ample KO's are provided for continuous row wiring. Built-in grid-lock feature for safety and convenience. Standard unit is NYC Approved. (No modifications necessary).

### B... Electrical\*\*

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

### C... Finish

Multistage, iron phosphate pretreatment ensures maximum bonding and rust inhibition. Lighting grade baked white enamel finish with premium reflectance for high efficiency.

### D... Hinging/Latching

Positive spring loaded cam action steel latches and safety lock T-hinges provide secure, high quality door fit and allow hinging and latching from either side.

### E... Frame/Shielding

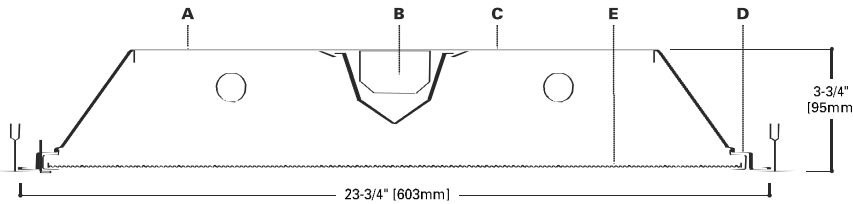
Heavy gauge flat steel door is die formed with reinforced mitered corners. Housing and door frame assemblies incorporate full length and width mechanical light traps. Light stabilized, acrylic prismatic lens.



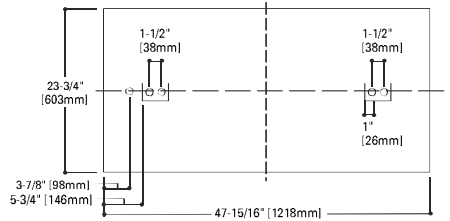
**2GR8232  
432**

**2' X 4' TROFFER  
2 OR 4 LAMP**

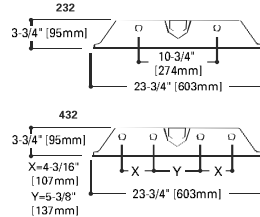
General Purpose  
T8 Commercial Troffer



## MOUNTING DATA

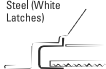


## LAMP CONFIGURATIONS

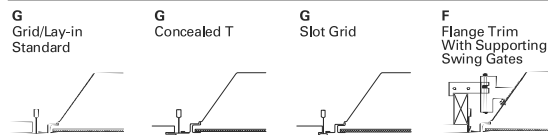


## DOOR FRAMES

2GR8  
Flat, White  
Steel (White  
Latches)



## CEILING COMPATIBILITY



Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G
Flange	G***

COOPER LIGHTING

## ENERGY DATA

Input Watts:  
**EB Ballast & STD Lamps**  
232 (61)  
432 (122)

**ES Ballast & STD Lamps**  
232 (71)  
432 (142)

Luminaire Efficacy Rating  
**LER = FL-67**  
Catalog Number: 2GR8-232A

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

Luminaire Efficacy Rating  
**LER = FL-68**  
Catalog Number: 2GR8-432A

**Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$3.53**

\*Standard G (Grid) Type Fixtures can be field converted by adding trim kits. See Compatibility Section or Consult Factory.

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

\*\*\*Order FCS-24W-U Flange Kit for installation in drywall ceiling. See options and accessories compatibility section.



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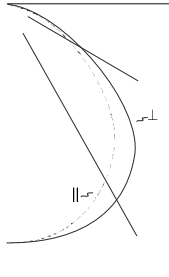
**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
2GR8-232A-UNV-GL-TEB81-RIF1-U  
**Notes:**

**Type:**  
**B**  
WK08-1600

2GR8

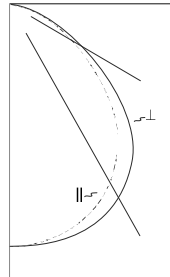
**PHOTOMETRICS**



**2GR8-232A**  
Electronic Ballast  
F32T8/35K lamps  
2800 lumens  
Spacing criterion:  
(H) 1.2 x mounting  
height, (L) 1.4 x  
mounting height  
Efficiency 79.8%  
Test Report:  
2GR8232A,IES  
LER = FL-67  
Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$3.58

**Candela**

Angle	Along II	45°	Across I
0	1697	1697	1697
5	1689	1696	1705
10	1669	1685	1703
15	1636	1665	1694
20	1586	1632	1673
25	1518	1582	1634
30	1430	1512	1582
35	1320	1427	1517
40	1188	1318	1422
45	1031	1162	1271
50	843	964	1046
55	657	740	796
60	501	528	581
65	378	353	405
70	277	232	294
75	196	172	231
80	143	144	176
85	77	85	97
90	0	0	0



**2GR8-432A**  
Electronic Ballast  
F32T8/35K lamps  
2800 lumens  
Spacing criterion:  
(H) 1.2 x mounting  
height, (L) 1.4 x  
mounting height  
Efficiency 75.5%  
Test Report:  
2GR8432A,IES  
LER = FL-68  
Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$3.53

**Candela**

Angle	Along II	45°	Across I
0	3299	3299	3299
5	3281	3295	3310
10	3241	3274	3306
15	3176	3233	3284
20	3079	3164	3236
25	2946	3059	3145
30	2772	2911	3012
35	2555	2721	2841
40	2296	2480	2612
45	1989	2162	2293
50	1621	1770	1890
55	1262	1357	1442
60	957	970	1043
65	716	649	736
70	520	430	542
75	368	321	427
80	269	269	327
85	147	160	185
90	0	0	0

**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	
RCR	0	95	95	95	95	93	93	93	93	89	89	89	85	85	85	81	81	81	80
	1	88	85	82	79	86	83	80	78	79	77	75	76	74	73	73	72	71	69
	2	81	75	70	66	79	74	69	66	71	67	64	68	65	63	66	64	61	60
	3	75	67	62	57	73	66	61	56	64	59	55	62	58	55	60	56	54	52
	4	69	60	54	49	67	59	53	49	57	52	48	56	51	47	54	50	47	45
	5	63	54	47	42	62	53	47	42	51	46	42	50	45	41	48	44	41	39
	6	58	48	42	37	57	48	41	37	46	41	36	45	40	36	44	39	36	34
	7	54	44	37	32	53	43	37	32	42	36	32	41	35	32	40	35	31	30
	8	50	39	32	28	48	39	32	28	38	32	28	37	31	28	36	31	27	26
	9	46	35	29	24	45	35	28	24	34	28	24	33	28	24	32	27	24	22
	10	42	32	26	21	41	31	25	21	31	25	21	30	25	21	29	24	21	20

**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	
RCR	0	90	90	90	90	88	88	88	88	84	84	84	80	80	80	77	77	77	75
	1	83	80	77	75	81	78	76	73	75	73	71	72	71	69	70	68	67	65
	2	77	71	67	63	75	70	66	62	67	64	61	65	62	59	63	60	58	57
	3	71	64	58	54	69	63	58	54	61	56	53	59	55	52	57	54	51	49
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	7	51	42	35	31	50	41	35	31	40	34	30	39	34	30	38	33	30	29
	8	47	37	31	27	46	37	31	27	36	30	27	35	30	26	34	30	26	25
	9	43	33	27	23	42	33	27	23	32	27	23	31	26	23	31	26	23	21
	10	40	30	24	21	39	30	24	20	29	24	20	29	24	20	28	23	20	19

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	1360	24.3	30.4
0-40	2249	40.2	50.3
0-60	3788	67.6	84.7
0-90	4471	79.8	100.0
0-180	4471	79.8	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	73	77	71	75
30 x 30	68	72	65	69
30 x 60	60	63	56	59
60 x 30	69	73	68	71
60 x 60	60	63	57	60

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	2634	23.5	31.2
0-40	4327	38.6	51.2
0-60	7184	64.1	85.0
0-90	8452	75.5	100.0
0-180	8452	75.5	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	60	65	58	62
30 x 30	54	58	51	55
30 x 60	45	48	40	44
60 x 30	55	59	53	58
60 x 60	45	48	42	45

**ORDERING INFORMATION**

SAMPLE NUMBER: 2GR8-232A-120V-EB81-U

**2 GR8 2 32 A UNV GL EB81 RIF1 U**

**2=2' Width**

**Number of Lamps<sup>(2)</sup>**  
2 or 4 Lamps  
(Not included)

**Series**  
GR8=General  
Purpose T8  
Commercial  
Troffer<sup>(1)</sup>

**Wattage (Length)**  
32=32W T8 (48")

**A=#12 Pattern Acrylic**  
A125=#12 Pattern Acrylic (.125" Thick)  
A19/156=#19 Pattern Acrylic (.156" Thick)  
IMA 48=Injection Moldeed Acrylic (.150" Thick)  
PB15=Silver Parabolic Louver (1/2" x 1/2" x 1/2")  
(Additional shielding media available, see accessory section)

**Voltage<sup>(3)</sup>**  
120V=120 Volt  
277V=277 Volt  
347V=347 Volt  
UNV=Universal Voltage 120-277<sup>(4)</sup>

**Options**  
GL=Single Element Fuse  
GM=Double Element Fuse  
Lamps=Lamps Installed  
Flex=Flex Installed  
Emergency=EM Installed

**Ballast Type<sup>(3)</sup>**  
Blank=Standard Magnetic Ballast (Biax & 20W)  
LEOC8=T8 Magnetic Energy Saving  
ER8 = T8 Electronic Program Rapid Start. Total Harmonic Distortion < 10%  
No. of Ballast 1, 2 or 3  
EB8 = T8 Electronic Instant Start. Total Harmonic Distortion < 20%  
No. of Ballast 1, 2 or 3  
EB8 / PLUS= T8 Electronic Instant Start. High Ballast Factor >1.13. Total Harmonic Distortion < 20%  
No. of Ballast 1, 2 or 3  
TEB8 = T8 Electronic Instant Start. Total Harmonic Distortion < 10%  
No. of Ballast 1, 2 or 3  
DLS=Digital Lighting System Dimming

**Options**  
FCS-24W-U=Field Installed Flange Kit  
FR=Suitable for Fire Rated Applications  
EQ=T-BAR Safety Earthquake Clips<sup>(1)</sup>  
(See options & accessories)

**Radio Interference Suppressor**

**Packaging**  
U=Unit Pack

NOTES: <sup>(1)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems. <sup>(2)</sup>Standard off-center ballast compartment on 3-lamp fixtures. <sup>(3)</sup>Products also available in non-US voltages and frequencies for international markets. <sup>(4)</sup>Not available when specifying emergencies, voltage must be specific.

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.

**SHIPPING INFORMATION**

Catalog No.	Wt.
2GR8-232A	29 lbs.
2GR8-432A	29 lbs.



# METALUX®

## DESCRIPTION

The VT2 Series is an energy efficient industrial Vaportite fixture that features rugged and durable construction. The VT2 incorporates a full metal fixture liner inside a reinforced fiberglass housing with a high impact diffuser. This Vaportite series is suitable for interior and exterior applications and can be surface or chain mounted .

## APPLICATION

The VT2 Series has been designed for maximum operation in commercial institutional and industrial environments where weathering, high temperature, humidity and dust or corrosive fumes are present.

## SPECIFICATION FEATURES

### A...Construction

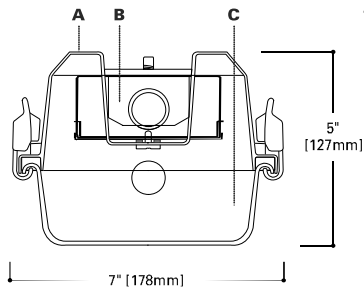
Fiberglass housing is reinforced polyester and self-extinguishing (ASTM-D635-74) plastic of a permanent pearl gray color. Top of housing has five embossments (2' unit), nine embossments (4' unit) and thirteen embossments (8' unit), providing mounting flexibility on uneven surfaces. A watertite hub for 1/2" conduit entry is provided at each end of housing (standard) for continuous feed. Polyurethane gasketing is formed in the housing providing a continuous seamless seal for the diffuser. Four sturdy cam latches (2' unit), six (4' unit) and twelve (8' and tandem unit) clamp diffuser tightly for a positive seal between housing, gasketing and diffuser.

### B...Electrical\*

Unit has full metal liner (channel) secured by brass internal/external mounting studs for positive grounding, maximum protection and rigidity. Ballasts are CBM/ETL Class "P" certified suitable to plus 50°F. (Cold temperature ballasts are available suitable to 0°F, on special order) Pressure lock lampholders. Electrical components and fixtures are UL/CUL listed for Wet Locations,\*\* IP65 approved.

### C...Shielding

'DR' - Clear low brightness pattern acrylic with 15% high impact additive.  
'DR-100' - Clear low brightness pattern acrylic with 100% high impact additive.  
Example: VT2-240DR-100  
'LEX' - High impact clear low brightness pattern polycarbonate. LEXAN  
Example: VT2-240LEX.

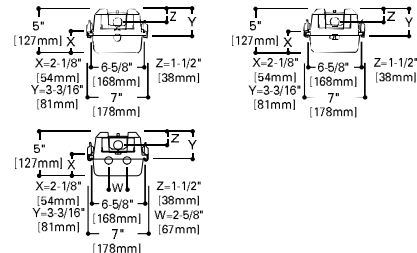


**VT2120**  
117, 220, 217  
1BX40, 1BX50  
140, 148, 132  
240, 248  
232

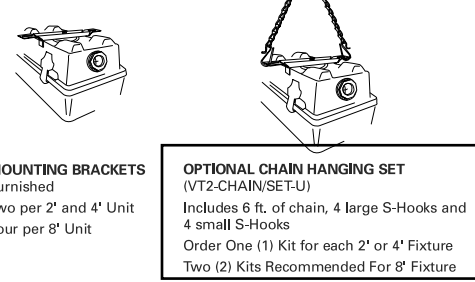
2', 4' OR 8' INDUSTRIAL  
1 OR 2 LAMPS

Vaportight Industrial

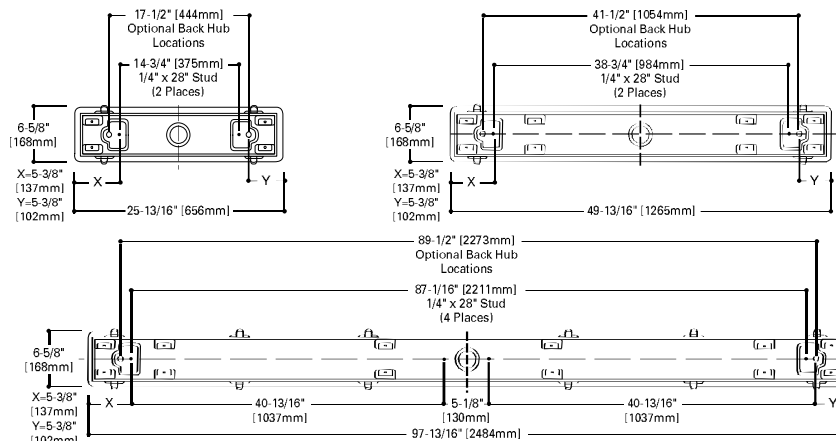
## LAMP CONFIGURATIONS



## INSTALLATION DATA



## MOUNTING DATA



COOPER LIGHTING

## ENERGY DATA

Input Watts:  
**EB Ballast & STD Lamps**  
117 (20)  
1BX40 (43), 1BX50 (54)  
140 (38), 132 (30)  
217 (36)  
240 (72)  
232 (61)

**ES Ballast & STD Lamps**  
117 (23), 140 (50)  
132 (37), 220 (58)  
217 (45), 240 (86)  
232 (71)

**STD Ballast & STD Lamps**  
120 (32), 220 (58)  
1BX40 (49)

Luminaire Efficacy Rating  
**LER = FL-73**  
Catalog Number: VT2-232DR

Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$3.29

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

\*\*Not Suitable for Wet Locations if EL4 Option is added. Consult Pre Sales Technical Support.

ADF030159  
(Supersedes ADF020761)





**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
VT2-232DR-UNV-TEB81-WL

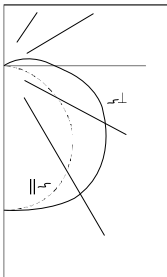
**Type:**  
**C**

Notes:

WK08-1600

VT2

**PHOTOMETRICS**



**VT2-232DR**  
Electronic Ballast  
F32T8/35K Lamps  
2850 Lumens

Spacing criterion:  
(H) 1.3 x mounting  
height, (L) 1.5 x  
mounting height

Efficiency 78,9%

Test Report:  
VT2232DR.IES

LER = FI-73

Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$3.29

**Coefficients of Utilization**

rc	Effective floor cavity reflectance																	
	80%							20%										
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	92	92	92	92	90	90	90	90	84	84	84	79	79	79	75	75	75	72
1	83	78	74	71	80	76	72	69	71	68	66	67	65	62	63	61	59	57
2	75	67	61	56	72	65	60	55	61	57	53	58	54	51	54	51	48	46
3	68	59	52	46	65	57	51	46	54	48	44	51	46	42	48	44	41	39
4	62	52	44	39	59	50	43	38	47	42	37	45	40	36	42	38	35	33
5	56	45	38	32	54	44	37	32	42	35	31	39	34	30	37	33	29	27
6	51	40	33	28	49	39	32	27	37	31	26	35	30	26	33	29	25	23
7	47	36	29	24	46	35	28	23	33	27	23	32	26	22	30	25	22	20
8	44	32	25	20	42	31	25	20	30	24	20	28	23	19	27	22	18	17
9	40	29	22	17	39	28	22	17	27	21	17	25	20	16	24	19	16	14
10	37	26	20	15	36	26	19	15	24	19	15	23	18	14	22	17	14	12

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	862	15.1	19.2
0-40	1462	25.7	32.5
0-60	2778	48.7	61.8
0-90	4130	72.4	91.8
90-180	369	6.5	8.2
0-180	4499	78.9	100.0

**Typical VCP Percentages**

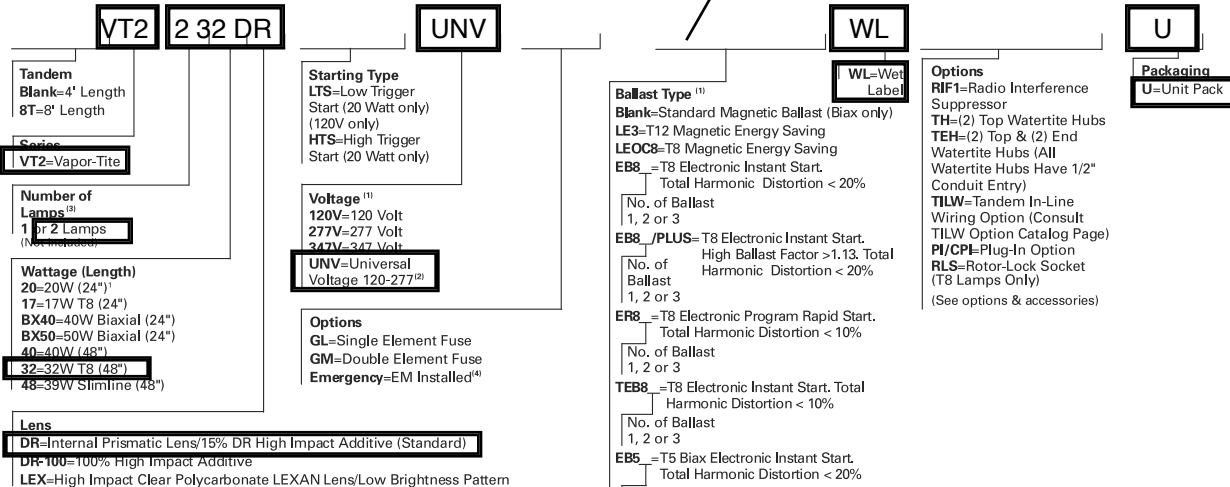
Room Size (Ft.)	Height Along		Height Across	
	13.0'	16.0'	13.0'	16.0'
20 x 20	45	53	35	44
30 x 30	37	42	27	33
30 x 60	32	36	20	23
60 x 40	37	41	32	36
60 x 60	31	33	22	25

**Candela**

Angle	Along H	45°	Across L
0	1049	1049	1049
10	1034	1047	1056
20	978	1030	1071
30	886	997	1075
40	762	934	1027
50	606	820	939
60	416	671	838
70	228	543	723
80	92	412	549
90	17	239	363
100	19	141	243
110	10	68	131
120	5	29	46
130	4	13	20
140	4	6	9
150	4	2	3
160	4	2	0
170	0	0	0
180	0	0	0

**ORDERING INFORMATION**

SAMPLE NUMBER: VT2-232DR-120V-EB81-WL-U



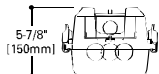
NOTES: <sup>(1)</sup>Products also available in non-US voltages and frequencies for international markets. <sup>(2)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(3)</sup>3-lamp only available for 32W T8 lamps. <sup>(4)</sup>Not available for 2' units.

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

**DEEP DIFFUSER**

(Available for 4' Fixture Length)

To Complement Deep Diffuser Depth of 8' Fixture



**SHIPPING INFORMATION**

Catalog No.	Wt.
VT2-117 DR-WL	8 lbs.
VT2-217 DR-WL	8 lbs.
VT2-1BX40 DR-WL	8 lbs.
VT2-1BX50 DR-WL	8 lbs.
VT2-132 DR-WL	16 lbs.
VT2-148 DR-WL'	16 lbs.
VT2-248 DR-WL'	16 lbs.
8TVT2-132 DR-WL	31 lbs.
VT2-232 DR-WL	16 lbs.
8TVT2-232 DR-WL	31 lbs.



**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
VT2-232DR-UNV-TEB81-WL

Notes:

Type:

C

WK08-1600



## B232PUNVHP-A

### APPLICATION and PERFORMANCE SPECIFICATION

**Description:** High frequency electronic ballast for (2/1) F32T8, (2/1) F32T8ES-30W, (2/1) F32T8ES-25W, (2/1) F28T8, (2) F25T8, or (2) F17T8. Also equivalent U-shaped lamps.

- Line Voltage: 108vac - 305vac, 50/60Hz
- Series Lamp Operation
- Programmed Rapid Start
- Active Power Factor Correction
- Operating Frequency: 66kHz

\*60 Hz data

Lamp		Volts	Input Watts	Nominal Line Amps	Power Factor	Ballast Factor	Ballast Efficacy Factor	Harmonic Total	Crest Factor
Type	#								
F32T8	2	120	62	0.52	> .99	.88	1.42	< 10%	< 1.5
F32T8	2	277	60	0.22	> .98	.88	1.47	< 10%	< 1.5
F32T8	1	120	32	0.27	> .99	1.00	3.13	< 10%	< 1.6
F32T8	1	277	32	0.12	> .95	1.00	3.13	< 15%	< 1.6
F32T8ES (30W)	2	120	60	0.50	> .99	.88	1.47	< 10%	< 1.6
F32T8ES (30W)	2	277	58	0.21	> .98	.88	1.52	< 10%	< 1.6
F32T8ES (30W)	1	120	30	0.25	> .99	1.00	3.33	< 10%	< 1.6
F32T8ES (30W)	1	277	30	0.11	> .95	1.00	3.33	< 10%	< 1.6
F32T8ES (25W)	2	120	52	0.43	> .99	.88	1.69	< 10%	< 1.6
F32T8ES (25W)	2	277	52	0.19	> .98	.88	1.69	< 10%	< 1.6
F32T8ES (25W)	1	120	27	0.22	> .99	1.00	3.70	< 10%	< 1.6
F32T8ES (25W)	1	277	27	0.10	> .94	1.00	3.70	< 10%	< 1.6
F28T8	2	120	56	0.47	> .99	.88	1.57	< 10%	< 1.6
F28T8	2	277	55	0.20	> .98	.88	1.60	< 10%	< 1.6
F28T8	1	120	30	0.25	> .99	1.00	3.33	< 10%	< 1.6
F28T8	1	277	30	0.11	> .95	1.00	3.33	< 10%	< 1.6
F25T8	2	120	47	0.40	> .99	.94	2.00	< 10%	< 1.6
F25T8	2	277	46	0.17	> .97	.94	2.04	< 10%	< 1.6
F17T8	2	120	34	0.28	> .99	.95	2.79	< 10%	< 1.6
F17T8	2	277	34	0.13	> .95	.95	2.79	< 15%	< 1.6

Application and Performance Specification Information Subject to Change without Notification.

#### Performance:

- Meets ANSI Standard C82.11-1993
- Meets ANSI Standard C62.41-1991
- Meets FCC Part 18 (Class A) for EMI and RFI Non-Consumer Limits
- Meets CSA Standard 654 for Ballast Efficiency

#### Safety:

- No PCB's
- UL listed (Class P, Type 1 Outdoor, Type HL)
- CSA Certified

#### Application:

- Minimum Starting Temperature: 0° F, -18° C  
For ES & 28W Lamps: 60° F, 16° C
- Maximum Case Temperature: 167° F, 75° C
- Sound Rated: A
- Remote Mounting: 20 ft. max. lead length, 18 AWG

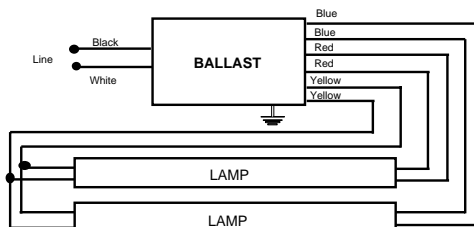
#### Physical Parameters

Length: 9.50"  
Width: 1.70"  
Height: 1.18"  
Weight: 1.70 lbs  
Lead Length: Black, White 25" (+/-1")  
Red, Blue 33" (± 1")  
Yellow 47" (± 1")

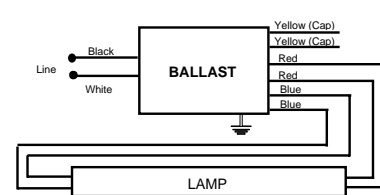
#### Warranty:

Universal Lighting Technologies warrants to the purchaser that each electronic ballast will be free from defects in material or workmanship for a period of 5 years from date of manufacture when properly installed and under normal conditions of use. Call 1-800-BALLASTx800 for technical assistance.

#### Manufactured in North America



TWO LAMP APPLICATION

ONE LAMP APPLICATION  
Cap unused yellow leads, insulate to 600 volts

Ballast must be grounded in accordance with national and local electrical codes.



**METALUX®**

**DESCRIPTION**

The GR8 is a T8-dedicated lensed troffer designed to offer premium performance in a low profile housing. T8 dedication and optimized lamp to lens spacing provides the best in energy efficiency and optical control. The GR8's shallow, low profile housing is compatible with even highly restrictive plenums. Luminaires are compatible with today's popular ceiling systems.

**APPLICATION**

The GR8 offers great performance and great quality. The series is an excellent choice for commercial offices, schools, hospitals, retail merchandising and many other applications.

**SPECIFICATION FEATURES**

**A... Construction**

Unitized low profile recessed housing is die formed of code gauge prime cold rolled steel with full length stiffeners and mechanical endplate attachment for added strength. Ballast cover is easily removed without tools. Die formed captive lampholder bracket fully encloses lampholder wiring for easy lampholder replacement. Ample KO's are provided for continuous row wiring. Built-in grid-lock feature for safety and convenience. Standard unit is NYC Approved. (No modifications necessary).

**B... Electrical\*\***

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

**C... Finish**

Multistage, iron phosphate pretreatment ensures maximum bonding and rust inhibition. Lighting grade baked white enamel finish with premium reflectance for high efficiency.

**D... Hinging/Latching**

Positive spring loaded cam action steel latches and safety lock T-hinges provide secure, high quality door fit and allow hinging and latching from either side.

**E... Frame/Shielding**

Heavy gauge flat steel door is die formed with reinforced mitered corners. Housing and door frame assemblies incorporate full length and width mechanical light traps. Light stabilized, acrylic prismatic lens.

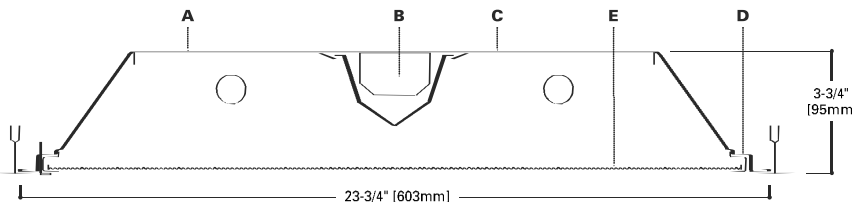
Catalog #	Type
Project	
Comments	
Prepared by	Date



**2GR8232  
432**

**2' X 4' TROFFER  
2 OR 4 LAMP**

General Purpose  
T8 Commercial Troffer



**ENERGY DATA**

Input Watts:  
**EB Ballast & STD Lamps**  
232 (61)  
432 (122)

**ES Ballast & STD Lamps**  
232 (71)  
432 (142)

Luminaire Efficacy Rating  
**LER = FL-67**  
Catalog Number: 2GR8-232A

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

Luminaire Efficacy Rating  
**LER = FL-68**  
Catalog Number: 2GR8-432A

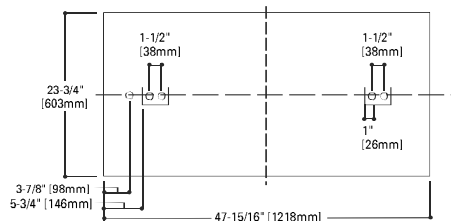
**Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$3.53**

\*Standard G (Grid) Type Fixtures can be field converted by adding trim kits. See Compatibility Section or Consult Factory.

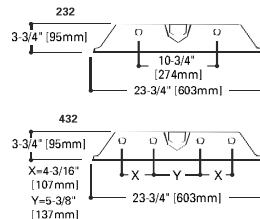
\*\*Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements.

\*\*\*Order FCS-24W-U Flange Kit for installation in drywall ceiling. See options and accessories compatibility section.

**MOUNTING DATA**



**LAMP CONFIGURATIONS**

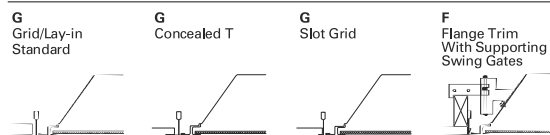


**DOOR FRAMES**

2GR8  
Flat, White  
Steel (White  
Latches)



**CEILING COMPATIBILITY**



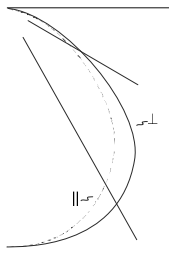
Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G
Flange	G***





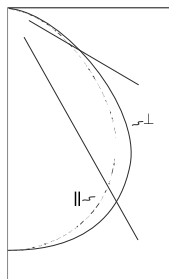
2GR8

**PHOTOMETRICS**



**2GR8-232A**  
Electronic Ballast  
F32T8/35K lamps  
2800 lumens  
Spacing criterion:  
(H) 1.2 x mounting  
height, (L) 1.4 x  
mounting height  
Efficiency 79.8%  
Test Report:  
2GR8232A,IES  
LER = FL-67  
Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$3.58

Angle	Along H	45°	Across L
0	1697	1697	1697
5	1689	1696	1705
10	1669	1685	1703
15	1636	1665	1694
20	1586	1632	1673
25	1518	1582	1634
30	1430	1512	1582
35	1320	1427	1517
40	1188	1318	1422
45	1031	1162	1271
50	843	964	1046
55	657	740	796
60	501	528	581
65	378	353	405
70	277	232	294
75	196	172	231
80	143	144	176
85	77	85	97
90	0	0	0



**2GR8-432A**  
Electronic Ballast  
F32T8/35K lamps  
2800 lumens  
Spacing criterion:  
(H) 1.2 x mounting  
height, (L) 1.4 x  
mounting height  
Efficiency 75.5%  
Test Report:  
2GR8432A,IES  
LER = FL-68  
Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$3.53

Angle	Along H	45°	Across L
0	3299	3299	3299
5	3281	3295	3310
10	3241	3274	3306
15	3176	3233	3284
20	3079	3164	3236
25	2946	3059	3145
30	2772	2911	3012
35	2555	2721	2841
40	2296	2480	2612
45	1989	2162	2293
50	1621	1770	1890
55	1262	1357	1442
60	957	970	1043
65	716	649	736
70	520	430	542
75	368	321	427
80	269	269	327
85	147	160	185
90	0	0	0

**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	
RCR	0	95	95	95	93	93	93	89	89	89	85	85	85	81	81	81	80	0	
	1	88	85	82	79	86	83	80	78	79	77	75	76	74	73	73	72	71	69
	2	81	75	70	66	79	74	69	66	71	67	64	68	65	63	66	64	61	60
	3	75	67	62	57	73	66	61	56	64	59	55	62	58	55	60	56	54	52
	4	69	60	54	49	67	59	53	49	57	52	48	56	51	47	54	50	47	45
	5	63	54	47	42	62	53	47	42	51	46	42	50	45	41	48	44	41	39
	6	58	48	42	37	57	48	41	37	46	41	36	45	40	36	44	39	36	34
	7	54	44	37	32	53	43	37	32	42	36	32	41	35	32	40	35	31	30
	8	50	39	32	28	48	39	32	28	38	32	28	37	31	28	36	31	27	26
	9	46	35	29	24	45	35	28	24	34	28	24	33	28	24	32	27	24	22
	10	42	32	26	21	41	31	25	21	31	25	21	30	25	21	29	24	21	20

**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	
RCR	0	90	90	90	88	88	88	84	84	84	80	80	80	77	77	77	75	0	
	1	83	80	77	75	81	78	76	73	75	73	71	72	71	69	70	68	67	65
	2	77	71	67	63	75	70	66	62	67	64	61	65	62	59	63	60	58	57
	3	71	64	58	54	69	63	58	54	61	56	53	59	55	52	57	54	51	49
	4	65	57	51	47	64	56	51	46	54	50	46	53	49	45	51	48	45	43
	5	60	51	45	40	59	50	44	40	49	44	40	47	43	39	46	42	39	37
	6	56	46	40	35	54	45	39	35	44	39	35	43	38	34	42	37	34	33
	7	51	42	35	31	50	41	35	31	40	34	30	39	34	30	38	33	30	29
	8	47	37	31	27	46	37	31	27	36	30	27	35	30	26	34	30	26	25
	9	43	33	27	23	42	33	27	23	32	27	23	31	26	23	31	26	23	21
	10	40	30	24	21	39	30	24	20	29	24	20	29	24	20	28	23	20	19

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	1360	24.3	30.4
0-40	2249	40.2	50.3
0-60	3788	67.6	84.7
0-90	4471	79.8	100.0
0-180	4471	79.8	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	73	77	71	75
30 x 30	68	72	65	69
30 x 60	60	63	56	59
60 x 30	69	73	68	71
60 x 60	60	63	57	60

**Zonal Lumen Summary**

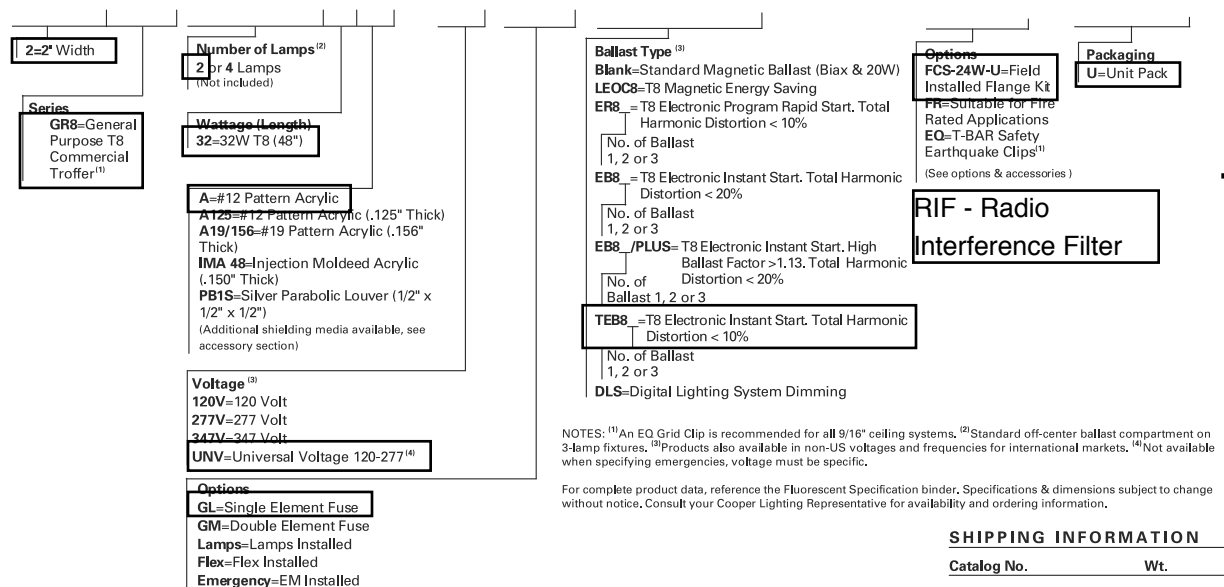
Zone	Lumens	%Lamp	%Fixture
0-30	2634	23.5	31.2
0-40	4327	38.6	51.2
0-60	7184	64.1	85.0
0-90	8452	75.5	100.0
0-180	8452	75.5	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	60	65	58	62
30 x 30	54	58	51	55
30 x 60	45	48	40	44
60 x 30	55	59	53	58
60 x 60	45	48	42	45

**ORDERING INFORMATION**

SAMPLE NUMBER: 2GR8-232A-120V-EB81-U



NOTES: <sup>(1)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems, <sup>(2)</sup>Standard off-center ballast compartment on 3-lamp fixtures, <sup>(3)</sup>Products also available in non-US voltages and frequencies for international markets, <sup>(4)</sup>Not available when specifying emergencies, voltage must be specific.

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.

**SHIPPING INFORMATION**

Catalog No.	Wt.
2GR8-232A	29 lbs.
2GR8-432A	29 lbs.



**METALUX®**

**DESCRIPTION**

The SS Series is a functional and multi-purpose wide strip family that incorporates premium performance and construction durability. The performance and application versatility of this series can be increased by incorporating symmetrical or asymmetrical reflectors. The SS Series can be installed using various mounting methods and numerous options and accessories are available.

**APPLICATION**

The SS Series can be the illumination solution in commercial, industrial, retail and residential applications. Fixtures can be used in storage/utility areas, coves, display cases, shops, task and general area lighting.

**SPECIFICATION FEATURES**

**A... Construction**

Channel die formed code gauge prime cold rolled steel. Numerous KOs for ease of installation. End plate quickly converts to snap-in channel connector for continuous row alignment. Lampholder mounting brackets easily installed with snap-in action. Channel/wireway cover secured with quarter-turn fasteners.

**B... Electrical\***

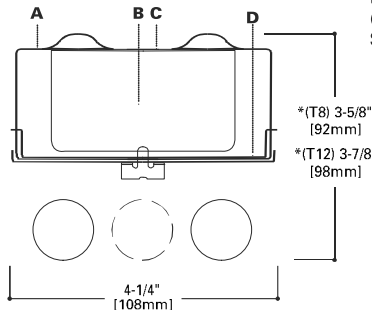
Ballasts are CBM/ETL Class "P" and are positively secured by mounting bolts. Pressure lock lampholders. UL/CUL listed. Suitable for damp locations.

**C... Finish**

Multistage iron phosphate pretreatment ensures maximum bonding and rust inhibitor. Lighting upgrade, baked white enamel finish.

**D... Channel/Wireway Cover**

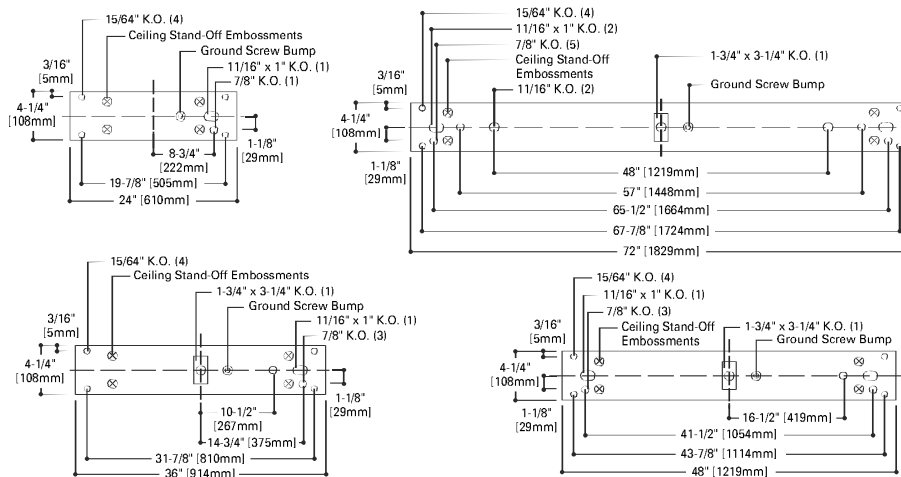
Die formed heavy gauge steel. Tight fit for ease of maintenance. Easily removed without use of tools. Optional reflector available incorporating silver technology enhancements. (Silver Lining) Consult Pre Sales Technical Support.



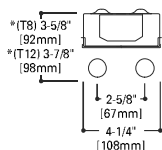
- SS120**
- 117
- 140
- 132
- 220
- 217
- 230
- 225
- 240
- 232

**2' STRIP**  
**1 OR 2 LAMP LTS OR HTS**  
**3' OR 4' STRIP**  
**1 OR 2 LAMP**  
Standard Striplight

**MOUNTING DATA**



**LAMP CONFIGURATIONS**



**COOPER LIGHTING**

**ENERGY DATA**

Input Watts:  
**EB Ballast & STD Lamps**  
117 (20), 217 (36), 130 (50), 125 (37)  
140 (38), 132 (30), 230 (60), 225 (47)  
240 (72), 232 (61)

**ES Ballast & STD Lamps**  
125 (33), 140 (38), 132 (30), 117 (23)  
217 (45), 230 (74), 225 (65), 240 (86)  
232 (71)

**STD Ballast & STD Lamps**  
120 (32), 220 (58)

Luminaire Efficacy Rating  
**LER = FS-88**  
Catalog Number: SS-232

Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$2.73

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





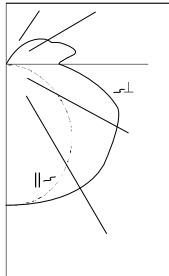
**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
SS-232-UNV-GL-TEB81-RIFI-U -  
WG/SS-4FT-B  
Notes:

**Type:**  
**E**  
WK08-1600

SS

**PHOTOMETRICS**



**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		
<b>RCR</b>																							
0	105	105	105	105	100	100	100	100	92	92	92	84	84	84	77	77	77	74					
1	93	87	83	78	88	84	79	75	76	73	70	70	67	64	64	61	59	56					
2	83	74	67	61	79	71	65	59	65	60	55	59	55	51	54	51	47	44					
3	75	64	56	49	71	62	54	48	56	50	45	51	46	42	47	42	39	36					
4	68	56	48	41	65	54	46	40	49	43	37	45	39	35	41	36	32	30					
5	62	50	41	35	59	48	40	34	44	37	32	40	34	30	37	32	28	25					
6	57	44	36	30	54	43	35	29	39	32	27	36	30	26	33	28	24	22					
7	53	40	32	26	50	38	31	25	35	29	24	33	27	22	30	25	21	19					
8	49	36	28	23	47	35	27	22	32	26	21	30	24	20	27	22	19	17					
9	46	33	25	20	44	32	25	20	30	23	19	27	22	18	25	20	17	15					
10	43	30	23	18	41	29	22	18	27	21	17	25	20	16	23	18	15	13					

**Candela**

Angle	Along ll	45°	Across ⊥
0	1017	1017	1017
10	1007	1010	1021
20	949	985	1030
30	857	951	1042
40	738	906	1029
50	588	830	978
60	422	727	920
70	252	632	834
80	104	456	601
90	0	253	393
100	0	320	518
110	0	246	430
120	0	199	353
130	0	131	263
140	0	69	167
150	0	17	76
160	0	1	7
170	0	0	0
180	0	0	0

**SS-232**

Electronic Ballast  
FO32T8 Lamps  
2900 Lumens

Spacing criterion:  
(ll) 1.3 x mounting  
height, (⊥) 1.6 x  
mounting height

Efficiency 91.6%

Test Report:  
SS232.IES

LER = FS-88

Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$2.73

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	830	14.3	15.6
0-40	1411	24.3	26.6
0-60	2753	47.5	51.8
0-90	4288	73.9	80.7
90-180	1023	17.6	19.3
0-180	5311	91.6	100.0

**ORDERING INFORMATION**

<p><b>SS</b></p> <p>Tandem Blank=2', 3' or 4' Length 6T=6' Length 8T=8' Length</p> <p>SS=Series</p>	<p><b>2 32</b></p> <p>Number of Lamps 1 or 2 Lamps (Not Included)</p> <p>Wattage (Length) 20=20W T12 (24") 17=17W T8 (24") 30=30W T12 (36") 25=25W T8 (36") 40=40W T12 (48") 32=32W T8 (48")</p> <p>Options GL=Single Element Fuse GM=Double Element Fuse Emergency=EM Installed<sup>(3)</sup></p>	<p><b>UNV GL</b></p> <p>Starting Type LTS=Low Trigger Start (20V only) (120V only) HTS=High Trigger Start (20V Only)</p> <p>Voltage<sup>(1)</sup> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277<sup>(2)</sup></p>	<p><b>EB81</b></p> <p>Ballast Type<sup>(1)</sup> LE3=T12 Magnetic Energy Saving LEOC8=T8 Magnetic Energy Saving</p> <p>EB8 =T8 Electronic Instant Start. Total Harmonic Distortion &lt;20%</p> <p>No. of Ballast 1, 2 or 3</p> <p>EB8 /PLUS= T8 Electronic Instant Start. High Ballast Factor &gt;1.13. Total Harmonic Distortion &lt;20%</p> <p>No. of Ballast 1, 2 or 3</p> <p>ER8 =T8 Electronic Program Rapid Start. Total Harmonic Distortion &lt;10%</p> <p>No. of Ballast 1, 2 or 3</p> <p>TEB8 =T8 Electronic Instant Start. Total Harmonic Distortion &lt;10%</p> <p>No. of Ballast 1, 2 or 3</p> <p>EB2 =T12 Electronic Rapid Start. No. of Ballast 1 or 2</p> <p>DLS=Digital Lighting System Dimming</p>	<p><b>RIF1</b></p> <p>Options RIF1=Radio Interference Suppressor 6-3/18 SJT-C&amp;P-515P=Cord &amp; Plug (120V) 6-3/18 SJT-C&amp;P-L715P=Cord &amp; Plug (277V) PI/CPI=Plug-In Option TILW=Tandem In-Line Wiring Option (Consult TILW Option Catalog Page) RLS=Rotor-Lock Socket (T8 Lamps Only) (See options &amp; accessories)</p>	<p><b>U</b></p> <p>Packaging 4B=4 Bulk</p>
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NOTES: <sup>(1)</sup>Products also available in non-US voltages and frequencies for international markets.  
<sup>(2)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(3)</sup>Not available for 2' version.  
<sup>(4)</sup>For SilverLining reflector add SR in Catalog Number. Example: STN/SS-SR-SYM-6

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

**ACCESSORIES WG/SS-4FT-B**

- (Order Separately)
- A1B=Spacer
  - GRP-SS=Gripper Hanger (Use 2 Per Fixture)
  - AYC-Chain/Set=36" Chain Hanger (Use 1 Set Per Fixture)
  - SCF=Fixed Stem Set (Specify Length)
  - SCS=Swivel Stem Set (Specify Length)
  - CLC=Long Channel Connector
  - STN/SS-ASY-3<sup>(4)</sup>=3" Asymmetric Reflector (Specify 2', 3', or 4')
  - STN/SS-ASY/REV-3<sup>(4)</sup>=3" Asymmetric Reverse Reflector (Specify 2', 3', or 4')
  - STN/SS-SYM-6<sup>(4)</sup>=6" Symmetric Reflector Specify (2', 3', or 4')
  - STN/SS-ASY-6<sup>(4)</sup>=6" Asymmetric Reflector (Specify 2', 3', or 4')
  - IC-4FT-REFL<sup>(4)</sup>=12" Symmetric Reflector
  - WG/SS-4FT=Wire Guard

(Additional Accessories Available. See Options and Accessories Section.)

**SHIPPING INFORMATION**

Catalog No.	Wt.
SS-117	7 lbs.
SS-217	7 lbs.
SS-125	9 lbs.
6TSS-125	16 lbs.
SS-225	9 lbs.
6TSS-225	15 lbs.
SS-132	9 lbs.
8TSS-132	16 lbs.
SS-232	7 lbs.
8TSS-232	20 lbs.





**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
SS-232-UNV-GL-TEB81-RIFI-U -  
WG/SS-4FT-B  
Notes:

**Type:**

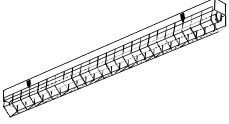
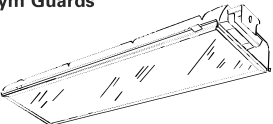
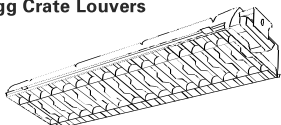
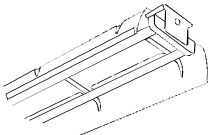
**E**

WK08-1600

## OPTIONS AND ACCESSORIES

## METALUX®

STRIPS AND INDUSTRIALS

REFLECTORS AND SHIELDING	DESIGNATION	DESCRIPTION
<p><b>Wire Guards</b></p> 	<p>WG/SN-4FT-U (SN) WG/SS-4FT-U (SS, STN) WG/IC-4FT-U (IA, IC) WG/DI-4FT-U (DI, DIM, DIVM, EIM, EIVM) WG/STM-4FT-U (STM) WG/STW-4FT-U (STW)</p>	<p>Baked white enamel finish. 14 gauge wire</p>
<p><b>Gym Guards</b></p> 	<p>Gym Guard GG-DI (Wire Gym Guard)  WG/PA-4FT (Wire Gym Guard/Acrylic Lens)  DI-RS-AW/FRM (use with Rapid Start lamps), DI-SL-AW/FRM (use with Slimline and HO lamps) (Steel Frame/Acrylic Lens)</p>	<p>Baked white enamel finish. 11 gauge wire. Steel frame to support optional shielding. (Use with DI, DIM, DIVM)</p>
<p><b>Egg Crate Louvers</b></p> 	<p>MECL-DI/RS-49-3/4-U MECL-DI/RS-99-1/2-U MECL-DI/SL-48-U MECL-DI/SL-96-U</p>	<p>Baked white enamel finish. Sturdy cold rolled steel construction. 32° parallel shielding. (Use with DI, DIM, DIVM)</p>
<p><b>Optional Reflector Finishes</b></p> 	<p>POR (Porcelain)  POX (Porlux)  SS (SilverLining)  SR (SilverLining)</p>	<p>Durable/Performance industrial reflector finishes. Available on DI, DIM, DIVM, EI, EIM and EIVM Series (Porcelain not available on IA/IC Series).  A silver coating applied to commercial bright, code gauge prime cold rolled steel. (SN and SS) A silver coating applied to commercial bright, code gauge prime cold rolled steel. (STN and STW)</p>

Items listed are the major options and accessories available on Metalux Strips and Industrial Fixtures. Additional options and accessories are available. Consult Pre Sales Technical Support for additional information.



**METALUX®**

**DESCRIPTION**

The GR8 is a T8-dedicated lensed troffer designed to offer premium performance in a low profile housing. T8 dedication and optimized lamp to lens spacing provides the best in energy efficiency and optical control. The GR8's shallow, low profile housing is compatible with even highly restrictive plenums. Luminaires are compatible with today's popular ceiling systems.

**APPLICATION**

The GR8 offers great performance and great quality. The series is an excellent choice for commercial offices, schools, hospitals, retail merchandising and many other applications.

**SPECIFICATION FEATURES**

**A... Construction**

Unitized low profile recessed housing is die formed of code gauge prime cold rolled steel with full length stiffeners and mechanical endplate attachment for added strength. Off center, ballast cover is easily removed without tools. Die formed captive lampholder bracket fully encloses lampholder wiring for easy lampholder replacement. Ample KOs are provided for continuous row wiring. Built-in grid-lock feature for safety and convenience. Standard unit is NYC Approved. (No modifications necessary).

**B... Electrical\*\***

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

**C... Finish**

Multistage, iron phosphate pretreatment ensures maximum bonding and rust inhibition. Lighting grade baked white enamel finish with premium reflectance for high efficiency.

**D... Hinging/Latching**

Positive spring loaded cam action steel latches and safety lock T-hinges provide secure, high quality door fit and allow hinging and latching from either side.

**E... Frame/Shielding**

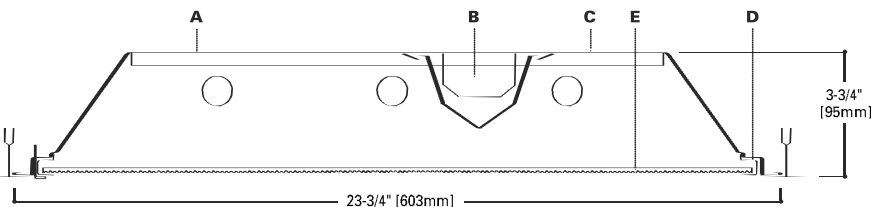
Heavy gauge flat steel door is die formed with reinforced mitered corners. Housing and door frame assemblies incorporate full length and width mechanical light traps. Light stabilized, acrylic prismatic lens.



**2GR8332**

**2' X 4' TROFFER  
3 LAMP**

General Purpose  
T8 Commercial Troffer



**ENERGY DATA**

Input Watts:  
**EB Ballast & STD Lamps**  
332 (91)

**ES Ballast & STD Lamps**  
332 (108)

Luminaire Efficacy Rating  
**LER = FL-68**

**Catalog Number:** 2GR8-332A

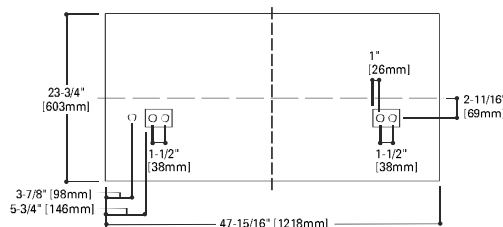
**Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$3.53**

\*Standard G (Grid) Type Fixtures can be field converted by adding trim kits. See Compatibility Section or Consult Factory.

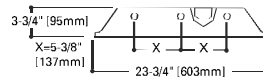
\*\*Reference the lamp/ballast data in the Technical Section for specific lamp/ballast requirements.

\*\*\*Order FCS-24W-U Flange Kit for installation in drywall ceiling. See options and accessories compatibility section.

**MOUNTING DATA**

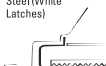


**LAMP CONFIGURATIONS**

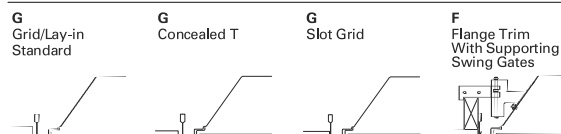


**DOOR FRAMES**

2GR8  
Flat, White  
Steel (White  
Latches)



**CEILING COMPATIBILITY**



Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G
Flange	G***





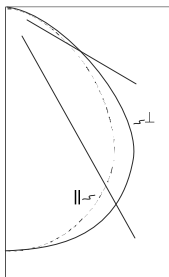
**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
2GR8-332A-UNV-GL-TEB82-RIF1-U  
Notes:

**Type:**  
**F**  
WK08-1600

2GR8

**PHOTOMETRICS**



**2GR8-332A**  
Electronic Ballast  
F32T8/35K lamps  
2800 lumens

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

Efficiency 76.0%

Test Report:  
2GR8332A.IES

LER = FL-68

Yearly Cost of 1000 lumens, 3000 hrs at .08 KWH = \$3.53

**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		
<b>RCR</b>																							
0	91	91	91	91	88	88	88	88	84	84	84	81	81	81	78	78	78	76	76	76	76		
1	84	81	78	75	82	79	76	74	76	74	72	73	71	69	70	69	67	66	66	66	66		
2	77	72	67	63	75	70	66	63	68	64	61	65	62	60	63	61	59	57	57	57	57		
3	71	64	59	54	70	63	58	54	61	57	53	59	55	52	57	54	51	50	50	50	50		
4	66	58	52	47	64	57	51	47	55	50	46	53	49	45	51	48	45	43	43	43	43		
5	60	51	45	40	59	51	45	40	49	44	40	48	43	39	46	42	39	37	37	37	37		
6	56	46	40	35	54	46	40	35	44	39	35	43	38	35	42	38	34	33	33	33	33		
7	51	42	35	31	50	41	35	31	40	34	31	39	34	30	38	33	30	29	29	29	29		
8	47	37	31	27	46	37	31	27	36	30	27	35	30	26	34	30	26	25	25	25	25		
9	44	34	27	23	43	33	27	23	32	27	23	31	26	23	31	26	23	21	21	21	21		
10	41	30	24	20	40	30	24	20	29	24	20	29	24	20	28	23	20	19	19	19	19		

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	1965	23.4	30.8
0-40	3239	38.6	50.7
0-60	5421	64.5	84.9
0-90	6386	76.0	100.0
0-180	6386	76.0	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	67	71	64	68
30 x 30	60	64	57	61
30 x 60	52	55	47	50
60 x 30	62	66	60	64
60 x 60	52	55	48	51

**Candela**

Angle	Along II	45°	Across ⊥
0	2460	2460	2460
5	2445	2456	2468
10	2416	2440	2464
15	2367	2409	2449
20	2295	2358	2413
25	2194	2281	2352
30	2063	2176	2266
35	1900	2045	2163
40	1705	1879	2015
45	1474	1650	1794
50	1200	1362	1474
55	932	1045	1122
60	710	745	811
65	533	497	566
70	389	326	416
75	275	243	327
80	201	204	251
85	110	122	143
90	0	0	0

**ORDERING INFORMATION**

SAMPLE NUMBER: 2GR8-332A-120V-EB81-U

<p><b>2</b> 2=2' Width</p> <p><b>GR8</b> Series GR8=General Purpose T8 Commercial Troffer<sup>(1)</sup></p>	<p><b>3</b> Number of Lamps<sup>(2)</sup> 3=3 Lamps (Not included)</p> <p><b>32 A</b> Wattage (Length) 32=32W T8 (48")</p> <p>A=#12 Pattern Acrylic A125=#12 Pattern Acrylic (.125" Thick) A19/156=#19 Pattern Acrylic (.156" Thick) IMA 48=Injection Moldeed Acrylic (.150" Thick) PB1S=Silver Parabolic Louver (1/2" x 1/2" x 1/2") (Additional shielding media available, see accessory section)</p> <p><b>120V</b><sup>(3)</sup> 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 Lamps=Lamps Installed Flex=Flex Installed Emergency=EM Installed</p>	<p><b>UNV GL</b></p> <p><b>EB82</b> Ballast Type<sup>(3)</sup> Blank=Standard Magnetic Ballast (Biax &amp; 20W) LEOC8=T8 Magnetic Energy Saving ER8 = T8 Electronic Program Rapid Start. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 EB8 = T8 Electronic Instant Start. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 EB8 / PLUS = T8 Electronic Instant Start. High Ballast Factor &gt;1.13. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 TEB8 = T8 Electronic Instant Start. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 DLS=Digital Lighting System Dimming</p>	<p><b>RIF1</b> Options FCS-24W-U=Field Installed Flange Kit FR=Suitable for Fire Rated Applications EQ=T-BAR Safety Earthquake Clips<sup>(1)</sup> (See options &amp; accessories)</p> <p><b>Radio Interference Suppressor</b></p>	<p><b>U</b> Packaging U=Unit Pack</p>
---	---	---	--	---

NOTES: <sup>(1)</sup>An EQ Grid Clip is recommended for all 9/16" ceiling systems. <sup>(2)</sup>Standard off-center ballast compartment on 3-lamp fixtures. <sup>(3)</sup>Products also available in non-US voltages and frequencies for international markets. <sup>(4)</sup>Not available when specifying emergencies, voltage must be specific.

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.

**SHIPPING INFORMATION**

Catalog No.	Wt.
2GR8-332A	31 lbs.





**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
H285E-70PS

Notes:

**Type:**

**G**

WK08-1600

**HALO®**

**DESCRIPTION**

This compact fluorescent housing offers a universal voltage 120/277V electronic ballast. The H280 series offers the reliability and versatility of the H7 family with the operating efficiencies of higher wattage compact fluorescent operation. Fixtures with an "L" suffix are shipped with one compact fluorescent lamp included.

**DESIGN FEATURES**

**A...Housing**

Aluminum single wall construction helps dissipate heat.

**B...Plaster Frame**

Housing adjusts 1-3/4" in plaster frame for different ceiling thicknesses. Includes locking screws for hanger bars and cutouts for crimping hanger bars in position.

**C...Junction Box**

- Junction Box is listed for through branch circuit wiring and has seven 1/2" knockouts and four non metallic (NM) sheathed cable knockouts with true pry out slots. NM sheathed cable knockouts include built in strain relief and require no additional clamps

**D...Got NAIL!™ Bar Hangers**

- Bar Hanger Features include:
- Pre-installed nail easily installs

in regular lumber, engineered lumber and laminated beams

- Safety and guidance system prevents snagging, ensures smooth straight nail penetration and allows bar hangers to be easily removed if necessary.
- Automatic levelling flange aligns the housing and lets you hold the housing in place with one hand while driving nails
- Housing can be positioned at any point within 24" joist span
- Bar hangers do not need to be removed from frame for shortening
- Score lines allow "toolless" shortening for 12" joists.
- Bar hangers can be repositioned 90° on plaster frame
- Integral T-bar clip snaps onto T-bars - no additional clips required

**E...Ballast:**

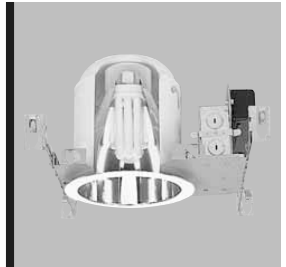
Electronic ballast is universal voltage 120V-277V, provides flicker free and noise free operation and quick starting. High ballast factor provides full light output while high power factor and low THD provide efficient electronic operation. End of life protection, sound rating A, and FCC non-consumer ratings are standard

**F...Replacement Lamps:**

26 Watt - Z126TE30, 4-pin, GX24q-3, 3000°K

**Listings**

- UL/cUL Damp Location
- UL/cUL Feed Through



**H285E  
H285EL**

26W Triple Twin Tube 4-pin

**Electronic Compact**

**Fluorescent**

**Recessed Housing**

**7"**

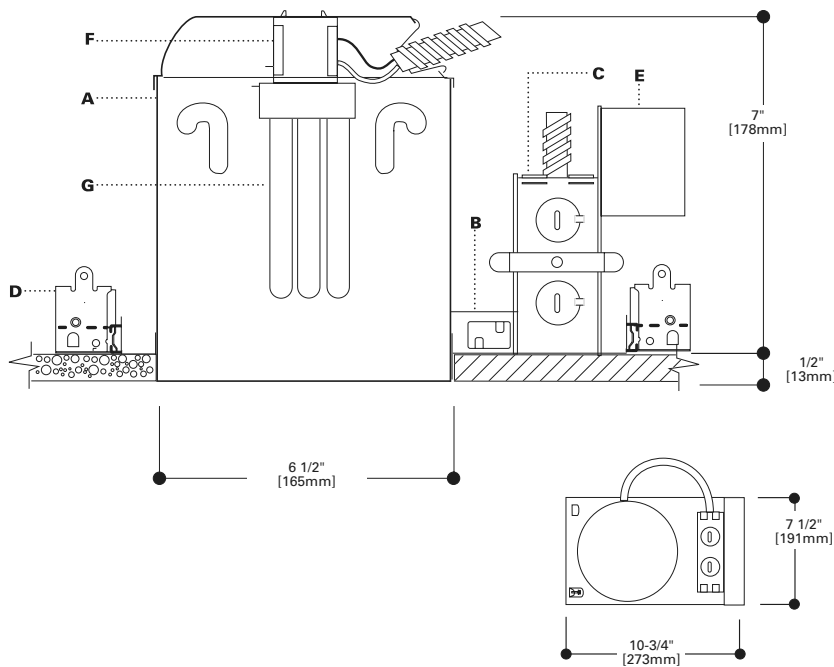
**Non-Insulated Ceiling**

**7" TRIMS  
FOR USE IN NON-  
INSULATED CEILINGS  
OR  
INSULATED CEILINGS  
BUT INSULATION  
MUST BE KEPT 3"  
FROM ALL SIDES OF  
FIXTURE**

**ENERGY DATA**

**H285E, H285EL**

(1) 26W DTT or TTT 4-pin CFL  
Type: CFQ26W/G24Q or  
CFR26W/GX24q  
Ballast: 120V-277V  
Input Watts: 28  
120V Line Amps: 0.25  
277V Line Amps: 0.11  
Power Factor: >0.98  
Ballast Factor: 1.02  
Min Start Temp: 0°F/-18°C  
120V THD: <10%  
277V THD: <15%  
EMI/RFI: FCC 47CFR Part 18 Non-  
Consumer




**H 2 8 5 E , H 2 8 5 E L**
**TRIMS**
**ORDERING INFORMATION**
**SAMPLE NUMBER: H285E-406SC**

Order housing, trim and accessories separately.

**Housing**
**H285E**=Compact Fluorescent Housing with 26W 120/277V Universal Voltage Electronic Ballast

**H285EL**=Compact Fluorescent Housing with 26W 120/277V Universal Voltage Electronic Ballast 26W CFL Lamp Included

**Trims**
**REFLECTORS**


406

**Specular Reflector**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 406SC=Specular Clear  
 406RG=Residential Gold  
 OD: 7 1/4" (184mm)

**REFLECTOR/BAFFLES**


406

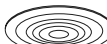
**Baffle with Reflector**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 406BA=Black Baffle, White Trim Ring  
 406WB=White Baffle, White Trim Ring  
 OD: 7 1/4" (184mm)

**DIFFUSERS**


70

**Albalite Lens**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 70P=Albalite Lens, White Trim Ring  
 70PS=Albalite Lens, White Trim Ring, Gasketed Shower Light  
 OD: 8" (203mm)


71

**Drop Opal Lens**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 71P=Drop Opal Lens, White Trim Ring  
 71PS=Drop Opal Lens, White Trim Ring, Gasketed Shower Light  
 OD: 8" (203mm)


73

**Glass Fresnel Lens**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 73P=Glass Fresnel Lens, White Trim Ring  
 73PS=Glass Fresnel Lens, White Trim Ring, Gasketed Shower Light  
 OD: 8" (203mm)


75

**All-Glas Diffuser**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 75=Glass Diffuser  
 OD: 7 3/4" (197mm)


424

**Wall Wash**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 424P=Wall Wash  
 OD: 7 1/4" (184mm)


425

**Wall Wash with Baffle**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 425P=White Wall Wash, Black Baffle  
 425W=White Wall Wash, White Baffle  
 OD: 7 1/4" (184mm)


270

**Shower Light with Reflector**  
**26W Double Twin Tube Compact Fluorescent Lamp**  
 270P=White Trim Ring, Clear Reflector, Frosted Lens,  
 OD: 7 3/4" (197mm)

**Accessories**
**Metal Trim Rings**

Compatible with 406 (SC and RG only) 424, 425

**TRM6P**=White Metal  
**TRM6PB**=Polished Brass  
**TRM6C**=Chrome  
**TRM6MB**=Black Metal  
**TRM6SN**=Satin Nickel  
**TRM6AC**=Antique Copper  
**TRM6TBZ**=Tuscan Bronze  
**TRM6SL**=Silver Metal  
**TRP7MB**=Black Plastic

**Oversize Trim Rings**

For use when ceiling opening is cut too large. Compatible with 406 (SC and RG only) 424, 425

**OT400P**=9 1/4" White Metal  
**OT403P**=8" White Plastic

Note: Specifications and Dimensions subject to change without notice.

 Visit our web site at [www.cooperlighting.com](http://www.cooperlighting.com)

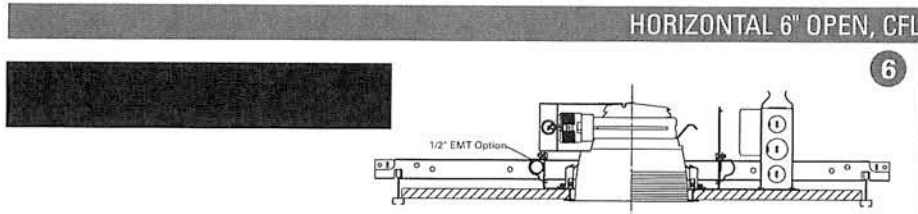


PDS



**PD6  
PD7  
Open  
Horizontal  
CFL**

- Low iridescent, clear reflector
- White painted self flange
- Torsion springs pull reflector to ceiling
- One piece folded metal socket cap
- Universal voltage ballast
- 120V & 277V Advance Mark 10 dimming
- Universal 4-pin socket
- Galvanized steel frame with 1/2" plaster lip
- Accommodates ceilings up to 2" thick
- Bar hangers lock to T-bar with screwdrivers or pliers
- Galvanized J-box with multiple KO's, listed for twelve #12AWG 90C conductors
- cUL listed, damp location
- "EM" fixtures use internally mounted test switch/indicator light



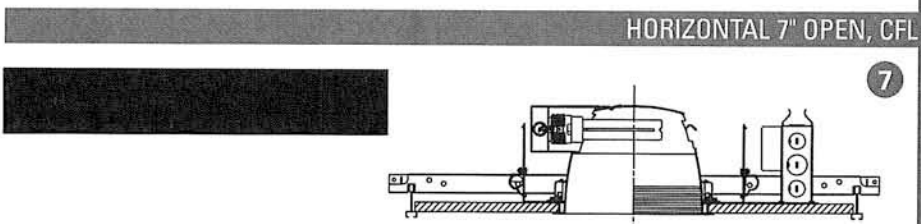
**STANDARD** (Frame, socket adapter and reflector ship separately.)

Frame	Socket Adapter	Reflector
Example: PD6	H1421D	6HC
PD6	H118=1-18W DTT H126=1-26W DTT H142=1-26/32/42W TTT H218=2-18W DTT H226=2-26W DTT	E=120-277V, 50/60Hz Electronic Ballast 3E=347V, 60Hz Electronic Ballast 1D=120V Dimming, Advance Mark 10 2D=277V Dimming, Advance Mark 10
		6HC=6" Horizontal Clear 6HBB=6" Horizontal Black Baffle 6HWW=6" Horizontal White Baffle

**EMERGENCY** (Frame and socket adapter/battery pack ship together. Reflector ships separately.)

Frame	Socket Adapter/Battery Pack	Reflector
Example: PD6	H118EEM	6HEMC
PD6	H118EEM=1-18W DTT H126EEM=1-26W DTT H142EEM=1-26/32/42W TTT H218EEM=2-18W DTT H226EEM=2-26W DTT	6HEMC=6" Horizontal Clear 6HEMBB=6" Horizontal Black Baffle 6HEMWB=6" Horizontal White Baffle

Other Standard, Dimming and EM ballasts available. Consult factory.



**STANDARD** (Frame, socket adapter and reflector ship separately.)

Frame	Socket Adapter	Reflector
Example: PD7	H1421D	7HC
PD7	H118=1-18W DTT H126=1-26W DTT H142=1-26/32/42W TTT H218=2-18W DTT H226=2-26W DTT	E=120-277V, 50/60Hz Electronic Ballast 3E=347V, 50/60Hz Electronic Ballast 1D=120V Dimming, Advance Mark 10 Powerline 2D=277V Dimming, Advance Mark 10 Powerline
		7HC=7" Horizontal Clear 7HBB=7" Horizontal Black Baffle 7HWW=7" Horizontal White Baffle

**EMERGENCY** (Frame and socket adapter/battery pack ship together. Reflector ships separately.)

Frame	Socket Adapter/Battery Pack	Reflector
Example: PD7	H118EEM	7HEMBB
PD7	H118EEM=(1) 18W DTT H126EEM=(1) 26W DTT H142EEM=1-26/32/42 TTT H218EEM=(2) 18W DTT H226EEM=(2) 26W DTT	7HEMC=7" Horizontal Clear 7HEMBB=7" Horizontal Black Baffle 7HEMWB=7" Horizontal White Baffle

Other Standard, Dimming and EM ballasts available. Consult factory.



MIRO

## Miro Decorator Dimmer, Fan Controller and Multilocation Controller

Wired preset devices complement Wireless Miro Decorator products

Decorator styling compatible with screwless or standard Wall Plates

Control Paddle



Silent or 'de-humming' technology for buzz-free fan control operation

Air-gap switch ensures safe relamping

PROJECT

LOCATION/TYPE

### Product Overview

#### Description

Miro Decorator Dimmer and Fan Controller operate most dimmable lighting loads and ceiling fans. Multilocation controllers provide convenient, easy-to-wire multi-way control. All devices feature decorator styling identical to Wireless Miro Decorator devices.

#### Operation: Dimmers

Users operate dimmers by pressing up or down on the paddle to raise or lower light levels. Tapping once recalls the preset light level. Dimmers may be used as stand-alone replacements for single-pole light switches. Universal Dimmers are recommended for all applications except for locations without a neutral wire. An incandescent dimmer is available for two-wire applications. Multilocation controllers allow full control of dimmers from additional locations.

### Features

- Universal Dimmers are compatible with most load types
- Last level recall (preset)
- Patented overload and short-circuit protection
- Air-gap switch ensures safe relamping
- Square law dimming curve

#### Operation: Fan Controllers

The Fan Controller offers pushbutton operation with four speeds and OFF, as well as speed control via the paddle. They are capable of operating two ceiling fans from a single location. Users may also turn fans ON and OFF or adjust fan speed from multilocation controllers.

#### Deratings

Derate dimmers as follows:

	Maximum Capacity		
	Single Dimmer	Dimmer at end of multi-gang	Dimmer in middle of multi-gang
• Incandescent / Quartz Halogen	600W	500W	400W
• Magnetic Low Voltage	500W	400W	300W
• Electronic Low Voltage	500W	400W	300W
• Cold Cathode / Neon	500W	400W	300W
• Fluorescent:			
- 2 Wire	500W	400W	300W
- Compact	500W	400W	300W

- Multilocation controllers provide full control of Dimmers or Fan Controllers
- Soft start technology significantly extends lamp life by limiting inrush current
- Long life status LED
- Compatible with decorator wall plates



## Specifications

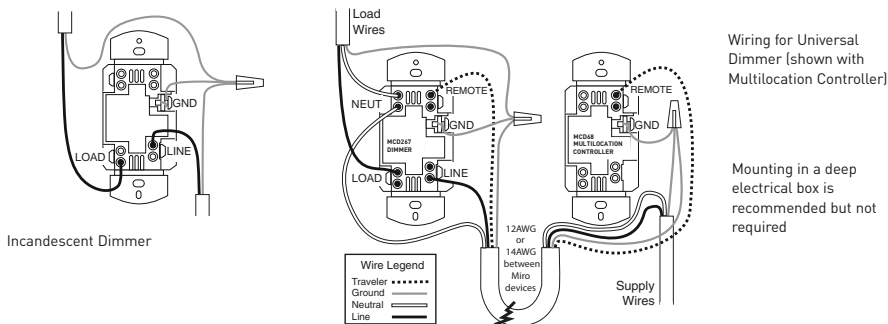
Load Types	Incandescent Dimmer	Universal Dimmer	Fan Controller	Multilocation Controller
Incandescent	•	•		
Dimmable magnetic low voltage		•		
Dimmable electronic low voltage		•		
Dimmable neon, cold-cathode		•		
Dimmable 2-wire fluorescent (Advance Mark X or equivalent)		•		
Ceiling fan(s)			•	
<b>Electrical Specifications</b>				
120 VAC	•	•	•	•
Neutral required		•	•	•
Air-gap isolation switch	•	•	•	
Short-circuit protection	•	•	•	
<b>Operating Conditions</b>				
Temperature: 32-104°F (0-40° C)	•	•	•	•
Humidity: 0-80%, non-condensing	•	•	•	•
<b>UL, CUL listed; Five-year warranty</b>	•	•	•	•
<b>Dimensions</b>				
<b>DCD26 &amp; DCD267:</b>	2.64"L x 1.75"W x 1.98"D; depth in wall 1.65" (67.1mm x 44.5mm x 50.3mm; D 41.9mm)			
<b>DCF8:</b>	2.64"L x 1.75"W x 2.17"D; depth in wall 1.86" (67.1mm x 44.5mm x 55.2mm; D 47.2mm)			
<b>DCD68:</b>	2.64"L x 1.75"W x 1.76"D; depth in wall 1.50" (67.1mm x 44.5mm x 54.6mm; D 38.1mm)			



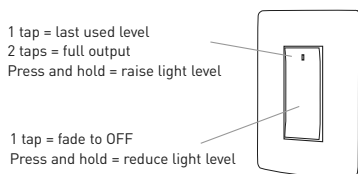
MIRRO

## Wiring & Operation

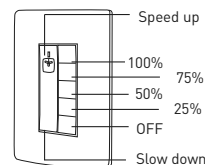
### Wiring Diagrams



### Dimmer and Multilocation Operation



### Fan Controller Operation



## Ordering Information

Catalog No.	Product Description	Voltage	Min Load	Max Load
<input type="checkbox"/> DCD26-x	Miro Decorator Incandescent Dimmer	120 VAC	60W	600W*
<input checked="" type="checkbox"/> DCD267-x	Miro Decorator Universal Dimmer	120 VAC	25W	600W*
<input type="checkbox"/> DCF8-x	Miro Decorator Fan Control	120 VAC	na	1.5A
<input type="checkbox"/> DCD68-x	Miro Decorator Multilocation Controller	120 VAC	na	na

In place of -x, please specify color when ordering. Specify -A for Light Almond, -B for Black, -I for Ivory, -W for White.

\*Subject to derating when more than 1 dimmer is ganged together or when using non-incandescent loads types. Please refer to chart shown earlier on this cut sheet.



# METALUX®

## DESCRIPTION

The BC Series is an energy efficient luminaire designed for versatility in application and performance. The BC Series features an opal white acrylic refractor that produces a 180° uniform light distribution pattern.

## APPLICATION

The versatile BC Series combines quality and economy in a multi-purpose wall bracket. The luminaire is perfect for illuminating corridors, stairwells, lavatories, dressing rooms, patient rooms, utility/task and area lighting.

## SPECIFICATION FEATURES

### A... Construction

Housing channel die formed code gauge prime cold rolled steel. Sturdy positive lampholder mounting bracket. Reflector/channel wireway cover secured by quarter-turn fastener for easy wireway access. Channel back has numerous KO's for easy installation. Decorative white opaque injection molded end plates.

### B... Electrical

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

### C... Finish

Painted after fabrication. Electrostatically applied baked white polyester powder enamel finish. Multistage cleaning cycle, iron phosphate coating with rust inhibitor. Conveyorized application and baking time accurately controlled at an elevated temperature.

### D... Frame/Shielding

Smooth opal 100% virgin acrylic refractor. 180° uniform light distribution (Uplight, Frontal & Downlight). Refractor is securely held in place by removable decorative injection molded white end plates. Refractor can be easily removed for installation and maintenance.

Catalog #	Type
Project	
Comments	
Prepared by	Date

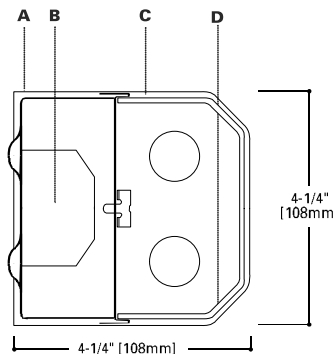


- BC120**
- 117
- 130
- 125
- 140
- 132
- 220
- 217
- 230
- 225
- 240
- 232

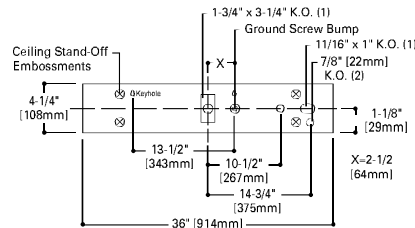
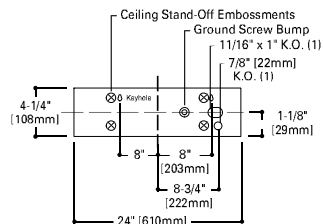
### ALL PURPOSE WALL BRACKET

2' Wall Bracket  
1 or 2 Lamp LTS or HTS

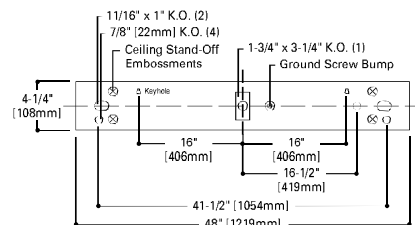
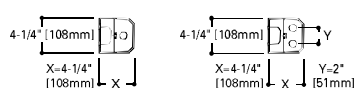
3' or 4' Wall Bracket  
1 or 2 Lamp



## MOUNTING DATA



## LAMP CONFIGURATIONS



## ENERGY DATA

Input Watts:

### EB Ballast & STD Lamps

117 (20), 130 (31), 125 (28), 140 (38)  
132 (30), 217 (36), 230 (60), 225 (47)  
240 (72), 232 (61)

### ES Ballast & STD Lamps

120 (32), 117 (23), 130 (46), 125 (33)  
140 (38), 132 (30), 220 (58), 217 (45)  
230 (74), 225 (65), 240 (86), 232 (71)

Luminaire Efficacy Rating

LER = FL-65

Catalog Number: BC-232A

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





**Job Name:**  
Riverine & Combatant -

**Catalog Number:**

BC-232-VOLT-EL-FBP140X-EB81-

U

Notes:

**Type:**

I

WK08-1600

BC

**PHOTOMETRICS**

Energy Saving Ballast, F32T8/35K lamps rated at 2850 lumens.  
Spacing criterion: (II) 1.3 x mounting heights, (L) 1.5 x mounting height.

Light Loss Factor .74. For complete photometric report BC232A.IES

**BC-232A**

(II)Lamps(2) F32T8/35K

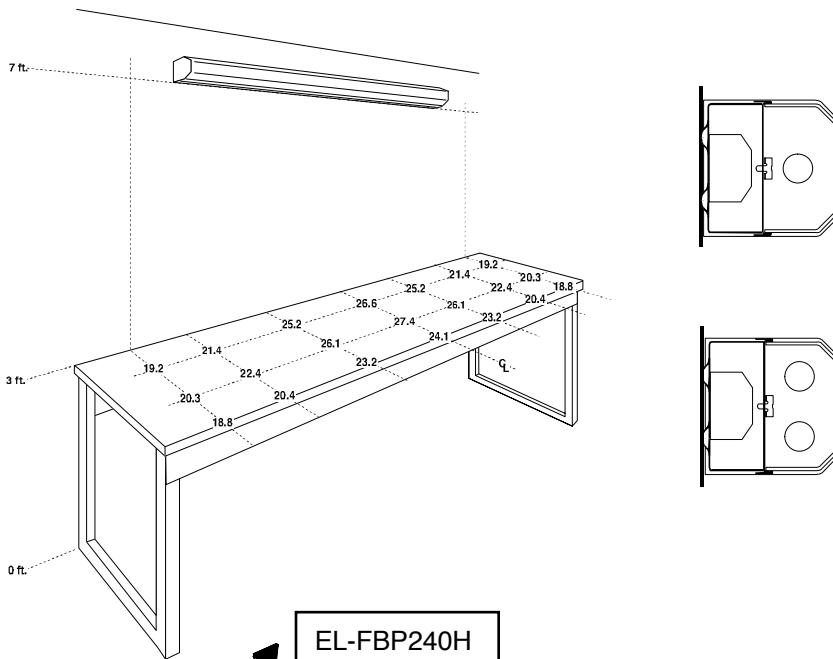
Lumens 2850 Each

**Conditions**

Ceiling Height 8'-0"  
Mounting Height 7'-43/64"  
Work Plane 12'-0"

**Reflectance**

Ceiling 80%  
Walls 50%  
Floor 20%



Scale is Exaggerated on Fixture Application and Mounting

**ORDERING INFORMATION**

<b>BC</b>	<b>2</b>	<b>32</b>	<b>[VOLT]</b>	<b>EB81</b>	<b>U</b>
<b>BC-Series</b> BC-Series	<b>Number of Lamps</b> 1 or 2 Lamps (Not included)	<b>Wattage (Length)</b> 20=20W T12 (24") 17=17W T8 (24") 30=30W T12 (36") 25=25W T8 (36") 40=40W T12 (48") 32=32W T8 (48")	<b>Starting Type</b> LTS=Low Trigger Start (20 Watt only) (120V only) HTS=High Trigger Start (20 Watt only)	<b>Ballast Type <sup>(1)</sup></b> Blank=Standard Magnetic Ballast (20W only) LE3=T12 Magnetic Energy Saving LEOC8=T8 Magnetic Energy Saving EB8 =T8 Electronic Instant Start. Total Harmonic Distortion < 20% No. of Ballast 1, 2 or 3 EB8 /PLUS= T8 Electronic Instant Start. High Ballast Factor >1.13. Total Harmonic Distortion < 20% No. of Ballast 1, 2 or 3 ER8 =T8 Electronic Program Rapid Start. Total Harmonic Distortion < 10% No. of Ballast 1, 2 or 3 TEB8 =T8 Electronic Instant Start. Total Harmonic Distortion < 10% No. of Ballast 1, 2 or 3 EB2 =T12 Electronic Rapid Start. No. of Ballast 1 or 2	<b>Packaging</b> U=Unit Pack
			<b>Voltage <sup>(1)</sup></b> 120V=120 Volt 277V=277 Volt 347V=347 Volt UNV=Universal Voltage 120-277 <sup>(2)</sup>		<b>Options</b> CO=Convenience Outlet (120V only) RS1=Rotary Switch, One circuit (120V only) PS1=Pull Switch, One circuit (120V only) RLS=Rotor-Lock Socket (T8 Lamps Only)(Consult Pre Sales Technical Support) (See options & accessories)

NOTES: <sup>(1)</sup>Products also available in non-US voltages and frequencies for international markets. <sup>(2)</sup>Not available when specifying emergencies, voltage must be specific. <sup>(3)</sup>Non available for 2' version.

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

**SHIPPING INFORMATION**

Catalog No.	Wt.
BC-117	8 lbs.
BC-125	10 lbs.
BC-132	11 lbs.
BC-217	8 lbs.
BC-225	10 lbs.
BC-232	11 lbs.





# COOPER LIGHTING - SURE-LITES®

**DESCRIPTION**

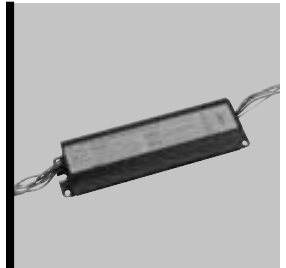
In the event of AC power failure, the Sure-Lites FBP Emergency Battery Pack automatically switches to emergency mode. It maintains illumination of one or two lamps for a minimum of 90 minutes. UL listed for field retrofit installation and conforms to UL 924.

**SPECIFICATION FEATURES**

<b>Electronic</b>	UL Listed for Retrofit/Field Installation
Dual Voltage Input 120/277 VAC, 60Hz	Life Safety NFPA 101
Universal Voltage Input 120-277 VAC, 50/60Hz (FBP240HU)	NEC/OSHA
Solid-state Charger	Most State and Local Codes
Overload/Short Circuit Protection	Chicago Approved
Test Switch/Power Indicator Light	<b>Features</b>
<b>Battery</b>	Provides a minimum of 90 minutes of emergency illumination
Sealed Nickel Cadmium	Can be installed inside or on top of fixture
Maintenance-free, Long Life	Low Profile Housing (FBP450LP)
Full Recharge Time, 24 hours (max.)	Easy-to-follow instructions make installation quick and simple
<b>Code Compliance</b>	May be used with switched or unswitched fixtures
UL 924 Listed	

Catalog #	Type
Project	
Comments	
Prepared by	Date

Self-Diagnostics (FBP240HSD)  
 One lamp operation (FBP240D, FBP140X, FBP240U, FBP450LP);  
 One or two lamp operation (FBP240M, FBP240H, FBP240C, FBP240HU, FBP240HSD)  
 Compatible with many different lamp types—consult ordering information below or consult your Cooper Lighting Representative regarding specific applications  
 Compatible with many ballast types including standard, rapid start, slimline, instant start, energy saving, dimming, and electronic AC ballasts—consult your Cooper Lighting Representative regarding specific applications



**\*FBP SERIES**

**FLUORESCENT  
EMERGENCY  
BATTERY PACK  
Emergency Lighting**

**ORDERING INFORMATION**

Catalog No.	Lamp Type	Number of Lamps Operated in Emergency Mode	Initial Lumens
FBP140X	20W-40W, 2'-4', T8-T12 U-shaped, circleline, 2D, energy saving, rapid start (4-pin, 2G11) long compact fluorescent	One	350-450
FBP240U	17W-215W, 2'-8', T8-T12 HO, VHO, U-shaped, circleline, 2D, energy saving, rapid start (4-pin, 2G11) long compact fluorescent	One	600-700
FBP240M	17W-215W, 2'-8', T8-T12 HO, VHO, U-shaped, circleline, 2D, energy saving, rapid start (4-pin, 2G11) long compact fluorescent	One-20W to 215W (2'-8') One-20W to 39W long compact fluorescent One or Two-20W to 40W (2'-4')	600-700
FBP240H	17W-215W, 2'-8', T8-T12 HO, VHO, U-shaped, circleline, energy saving, rapid start (4-pin, 2G11 or G24q) long compact fluorescent	One or Two - 17W to 24W One or Two - 32W to 40W (2'-4') One - 40W to 215W (5'-8') One or Two - 18W to 39W long compact fluorescent One or Two - 18W to 32W 4-Pin compact fluorescent	1100-1400 (700-1000 for long compact fluorescent)
FBP240HSD	17W-215W, 2'-8', T8-T12 HO, VHO, U-shaped, circleline, energy saving, rapid start (4-pin, 2G11, G24q, or GX24q) twin, quad and triple twin-tube compacts	One or Two-17W to 40W (2'-4') One-40W to 215W (5'-8') One or Two-18W to 39W long compact fluorescent One-40W to 55W long compact fluorescent One or Two-18W to 42W 4-pin compact fluorescent	1100-1400 (700-1000 for long compact fluorescent)
FBP240HU	17W-215W, 2'-8', T8-T12 HO, VHO, U-shaped, circleline, energy saving, rapid start (4-pin, 2G11, G24q, or GX24q) twin, quad and triple twin-tube compacts	One or Two-17W to 40W (2'-4') One-40W to 215W (5'-8') One or Two-18W to 39W long compact fluorescent One-40W to 55W long compact fluorescent One or Two-18W to 42W 4-pin compact fluorescent	1100-1400 (700-1000 for long compact fluorescent)
*FBP240C	6W-28W tubular without integral starter, 13W-42W 4-pin twin, quad, or triple twin-tube compact fluorescent without integral starters	One or Two-6W to 28W tubular One or Two-13W to 39W or One-42W 4-pin compact fluorescent	300-750
*FBP240D	18W-26W quad tube with integral starter in two pin base	One-18W to 26W compact fluorescent	300-650
*FBP3500	17W-215W, 2'-8', T8-T12 HO, VHO, U-shaped circleline, energy saving and (4-pin, 2G11, G24q, or GX24q) twin, quad and triple twin-tube compacts	One or Two-17W to 40W (2'-4') One-40W to 215W (5'-8') One or Two-18W to 39W long compact fluorescent One-40W to 55W long compact fluorescent One or Two-18W to 42W 4-pin compact fluorescent	1450-3500
FBP450LP	32W, 4', T8	One	450

\*FBP240C, FBP240D and FBP3500 are only models with conduit.

**ORDERING INFORMATION**

**SAMPLE NUMBER: FBP140X**

See chart above **Accessories**  
(Order separately)  
**FBP1WBC**=Wire Bundle Cover for external mount applications (2 required)

**COOPER LIGHTING**

**Energy Data**

Power Model No.	Input
FBP140X	4.5W
FBP240U	5.3W
FBP240M	5.3W
FBP240H	5.8W
FBP240HSD	4.0W
FBP240HU	6.0W
FBP240C	5.3W
FBP240D	3.5W
FBP3500	8.0W
FBP450LP	1.5W



**Job Name:**  
Riverine & Combatant -

**Catalog Number:**

BC-232-VOLT-EL-FBP140X-EB81-

U

Notes:

**Type:**

I

WK08-1600

**FBP SERIES**

**TECHNICAL DATA**

**Solid-State Charger**

Unit is supplied with a 120/277 VAC, voltage regulated solid-state charger, immediately upon restoration of AC current after a power failure, the charger provides a high charge rate. The charge circuit reacts to the condition of the battery and alters the rate of charge in order to maintain peak battery capacity and maximize battery life. Solid-state construction recharges the battery following a power failure and prevents over and under charging.

**Solid-State Switching**

The switching circuit is designed to detect voltage irregularities and automatically switches lamp(s) into emergency operation. Upon restoration of the AC current, the lamp(s) will switch back to AC operation and the charger will automatically go into charge mode.

**Test Switch/Charge Indicator**

Easy-to-install test switch simulates interruption of AC power and illuminates the fluorescent lamp(s). LED charge indicator light indicates battery charger operation.

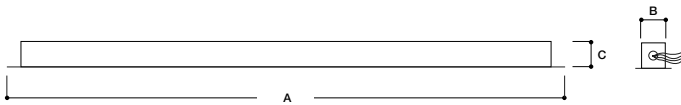
**Battery**

High temperature nickel cadmium battery pack is standard.

**Warranty**

All Sure-Lites products are backed by a firm one year warranty against defects in material and workmanship (excluding lamps).

**DIMENSIONS**



Model	Dimensions		
	A	B	C
FBP140X	9.4"	2.4"	1.5"
FBP240U	9.4"	2.4"	1.5"
FBP240M	9.4"	2.4"	1.5"
FBP240H	13.3"	2.4"	1.5"
FBP240HU	13.3"	2.4"	1.5"
FBP240HSD	13.3"	2.4"	1.5"
FBP240C	9.4"	2.4"	1.5" (Flex=28"L)
FBP240D	9.4"	2.4"	1.5" (Flex=28"L)
FBP3500	16.3"	5.5"	1.7" (Flex=28"L)
FBP450LP	14.1"	1.5"	1.0"

**NOTES:** See option/accessories or technical sections for additional detailed product data. Specifications and Dimensions subject to change without notice.



**(E) COOPER LIGHTING - LUMARK®**

**DESCRIPTION**

The IMPACT Trapezoid full cutoff wall luminaire makes an ideal complement to site design. U.L. and CUL Listed for wet locations in down mount applications and damp locations in up mounted applications.

Rugged construction and full cutoff classified optics provide facade and security lighting for light restricted zones surrounding schools, office complexes, apartments, and recreational facilities.

Catalog #	Type
Project	
Comments	Date
Prepared by	

**SPECIFICATION FEATURES**

**Construction**

Durable two-piece die-cast aluminum housing and removable hinged door frame envelopes the optical enclosure from nature's elements. 1/8" clear, heat and impact resistant tempered flat glass lens combined with molded silicone gasket seals the integrated optical assembly to ensure peak optical performance. Captive stainless steel hardware secures the removable hinged door allowing for ease of installation and maintenance.

**Optical Systems**

Custom engineered highly reflective anodized aluminum reflectors provide high efficiency Type II, Type III and Type IV distributions. All Impact Wall Series reflectors classify as IESNA full cutoff in downlight only applications. Optional silk screened house-side flat glass shield provides decreased wall brightness. Optical assemblies are offered standard with horizontal medium or mogul-based metal halide [MH/MP], high pressure

sodium [HP] or energy efficient 4-pin compact fluorescent [CF] lamps. Available 10% or 30% uplight options allow for architectural highlighting of building details.

**Electrical**

Integral hard mount electrical components are safely secured and grounded within the die-cast aluminum housing for optimal heat sinking and extended component life. All wiring is extended through a silicone grommet at the back of the housing to prevent entry of debris, moisture, dust and insects. UL listed high power factor ballasts are Class H insulation rated [metal halide: 150, 175W, 200, 250, 320, 350, 400W [-30°C /-20°F], [high pressure sodium: 250W, 400W [-40°C/-40°F]]. High efficiency ballasts are available in a multitude of voltage configurations including 120V, 208V, 240V, 277V, 347V and 480V. Compact fluorescent high power factor ballasts are Class P insulation rated for 120V-277V and have a starting temperature of -18°C / 0°F.

**Mounting**

Lumark's "Hook-N-Lock" gasketed and zinc plated rigid universal mounting assembly fits directly to a 4" junction box or wall. The "Hook-N-Lock" system allows for fast installation and mounting in both traditional downlighting [wet location] or inverted uplighting [damp location only] mounting positions.

**Ratings**

The Impact Wall Series is UL1598 wet location listed. Suitable for wet locations [damp location listed in inverted (lens up) orientation].

**Finish**

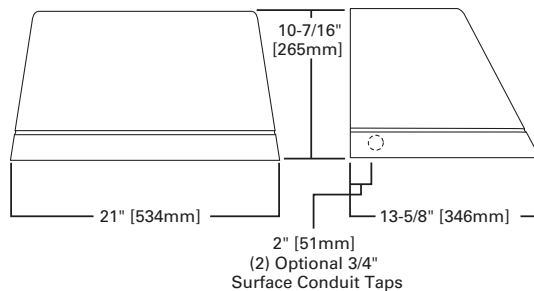
Housing and door are protected with a 5-stage premium TGIC dark bronze polyester powder coat paint. Premium TGIC powder coat finishes withstand extreme climate changes while providing optimal color and gloss retention over the fixture's installed life. Optional premium colors include black, white, grey, dark platinum and graphite metallic.



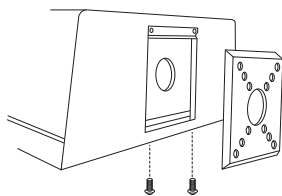
**IPTM  
IMPACT  
TRAPEZOID  
MEDIUM**

**175W - 400W  
Pulse Start Metal Halide  
High Pressure Sodium  
Metal Halide  
32 - 120W  
Compact Fluorescent**

**FULL CUTOFF  
WALL MOUNT LUMINAIRE**



**HOOK-N-LOCK MOUNTING**



Mounting attachment included.  
J-Box not included.



NOTE: In down light applications only.

**TECHNICAL DATA**

UL1598 Listed, CUL Listed  
25°C Ambient Temperature,  
40°C w/HAB Option  
Down Mounted - Wet Location  
Up Mounted - Damp Location  
EISA Compliant ©

**ENERGY DATA**

**High Reactance Ballast Input Watts**

150W MP HPF (185 Watts)  
250W HPS HPF (300 Watts)  
400W HPS HPF (465 Watts)

**CWA Ballast Input Watts**

200W MP CWA (227 Watts) ©  
250W MP CWA (283 Watts) ©  
320W MP CWA (365 Watts) ©  
350W MP CWA (400 Watts) ©  
400W MP CWA (452 Watts) ©

**Electronic Ballast Input Watts**

32W CF HPF (36 Watts)  
42W CF HPF (46 Watts)  
57W CF HPF (59 Watts)  
60W CF HPF (70 Watts)  
70W CF HPF (75 Watts)  
85W CF HPF (98 Watts)  
120W CF HPF (139 Watts)

**SHIPPING DATA**

Approximate Net Weight:  
42 lbs. (19 kgs.)





**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
HPIP-TM-250-MT-4-F1-U

Notes:

**Type:**

**J**

WK08-1600

**ORDERING INFORMATION**

**IPITM** IMPACT TRAPEZOID MEDIUM

Sample Number: MPIP-TM-400-4-MT-LL



**Lamp Type <sup>1</sup>**  
MP=Pulse Start Metal Halide  
MH=Metal Halide <sup>1</sup>  
HP=High Pressure Sodium  
CF=Compact Fluorescent

**Fixture Type**  
IP=Impact  
**Fixture Shape**  
TM=Trapezoid Medium

**Lamp Wattage <sup>2</sup>**  
MP  
150 =150W  
200 =200W  
250 =250W  
320 =320W  
350 =350W  
400 =400W  
MH <sup>1</sup>  
175 =175W  
250 =250W  
400 =400W  
HP  
250 =250W  
400 =400W  
Compact Fluorescent <sup>3</sup>  
60 =(1) 60W  
70 =(1) 70W  
85 =(1) 85W  
96 =(3) 32W  
114 =(2) 57W  
120 =(1) 120W  
126 =(3) 42W

**Distribution**  
HID  
3=Type III  
4=Type IV  
CE  
2=Type II <sup>3</sup>  
4=Type IV <sup>3</sup>  
**Voltage <sup>4,5</sup>**  
120V =120V  
208V =208V  
240V =240V  
277V =277V  
347V =347V <sup>4</sup>  
480V =480V  
DT=Dual-Tap  
MT=Multi-Tap, wired 277V  
TT=Triple-Tap, <sup>4</sup> wired 347V  
E=Electronic (120-277V)

**Options**

F1=Single Fuse, Specify Voltage (120, 277, or 347V)  
F2=Double Fuse, Specify Voltage (208 or 240V)  
PE=Button Photocontrol (Specify Voltage)  
BK=Black  
WH=White  
AP=Grey  
GM=Graphite Metallic  
DP=Dark Platinum  
LL=Lamp Included (Must Specify Wattage on CF)  
TR=Tamper Resistant Hardware (2 Screws)  
UP10 =10% Uplight  
UP30 =30% Uplight <sup>6</sup>  
HS=House-side Shield Glass <sup>7</sup>  
SC=Surface Conduit entry Taps (2) 3/4" NPT <sup>8</sup>  
HAB=High Ambient 40 Degrees C Fixture (HID Lamp) <sup>9</sup>  
CSW=Circuit Switching <sup>10</sup>  
DIM=CF Dimming Ballast (CF Lamp/Must Specify Number of <sup>11</sup> Lamps)  
FR=Frosted Glass <sup>12</sup>  
Q=Quartz Restrike (1)T4 Lamp <sup>13,14</sup>  
EM=Emergency Quartz Restrike (1) T4 Lamp with Time <sup>13,14</sup> Delay Relay  
EM/SC=Emergency Separate Circuit (1) T4 Lamp <sup>13,14,15</sup>  
QMR=Quartz Restrike (1) MR16 Lamp <sup>14,16</sup>  
2QMR=Quartz Restrike (2) MR16 Lamps <sup>14,16</sup>  
2QMR/SC=Quartz Restrike (1) MR16 Lamp and (1) <sup>14,15,16</sup> Emergency Separate Circuit MR16 Lamp  
EMMR=Emergency Quartz Restrike (1) MR16 Lamp with <sup>14,16</sup> Time Delay Relay  
2EMMR=Emergency Quartz Restrike (2) MR16 Lamps <sup>14,16</sup> with Time Delay Relay  
EM/SC/MR=Emergency Separate Circuit (1) MR16 <sup>14,15,16</sup> Lamp  
2EM/SC/MR=Emergency Separate Circuit (2) MR16 <sup>14,15,16</sup> Lamps  
2EMMR/SC=Emergency Quartz Restrike with Time <sup>14,15,16</sup> Delay Relay (1) MR16 and (1) MR16 Emergency Separate Circuit Lamp  
EM/SC/12V=Emergency Separate Circuit 12V Low <sup>14,15,17</sup> Voltage (1) MR16 Lamp  
2EM/SC/12V=Emergency Separate Circuit 12V Low <sup>14,15,17</sup> Voltage (2) MR16 Lamps  
EMI40 =Emergency Cold Temperature (UL924 Listed) Power <sup>18</sup> Pack -18 degrees C/0 degrees F, (1) CF Lamp, Specify Voltage  
EMI40-2L =Emergency Cold Temperature (UL924 Listed) <sup>19</sup> Power Pack (2) CF Lamps -18 degrees C/0 degrees F, (Specify Voltage)  
CF-EM =Emergency CF Power Pack (UL924 Listed) (1) CF <sup>20</sup> Lamp, 0 degrees C/32 degrees F, Specify Voltage.  
CF-EM/2L =Emergency CF Power Pack (UL924 Listed) (2) <sup>21</sup> CF Lamps, 0 Degrees C/32 Degrees F, Specify Voltage

**Notes:**

- 1 Lamp type not available in all wattages - see wattage table. 175W, 250W and 400W available for non-U.S. markets only.
- 2 All HID Metal Halide lamps are mogul-base, reduced envelope ED-28 except 200W Pulse Start Metal Halide is T16. All HID High Pressure Sodium lamps are mogul-base ED-18.
- 3 Type II - 60, 70, 85, 96, 114 or 126W CF only. Type IV - 60, 85, 120W CF only. In cold temperatures, compact fluorescent lamps produce lower illumination levels.
- 4 Products also available in non-US voltages and 50HZ for international markets. Consult your Cooper Representative for availability and ordering information. 88% EISA Compliant MP fixtures not available in 347V and TT voltages.
- 5 Not available with SC option teamed with 320-400W, not available with 480V.
- 6 Type III only. Not available with CF lamps.
- 7 Not available with 320 thru 400W.
- 8 Not available in Type IV 320V through 400W. Not available in Type III with F1, F2 with 320W through 400W.
- 9 Rated for 40°C for 250W and below fixture. Not available with CF lamps.
- 10 Each ballast independently wired. Available on 96, 114 or 126W CF wattages.
- 11 Specify CF option 96 or 126W, not available with HS, FR, or VS options. Must specify number of lamps.
- 12 Not available with 320W thru 400W or 114 or 126W CF options.
- 13 (1) 120V Lamp, 150W maximum quartz lamp. Utility power may need to cycle to allow HID lamp to cool in warm climates.
- 14 Emergency lamps supplied by others.
- 15 Emergency lamp leads out of the back of the unit to auxiliary 120V.
- 16 (1) or (2) 120V Lamps. GU10 base, 50W maximum each. Lamps supplied by others.
- 17 Power supplied by low voltage DC source (supplied by others). (1) or (2) 12V bi-pin socket GU5.3 base lamps, 35W maximum each.
- 18 Specify 120 or 277V, (-18°C) minimum temperature, not available with UP10 or CSW option, 70W CF maximum.
- 19 Specify 120 or 277V, (-18°C) minimum temperature, supports (2) 32W CF lamps, not available with UP10 or CSW option.
- 20 Specify 120 or 277V, (0°C) minimum, not available with UP10 or CSW option, 70W CF maximum.
- 21 Specify 120 or 277V, (0°C) minimum, not available with UP10 or CSW option, supports (2) 32W CF lamps.
- 22 Not available with VS option.
- 23 Not available with 320 thru 400W. Not available with wire guard.

**Accessories**

WGTM=Wire Guard <sup>22</sup>  
VS/ITM=Vandal Resistant Shield <sup>23</sup>

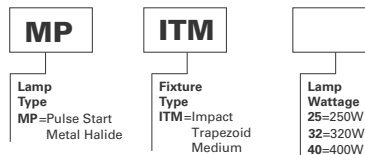
**VOLTAGE CHART**

DT=Dual-Tap	120/277 (wired 277V)
MT=Multi-Tap	120/208/240/277 (wired 277V)
TT=Triple-Tap	120/277/347 (wired 347V)
E=Electronic Ballast (CF only)	120-277V (wired 277V) (50/60 HZ)

LAMP TYPE	WATTAGE	DISTRIBUTION
Pulse Start Metal Halide (MP)	150, 200, 250, 320, 350, 400W	TYPE III, IV
Metal Halide (MH)	175, 250, 400W	TYPE III, IV
High Pressure Sodium (HP)	250, 400W	TYPE III, IV
Compact Fluorescent (CF)	(1) 60, (1) 70, (1) 85, (1) 120, (2) 57, (3) 32, (3) 42W	TYPE II, IV

**STOCK SAMPLE NUMBER**

SAMPLE NUMBER: MPITM25

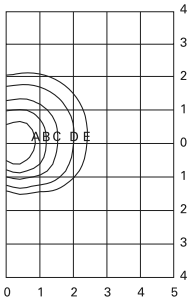


**Notes:**

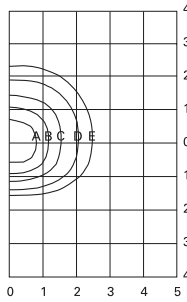
Standard Type IV distribution, Bronze and Multi-Tap. Options not available with stock products. Refer to standard order information to add options. Refer to In-Stock Guide for availability.



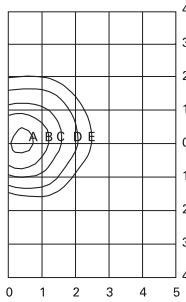
**PHOTOMETRICS** [Complete IES files available at [www.cooperlighting.com](http://www.cooperlighting.com)]



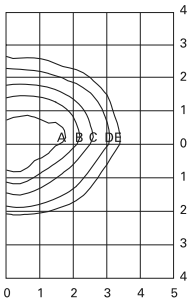
**CFIP-TM-126-2**  
126-Watt CF  
[3] 9,600-Lumen Clear Lamp  
Type II



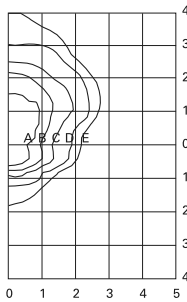
**CFIP-TM-114-2**  
114-Watt CF  
[2] 8,600-Lumen Clear Lamp  
Type II



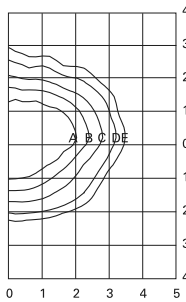
**CFIP-TM-85-2**  
85-Watt CF  
6,000-Lumen Clear Lamp  
Type II



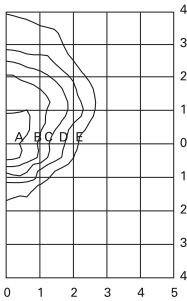
**MPIP-TM-150-3**  
150-Watt MP  
14,000-Lumen Clear Lamp  
Type III



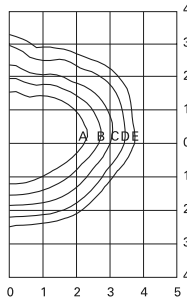
**MPIP-TM-150-4**  
150-Watt MP  
14,000-Lumen Clear Lamp  
Type IV



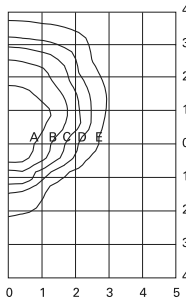
**MPIP-TM-250-3**  
250-Watt MP  
23,750-Lumen Clear Lamp  
Type III



**MPIP-TM-250-4**  
250-Watt MP  
23,750-Lumen Clear Lamp  
Type IV



**MPIP-TM-400-3**  
400-Watt MP  
40,000-Lumen Clear Lamp  
Type III



**MPIP-TM-400-4**  
400-Watt MP  
40,000-Lumen Clear Lamp  
Type IV

**FOOTCANDLE TABLE**

Select mounting height and read across for footcandle values of each isofootcandle line. Distance in units of mounting height.

Mounting Height	Footcandle Values for Isofootcandle Lines				
	A	B	C	D	E
<b>CFIP-TM-126-2 / CFIP-TM-114-2 / CFIP-TM-85-2</b>					
18'	2.46	1.23	0.62	0.25	0.12
20'	<b>2.00</b>	<b>1.00</b>	<b>0.50</b>	<b>0.20</b>	<b>0.10</b>
25'	1.28	0.64	0.32	0.13	0.06

**FOOTCANDLE TABLE**

Select mounting height and read across for footcandle values of each isofootcandle line. Distance in units of mounting height.

Mounting Height	Footcandle Values for Isofootcandle Lines				
	A	B	C	D	E
<b>MPIP-TM-150-3 / MPIP-TM-150-4 / MPIP-TM-250-3</b>					
18'	2.46	1.23	0.62	0.25	0.12
20'	<b>2.00</b>	<b>1.00</b>	<b>0.50</b>	<b>0.20</b>	<b>0.10</b>
25'	1.28	0.64	0.32	0.13	0.06

**FOOTCANDLE TABLE**

Select mounting height and read across for footcandle values of each isofootcandle line. Distance in units of mounting height.

Mounting Height	Footcandle Values for Isofootcandle Lines				
	A	B	C	D	E
<b>MPIP-TM-400-3</b>					
18'	2.46	1.23	0.62	0.25	0.12
20'	<b>2.00</b>	<b>1.00</b>	<b>0.50</b>	<b>0.20</b>	<b>0.10</b>
25'	1.28	0.64	0.32	0.13	0.06

**MPIP-TM-250-4 / MPIP-TM-400-4**

18'	6.15	2.46	1.23	0.62	0.25
20'	<b>5.00</b>	<b>2.00</b>	<b>1.00</b>	<b>0.50</b>	<b>0.20</b>
25'	3.20	1.28	0.64	0.32	0.13



**by Portfolio™**

**DESCRIPTION**

The Performance Downlight System (PDS) combines visually comfortable optics, energy efficiency and modularity with availability. Three key elements—reflector, socket adapter and frame—combine to form a feature-packed luminaire.

PDS reflectors boast equal 65° cutoff to lamp and lamp image. Low-iridescent clear reflector with white-painted self flange is standard.

PDS socket adapters provide modular flexibility and assure proper lamp orientation and lamp quantity to be used with each reflector. Lamp positions lock into place ensuring photometric performance. Electronic ballasts are standard.

PDS universal frames are dedicated to each aperture size and are used for compact fluorescent, metal halide and incandescent sources. No Fuss Bar Hangers™ speed installation of frames, minimizing labor costs on the job site.

**CATALOG#:**

**SPECIFICATION FEATURES**

**A--Reflector**

One-piece optical reflector minimizes internal losses and light leaks. 5/8" overlapping flange provides gap-free aperture. Standard finish is low-iridescent clear with white painted self-flange. Torsion spring mounting pulls flange tight to ceiling.

**B--Baffles**

One-piece black or white baffle. Upper specular reflector maximizes light output. Self-flange of each is painted white.

**C--Socket Cap**

One-piece folded metal cap. Positive connection between cap and reflector.

**D--Socket and Socket Adapter**

4-pin G24q base with stainless steel spring for positive retention. Guide post inserts rejects two-pin bases to ensure proper lamping. Multi-voltage ballast accommodates 120V thru 277V.

**E--Frame**

Galvanized steel frame with 1/2" plaster lip is standard. Accommodates ceilings up to 2" (50mm) thick.

**F--No Fuss Bar Hanger**

Bar hanger locks to T-bar with a screwdriver or pliers. Centering mechanism allows consistent centering of fixtures. 2 1/2" vertical adjustment. Can be used with 1/2" EMT

**G--Junction Box**

Galvanized with (6) 1/2" and (2) 3/4" KO's.

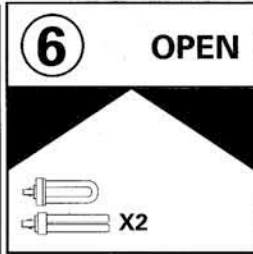
**Insulation Detector**

Thermal protection deactivates unit if improper lamp type or wattage is used, or if insulation is placed too close to the fixture.

**Labels**

CUL listed, damp location, IBEW union made.

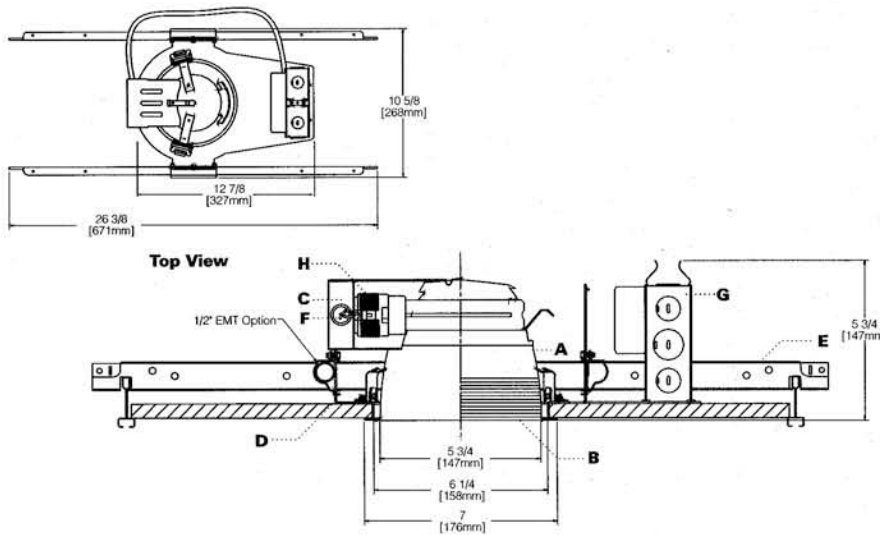
**TYPE:**



**PD6-H142  
H226, H126  
H218, H118**

**4 2 W M A X  
T R I P L E  
( 2 ) 2 6 W M A X  
Q U A D  
Compact Fluorescent**

**6" DOWNLIGHT**



**Energy Data**

Input	Lamp wattage		System wattage		Open circuit	
	V	W	V	W	V	A
120V	42W	47.0W	0.39A			
	32W	34.5W	0.30A			
277V	26W	26.0W	0.22A			
	42W	47.0W	0.13A			
277V	32W	34.5W	0.13A			
	26W	26.0W	0.09A			

Power Factor: >.99  
THD: <10%  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

Input	System wattage		Open circuit	
	V	W	V	A
120V	50.0W	0.45A		
	50.0W	0.20A		

Power Factor: >.99  
THD: <10%  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

Input	System wattage		Open circuit	
	V	W	V	A
120V	27.0W	0.22A		
	27.0W	0.09A		

Power Factor: >.99  
THD: <10%  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

Input	System wattage		Open circuit	
	V	W	V	A
120V	37.0W	0.32A		
	37.0W	0.14A		

Power Factor: >.99  
THD: <10%  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

Input	System wattage		Open circuit	
	V	W	V	A
120V	19.0W	0.15A		
	19.0W	0.07A		

Power Factor: >.99  
THD: <10%  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

**ORDERING INFORMATION**

**SAMPLE NUMBER: PD6-H142E-6HC**

Order frame, socket adapter and reflector separately for a complete unit.

Housing	Socket Adapter	Reflector
<b>PD6</b>	<b>H142E</b>	<b>6HC</b>
<ul style="list-style-type: none"> <li>PD6</li> </ul>	<ul style="list-style-type: none"> <li>H142E=(1) 42, 32 or 26W Triple tube lamp, multi-voltage ballast, Horizontal Module</li> <li>H226E=(2) 26W Quad Tube, multi-voltage ballast, Horizontal Module</li> <li>H126E=(1) 26W Quad Tube, multi-voltage ballast, Horizontal Module</li> <li>H218E=(2) 18W Quad Tube, multi-voltage ballast, Horizontal Module</li> <li>H118E=(1) 18W Quad Tube, multi-voltage ballast, Horizontal Module</li> </ul>	<ul style="list-style-type: none"> <li>6HC =6" Horizontal Clear</li> <li>6HBB =6" Horizontal Black Baffle</li> <li>6HWP =6" Horizontal White Baffle</li> </ul>



**PHOTOMETRICS**

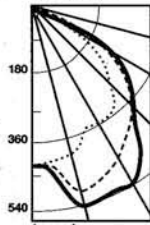
PD6-H142, H226,  
H126, H218, H118

**PD6-H142E-6HC**

Test No. H22343

Lamp=32W PLT  
Compact  
Fluorescent  
Lumens=2400  
Spacing Criteria=1.3, 1.6  
Efficiency=53.6%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	2
75	10
65	88
55	298
45	378
35	497
25	535
15	543
5	441
0	421

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	14	8'
6'6"	10	9'6"
8'0"	7	11'6"
10'0"	4	14'6"
12'0"	3	17'6"
14'0"	2	20'6"

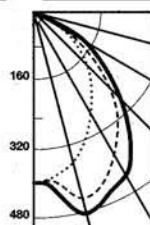
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H142E-6HBB**

Test No. H22348

Lamp=32W PLT  
Compact  
Fluorescent  
Lumens=2400  
Spacing Criteria=1.1, 1.5  
Efficiency=39.0%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	1
75	5
65	50
55	180
45	282
35	402
25	459
15	484
5	410
0	394

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	13	7'
6'6"	9	8'6"
8'0"	6	10'6"
10'0"	4	13'
12'0"	3	15'6"
14'0"	2	18'

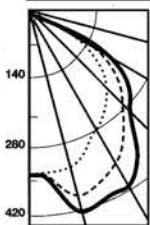
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H142E-6HC**

Test No. H22344

Lamp=26W PLT  
Compact  
Fluorescent  
Lumens=1800  
Spacing Criteria=1.2, 1.6  
Efficiency=55.5%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	2
75	8
65	74
55	233
45	291
35	382
25	415
15	424
5	356
0	340

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	11	7'
6'6"	8	8'6"
8'0"	5	10'6"
10'0"	3	13'
12'0"	2	15'6"
14'0"	1	18'

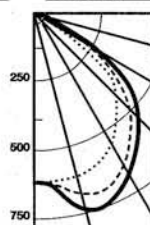
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H226E-6HC**

Test No. H22346

Lamp=(2) 26W Quad  
Compact  
Fluorescent  
Lumens=1800  
Spacing Criteria=1.3, 1.4  
Efficiency=42.9%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	3
75	9
65	48
55	312
45	472
35	596
25	704
15	748
5	650
0	636

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	21	7'
6'6"	15	8'6"
8'0"	10	10'6"
10'0"	6	13'
12'0"	4	15'6"
14'0"	3	18'

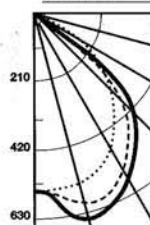
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H218E-6HC**

Test No. H22345

Lamp=(2) 18W Quad  
Fluorescent  
Lumens=1250  
Spacing Criteria=1.2, 1.4  
Efficiency=53.1%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	2
75	7
65	40
55	259
45	428
35	526
25	616
15	648
5	564
0	554

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	18	7'
6'6"	13	8'6"
8'0"	9	10'6"
10'0"	6	13'
12'0"	4	15'6"
14'0"	3	18'

Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

Note: Specifications and Dimensions subject to change without notice.

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# METALUX®

## DESCRIPTION

The F-Bay I8 series is an outstanding solution for high mounting height industrial or retail applications. The F-Bay I8 optic has been optimized to provide maximum performance from the T8 lamps. Optional upright component is provided to enable excellent ceiling uniformity. The I8's high lumen package allows the benefits of fluorescent to be applied at high mounting heights that were traditionally exclusive to H.I.D. The primary benefits include exceptional color rendering, high system efficacy, 95% lumen maintenance, long lamp life, instant on/instant re-strike, economical dimming, and uniform brightness control. Primary applications include "big box" retail, shopping malls, light industrial, school gymnasiums, etc.

<b>Catalog #</b>		<b>Type</b>
<b>Project</b>		
<b>Comments</b>		<b>Date</b>
<b>Prepared by</b>		

## SPECIFICATION FEATURES

### A ... Construction

Specification grade full body housing, end plates and socket tracks are die formed 20 gauge cold rolled steel in 4' or 8' lengths. The housing features an integral ballast channel that adds strength and provides numerous KO's for easy installation. Die formed high reflectance internal reflectors for efficiency and control. Uplight slots available as an option for nominal 8% uplight component.

### B ... Electrical

Ballasts are Class "P" and are positively secured by mounting bolts. Rotor-lock Bi-Pin lampholders. An optional top ballast access plate enables service from above without disturbing the internal optics. Optional modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance. UL/CUL listed. Suitable for damp locations.

### C ... Finish

Electrostatically applied baked white enamel finish is preceded by a multistage cleaning cycle, iron phosphate coating with rust inhibitor.

### D ... Downlight/Uplight Optics

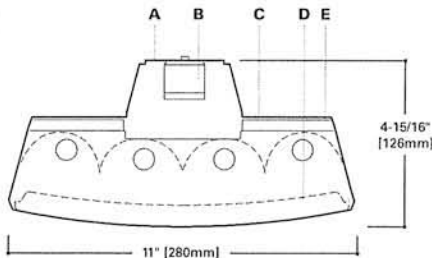
Optical modules are fully enclosed inside housing to protect against damage. Die formed reflectors are faceted with two optical distributions - medium and wide. Medium beam optical modules utilize 95% specular Miro powder coated finish. Open downlight design optimizes performance. An optional attractive thin blade white baffle adds longitudinal shielding. A clear or frosted white acrylic lens is also available. An optional heavy duty wireguard can be used with or without the lens or baffle. The uplight option is provided to enable ceiling uniformity. Latched retention of optics (safety leader restraints) allows for easy access.

### E ... Mounting

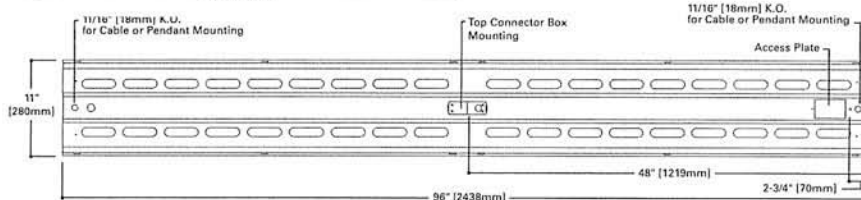
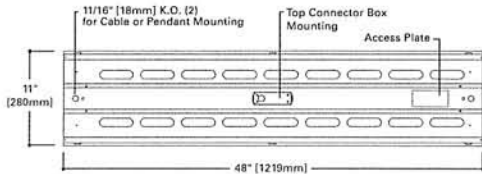
The F-Bay I8 series is ideally suited for surface, suspension mounting with optional wire hook and chain set, stem or cable mounting. Top connector box mounting is also available. Narrow 11" housing allows mounting within 12" horizontally from the nearest edge of the sprinkler deflector.

### E ... Options

Integral Occupancy Sensor available and provides from 600 sq. ft. (MS) up to 1250 sq. ft. (MSO) of coverage at a maximum mounting height of 40'.

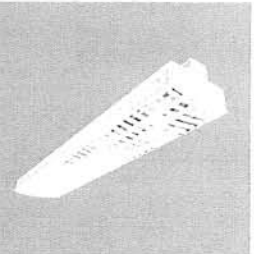
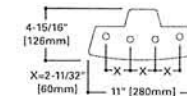


## MOUNTING DATA



COOPER LIGHTING

## LAMP CONFIGURATIONS



## F-BAY I8 Series

4' OR 8'  
4 LAMPS  
T8 Linear Fluorescent Hi-Bay  
Lighting System



## ENERGY DATA

Input Watts:  
EB Ballast  
432 = 109  
8T432 = 218

EB/Plus Ballast  
432 = 147  
8T432 = 294

ER Ballast  
432 = 112  
8T432 = 224

ER/Plus Ballast  
432 = 144  
8T432 = 288

Luminaire Efficacy Rating  
LER = 88  
Catalog Number: I8-432-UNV-UPL

Yearly Cost of 1000 lumens,  
3000 hrs at .08 KWH = \$2.74

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

\*\* Consult Pre-Sales Technical Support.

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

## LINEAR DISCONNECT

Safe and convenient means of disconnecting power.



ADF052027

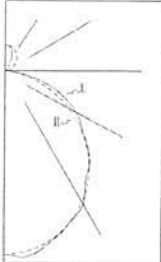


**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
8T1A-832G-UNV-L8835-EB81-  
RIF1  
Notes:

**Type:**  
**N**  
WK08-1600

**PHOTOMETRICS**



**I8-432-UNV-EB81-UPL**  
Electronic Ballast  
F32T8-TL835 Lamps  
3000 Lumens

Spacing criterion:  
(H) 1.2 x mounting  
height, (L) 1.3 x  
mounting height  
Efficiency 91.2%  
Test Report:  
236P197C

LER = FL-88

Yearly Cost of 1000  
lumens, 3000 hrs at  
.08 KWH = \$2.74

**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	0
<b>RCR</b>																		
0	107	107	107	107	104	104	104	104	98	98	98	92	92	92	87	87	87	85
1	98	94	90	87	95	91	88	85	86	83	81	81	79	77	77	75	74	71
2	89	82	76	71	86	80	74	69	75	71	67	71	68	64	68	65	62	60
3	81	72	65	59	78	70	63	58	66	61	56	63	58	54	60	56	53	50
4	74	64	56	50	72	62	55	49	59	53	48	56	51	46	53	49	45	43
5	68	57	49	43	66	55	48	42	53	46	41	50	45	40	48	43	39	37
6	63	51	43	37	61	50	42	37	48	41	36	46	40	35	44	39	35	33
7	59	46	39	33	57	45	38	33	43	37	32	42	36	31	40	35	31	29
8	54	42	35	29	53	41	34	29	40	33	29	38	32	28	37	31	27	26
9	51	39	31	26	49	38	31	26	37	30	26	35	29	25	34	29	25	23
10	48	36	29	24	46	35	28	24	34	28	23	33	27	23	31	26	23	21

**Candela**

Angle	Along H	45°	Across L
0	3644	3644	3644
5	3625	3677	3715
10	3574	3686	3667
15	3491	3577	3530
20	3379	3425	3400
25	3231	3254	3246
30	3056	3081	3115
35	2851	2886	2804
40	2615	2680	2594
45	2356	2346	2390
50	2076	2090	2112
55	1774	1834	1856
60	1460	1526	1642
65	1136	1281	1362
70	812	1007	1070
75	508	724	691
80	242	377	314
85	59	79	47
90	1	6	3

**Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixture
0-30	2861	23.8	26.1
0-40	4657	38.8	42.6
0-60	8121	67.7	74.2
0-90	10169	84.7	92.9
0-180	10943	91.2	100.0

**Typical VCP Percentages**

Room Size (Ft.)	Height Along		Height Across	
	8.5'	10.0'	8.5'	10.0'
20 x 20	28	33	25	31
30 x 30	24	26	23	24
30 x 60	24	24	24	22
60 x 30	28	29	27	27
60 x 60	27	25	28	25

**ORDERING INFORMATION**

SAMPLE NUMBER: 8T18-432-TBW-120V-EBT1-UPL-U

<p><b>Length</b> Blank=4' Length 8T=8' Length</p> <p><b>Series</b> I8=T8 Industrial</p> <p><b>Mounting Arrangement</b> Blank=Stand Alone R=Continuous Row Mount</p> <p><b>No. of Lamps</b> 4=4 Lamps</p> <p><b>Lamp Type</b> 32=32W T8 (48")</p> <p><b>Distribution Optic</b> Blank=Medium (Specular Aluminum) G=Wide (High Reflectance White)</p> <p><b>Shielding Options</b> Blank=Open TBW=Thin White Baffle FL=Frosted Acrylic Lens &amp; Frame (I) ASY= Asymmetric Directional Louver (I) WG=Heavy Duty Wireguard</p>	<p><b>Voltage</b><sup>(1)</sup> UNV=Universal 120/277 Voltage UNC=Universal 347/480 Voltage (T5 linear only)<sup>(1)</sup> 120V=120 Volt 277V=277 Volt 347V=347 Volt 480V=480 Volt</p> <p><b>Options</b> I8 Lamps Installed L8830=T8 Lamp, 80CRI 3000K L8835=T8 Lamp, 80CRI 3500K L8841=T8 Lamp, 80CRI 4100K L8850=T8 Lamp, 80CRI 5000K GL=Single Element Fuse GM=Double Element Fuse Emergency=EM Installed<sup>(1)</sup></p>	<p><b>Ballast Type</b> T8 Systems EBB_<sup>(2)</sup>=T8 Electronic Instant Start.<sup>(4)</sup> Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 EBB_<sup>(2)</sup>/PLUS=T8 Electronic Instant Start. High Ballast<sup>(4)</sup> Factor &gt;1.13. Total Harmonic Distortion &lt; 20% No. of Ballast 1, 2 or 3 ER8_<sup>(2)</sup>=T8 Electronic Program Rapid Start.<sup>(4)</sup> Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 ER8_<sup>(2)</sup>/PLUS=T8 Electronic Program Start. High Ballast Factor &gt;1.13. Total Harmonic Distortion &lt; 10% No. of Ballast 1, 2 or 3 DIM=Dimming</p>	<p><b>Options</b> UPL=Uplight Apertures PI/CPI=Plug-In (1, 2 or 3)<sup>(1)</sup> see ordering information TILW=Tandem Inline Wiring MWS=Modular Wiring System MS=Aisle Coverage Motion Sensor<sup>(1)</sup> MSO=360° Coverage Motion Sensor<sup>(1)</sup> C3=3' Power Cord C6=6' Power Cord MPR=Modular Power Receptacle<sup>(1)</sup> (I) PC3=3' Power Cord &amp; Plug (Specify Voltage)<sup>(1)</sup> PC6=6' Power Cord &amp; Plug (Specify Voltage)<sup>(1)</sup> TAP=Top Access Plate TCBP=Top Connector Box Plate<sup>(1)</sup></p> <p><b>Accessories (order separately)</b> TCB=Top Connector Box RH-1=Retrofit Hanger FH-1=Fixture Hook FL-1=Fixture Loop SHK=Hook w/ Safety Screw AYC-CHAIN/SET/U=(2) Hooks, 36" Chain Sets w/S-Hooks<sup>(1)</sup> GRIPPLE TOGGLE=Single Toggle, #2 Cable (Specify 10' or 30') GRIPPLE LOOP=Loop Hanger, #2 Cable (Specify 10' or 30') MC6=6' Modular Power Cord MPC6=6' Modular Power Cord &amp; Plug (Specify Voltage)</p> <p><b>Doorframes (order separately)</b> I5-FRM/LENS=Frosted Acrylic Lens &amp; Frame (I5) I5-FRM/CL PK=Clear Acrylic Lens &amp; Frame (I8) WG/I5-4FT-B=Heavy Duty Wireguard 90800PPK=Thin White Blade Baffle (I5) BAFFLE 4FT I8=Thin White Blade Baffle (I8) 90801PPK=Asymmetrical Directional Louver</p>	<p><b>Packaging</b> U=Unit Pack PAL=Palletized Out of Carton PALC=Palletized In Carton</p>
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NOTES: <sup>(1)</sup>Requires use of voltage specific modular cord assembly. See accessories. <sup>(2)</sup>Use with wide distribution optic only. <sup>(3)</sup>Voltage must be specified when ordered with plugs, motion or emergency ballasts. <sup>(4)</sup>ER8 and EBB ballast systems suitable for operation in ambient environments up to 50°C in open upright configurations. <sup>(5)</sup>Specify voltage. <sup>(6)</sup>For use with Top Connector Box options. See accessories. <sup>(7)</sup>Cannot be combined with power cord or cord & plug option. See PI ordering information on next page. <sup>(8)</sup>Not for use in high abuse applications such as gymnasiums.

**SHIPPING INFORMATION**

Catalog No.	Wt.
I8-432-UNV-UPL	15 lbs.
8T18-432-UNV-UPL	30 lbs.

Visit our web site at [www.cooperlighting.com](http://www.cooperlighting.com)





**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
8TIA-832G-UNV-L8835-EB81-  
RIF1  
Notes:

**Type:**

**N**

WK08-1600

18

**PI OPTION ORDERING INFORMATION**

Catalog Number Suffix	Number of Circuits	Circuit Wired To Ballast
PI 1 BLK	1	Black
PI 2 BLU	2	Blue
PI 2 BLK	2	Black
PI 3 RED	3	Red
PI 3 BLU	3	Blue
PI 3 BLK	3	Black

**Catalog Numbering System**

The PI System is available in sections up to 8' in length for continuous row wiring by simply plugging the sections together. Each PI section is factory wired to the ballast leads. Color coding of wires is as follows:

**PI-1** = One Circuit - 2 Wires: one black, one white

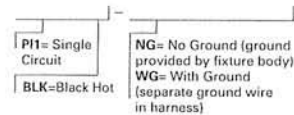
**PI-2** = Two Circuits - 3 Wires: one black, one blue, one white

**PI-3** = Three Circuits - 4 wires: one black, one blue, one red, one white

When ordering the PI2/PI3 System it is necessary to specify the number of fixtures required for each circuit. All wiring to external feeds, using cord or cord & plug, are responsibility of installing licensed contractor. Cord and cord & plug sets must be ordered separately if PI option is chosen.

**PI1 - Single Circuit Plug-In**

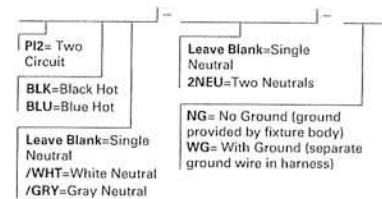
SAMPLE NUMBER: PI1BLK-WG



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.

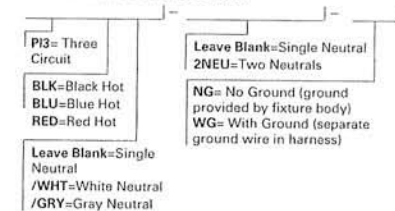
**PI2 - Two Circuit Plug-In**

SAMPLE NUMBER: PI2BLK-WG



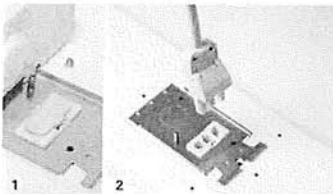
**PI3 - Three Circuit Plug-In**

SAMPLE NUMBER: PI3BLK-WG

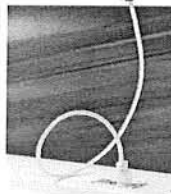


**Modular F-Bay Power Supply**

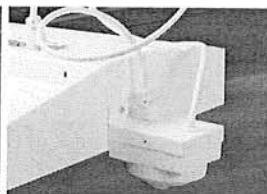
Cooper Lighting's F-Bay Modular Power Supply option allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixtures power supply allows servicing without turning off all the fixtures disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – simply plug & power.



1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate.
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply.



No internal fixture access required for installation or disconnecting power.



Modular Motion Sensor Option supplied with Mounting Box and Modular Power Supply Receptacle.

**Code Compliance**

- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating/dustcap



**by Portfolio™**  
**DESCRIPTION**

The Performance Downlight System (PDS) combines visually comfortable optics, energy efficiency and modularity with availability. Three key elements—reflector, socket adapter and frame—combine to form a feature-packed luminaire.

PDS reflectors boast equal 65° cutoff to lamp and lamp image. Low-iridescent clear reflector with white-painted self flange is standard.

PDS socket adapters provide modular flexibility and assure proper lamp orientation and lamp quantity to be used with each reflector. Lamp positions lock into place ensuring photometric performance. Electronic ballasts are standard.

PDS universal frames are dedicated to each aperture size and are used for compact fluorescent, metal halide and incandescent sources. No Fuss Bar Hangers™ speed installation of frames, minimizing labor costs on the job site.

**CATALOG#:**

**SPECIFICATION FEATURES**

**A-Reflector**

One-piece optical reflector minimizes internal losses and light leaks. 5/8" overlapping flange provides gap-free aperture. Standard finish is low-iridescent clear with white painted self-flange. Torsion spring mounting pulls flange tight to ceiling.

**B-Baffles**

One-piece black or white baffle. Upper specular reflector maximizes light output. Self-flange of each is painted white.

**C-Socket Cap**

One-piece folded metal cap. Positive connection between cap and reflector.

**D-Socket and Socket Adapter**

4-pin G24q base with stainless steel spring for positive retention. Guide post inserts rejects two-pin bases to ensure proper lamping. Multi-voltage ballast accommodates 120V thru 277V.

**E-Frame**

Galvanized steel frame with 1/2" plaster lip is standard. Accommodates ceilings up to 2" (50mm) thick.

**F-No Fuss Bar Hanger**

Bar hanger locks to T-bar with a screwdriver or pliers. Centering mechanism allows consistent centering of fixtures. 2 1/2" vertical adjustment. Can be used with 1/2" EMT

**G-Junction Box**

Galvanized with (6) 1/2" and (2) 3/4" KO's.

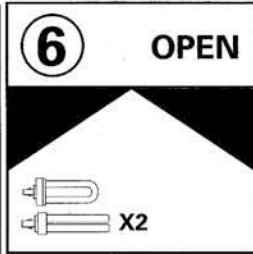
**Insulation Detector**

Thermal protection deactivates unit if improper lamp type or wattage is used, or if insulation is placed too close to the fixture.

**Labels**

CUL listed, damp location, IBEW union made.

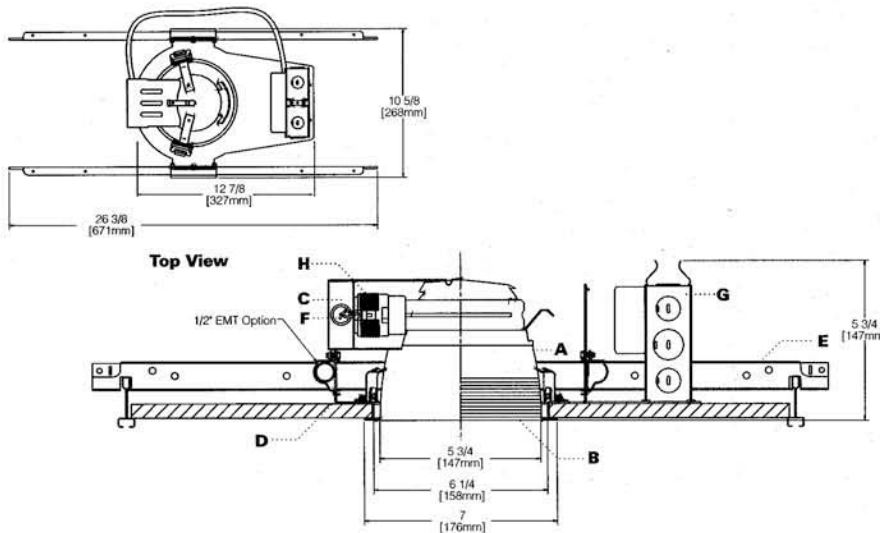
**TYPE:**



**PD6-H142  
H226, H126  
H218, H118**

**4 2 W M A X  
T R I P L E  
( 2 ) 2 6 W M A X  
Q U A D  
Compact Fluorescent**

**6" DOWNLIGHT**



**Energy Data**

**H142E**

Input	Lamp Voltage	System wattage	Open wattage	Open circuit
120V	42W	47.0W	0.39A	
120V	32W	34.5W	0.30A	
120V	26W	26.0W	0.22A	
277V	42W	47.0W	0.13A	
277V	32W	34.5W	0.13A	
277V	26W	26.0W	0.09A	

Power Factor: >.99  
THD: <10%:  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

**H226E**

Input	System Voltage	Open wattage	Open circuit
120V	50.0W	0.45A	
277V	50.0W	0.20A	

Power Factor: >.99  
THD: <10%:  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

**H126E**

Input	System Voltage	Open wattage	Open circuit
120V	27.0W	0.22A	
277V	27.0W	0.09A	

Power Factor: >.99  
THD: <10%:  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

**H218E**

Input	System Voltage	Open wattage	Open circuit
120V	37.0W	0.32A	
277V	37.0W	0.14A	

Power Factor: >.99  
THD: <10%:  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

**H118E**

Input	System Voltage	Open wattage	Open circuit
120V	19.0W	0.15A	
277V	19.0W	0.07A	

Power Factor: >.99  
THD: <10%:  
Sound Rating: A  
Min Starting Temp.: -0°C (20°F)

**ORDERING INFORMATION**

**SAMPLE NUMBER: PD6-H142E-6HC**

Order frame, socket adapter and reflector separately for a complete unit.

Housing	Socket Adapter	Reflector
<b>PD6</b>	<b>H126E</b>	<b>6HC</b>
<p><b>H142E</b>=(1) 42, 32 or 26W Triple tube lamp, multi-voltage ballast, Horizontal Module</p> <p><b>H226E</b>=(2) 26W Quad Tube, multi-voltage ballast, Horizontal Module</p> <p><b>H126E</b>=(1) 26W Quad Tube, multi-voltage ballast, Horizontal Module</p> <p><b>H218E</b>=(2) 18W Quad Tube, multi-voltage ballast, Horizontal Module</p> <p><b>H118E</b>=(1) 18W Quad Tube, multi-voltage ballast, Horizontal Module</p>	<p><b>6HC</b> =6" Horizontal Clear</p> <p><b>6HBB</b> =6" Horizontal Black Baffle</p> <p><b>6HWB</b> =6" Horizontal White Baffle</p>	



**PHOTOMETRICS**

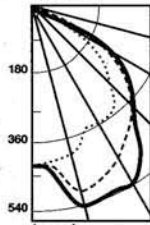
PD6-H142, H226,  
H126, H218, H118

**PD6-H142E-6HC**

Test No. H22343

Lamp=32W PLT  
Compact  
Fluorescent  
Lumens=2400  
Spacing Criteria=1.3, 1.6  
Efficiency=53.6%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	2
75	10
65	88
55	298
45	378
35	497
25	535
15	543
5	441
0	421

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	14	8'
6'6"	10	9'6"
8'0"	7	11'6"
10'0"	4	14'6"
12'0"	3	17'6"
14'0"	2	20'6"

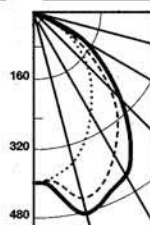
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H142E-6HBB**

Test No. H22348

Lamp=32W PLT  
Compact  
Fluorescent  
Lumens=2400  
Spacing Criteria=1.1, 1.5  
Efficiency=39.0%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	1
75	5
65	50
55	180
45	282
35	402
25	459
15	484
5	410
0	394

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	13	7'
6'6"	9	8'6"
8'0"	6	10'6"
10'0"	4	13'
12'0"	3	15'6"
14'0"	2	18'

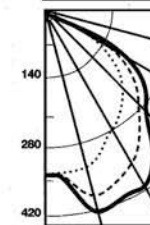
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H142E-6HC**

Test No. H22344

Lamp=26W PLT  
Compact  
Fluorescent  
Lumens=1800  
Spacing Criteria=1.2, 1.6  
Efficiency=55.5%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	2
75	8
65	74
55	233
45	291
35	382
25	415
15	424
5	356
0	340

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	11	7'
6'6"	8	8'6"
8'0"	5	10'6"
10'0"	3	13'
12'0"	2	15'6"
14'0"	1	18'

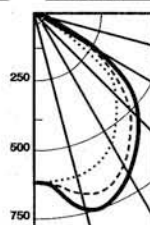
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H226E-6HC**

Test No. H22346

Lamp=(2) 26W Quad  
Compact  
Fluorescent  
Lumens=1800  
Spacing Criteria=1.3, 1.4  
Efficiency=42.9%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	3
75	9
65	48
55	312
45	472
35	596
25	704
15	748
5	650
0	636

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	21	7'
6'6"	15	8'6"
8'0"	10	10'6"
10'0"	6	13'
12'0"	4	15'6"
14'0"	3	18'

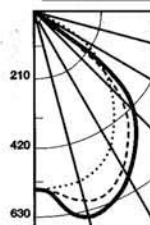
Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

**PD6-H218E-6HC**

Test No. H22345

Lamp=(2) 18W Quad  
Fluorescent  
Lumens=1250  
Spacing Criteria=1.2, 1.4  
Efficiency=53.1%

**Candela**



Legend  
0-deg: .....  
45-deg: - - - -  
90-deg: \_\_\_\_\_

Deg.	CD
90	0
85	2
75	7
65	40
55	259
45	428
35	526
25	616
15	648
5	564
0	554

**Cone of Light**

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
5'6"	18	7'
6'6"	13	8'6"
8'0"	9	10'6"
10'0"	6	13'
12'0"	4	15'6"
14'0"	3	18'

Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot. Footcandle values are initial, apply appropriate light loss factors where necessary.

Note: Specifications and Dimensions subject to change without notice.

Visit our website at [www.cooperlighting.com](http://www.cooperlighting.com)



## VT & VTTB SERIES

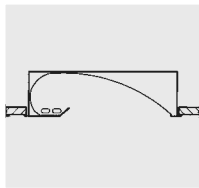
Recessed 2' x 2' Indirect Video/Tele Conference Fixtures  
 for Drywall and T-Bar

Project  
 Econolite Control Products, Inc.  
 Anaheim, California

Specifier  
 Leelite Design  
 Tustin, California

Photographer  
 Dell'Aquila Photography & Video  
 Long Beach, California

Lighting  
 250BXVT-TB, 110 watts  
 150BXWW-AKTB, 50 watts



*Comfortably illuminates the  
 participants while rendering an  
 excellent video image.*

### System

Video/Tele Conference fixtures. Unique, indirect 2' x 2' fluorescent fixtures provide even vertical illumination in three directions. They comfortably illuminate participants with minimal facial shadowing while keeping direct light/glare off of the monitor and camera.

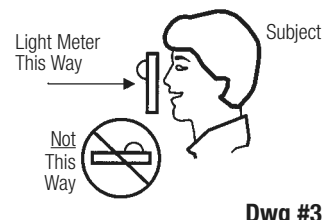
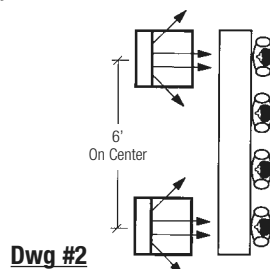
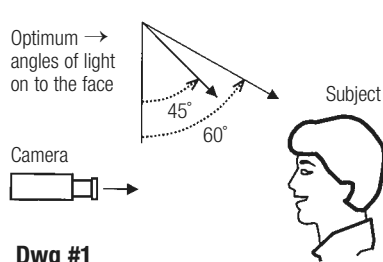


## VT & VTTB SERIES

### Recessed 2'x 2' Indirect Video/Tele Conference Fixtures for Drywall and T-Bar

The task of providing proper lighting for a Video conference space is very simple – Ask us to do it for you! But if you would rather do it yourself, here are the problems and some suggested solutions.

- 1) **Provide lighting for the camera in the proper quantity, quality and angle.** The light should come from an angle between 45° and 60° vertical (Dwg #1). Horizontally, light should also be cast on the face from an angle in addition to front (Dwg #2). This will assure that minimum shadows are created in the eye sockets and under the nose and chin.



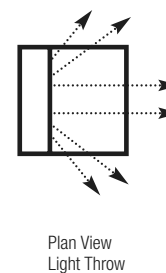
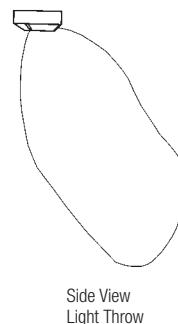
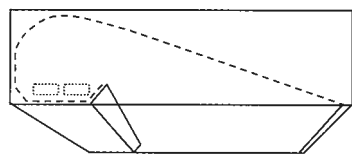
The amount of light falling on the face of the subject measured vertically should be 50-75 F.C. (Dwg #3). The quality of light can be assured by using fluorescent lamps of 3000° K or 3500° K (Color Temperature) with a CRI (Color Rendering Index) of 82+. The use of high color temperature lamps (5700° K and higher) is not necessary for video cameras and the strong blue component makes most skin tones look bad (blue). [ Note: Daylight film requires the high color temperature light.]

- 2) **Provide minimal lighting for the screen or monitor for good screen contrast and image sharpness.** The wall where the screen or monitor is located should have as little illumination as possible. No reflected glare should appear on the screen or monitor to inhibit viewing.

- 3) **Provide lighting for the back wall and to a lesser extent, the side walls to balance the brightness with the rest of the room.** Doing this will prevent the camera from iris-ing\* on the back or side walls that are too dark or too bright and then allowing too much or too little light in the camera resulting in the appearance of over or under lighting the subject (Dwg #4). Generally the wall finishes and furniture should be very neutral. The reflectance value of these colors and surfaces should be around 30-40%. Light levels ratios from the participant to the back wall should be within 3 to 1 while the side walls can be 5 to 1.



**Solutions** – To accomplish the above requires light fixtures that provide a wide horizontal component. The VT Series fixture ENGINEERED LIGHTING PRODUCTS has designed for this use is a recessed, indirect 2' x 2' with two 40, 50 or 55 watt Biax lamps (Dwg #5). This fixture produces an asymmetric distribution (Dwg #6) that provides a large horizontal throw in three directions (Dwg #7). The tri-directional performance of this product often eliminates the need for additional lighting on back and side walls, so the second consideration is handled also. Very little light is directed behind the VT Series



fixtures so they do not wash out the viewing screen or glare into the camera. A lighting layout has been provided on the back of this cut for your perusal.

**Dual Function and Participant Comfort** – The VT Series is provided standard with a dimming ballast so you may adjust the light levels for good picture quality and have low light level illumination for standard conferencing functions. Combining the low heat of fluorescent lamps with an indirect optical system, the participants in the room will have optimum comfort visually and environmentally.



## VT & VTTB SERIES

Recessed 2' x 2' Indirect Video/Tele Conference Fixtures  
for Drywall and T-Bar

### Specification

Recessed, indirect 2' x 2' compact fluorescent fixture for Drywall and T-Bar ceiling installations. Unit utilizes one or two 40, 50, or 55 watt Biax lamps. The formed reflector combines white diffuse with high purity aluminum (99.9%) reflector material with 95% reflectance. The optical design allows energy efficient lighting layouts with excellent visual comfort for the speaker, the camera and the audience.

The spot weld construction housing is 22 gauge CRS and post painted with a white TGIC polyester powder coat. Cover and knock-outs provided for through wiring. All fluorescent fixtures are supplied standard with Luminaire Disconnect. Drywall fixture has extruded aluminum trim.

UL/CUL Damp Location listed.

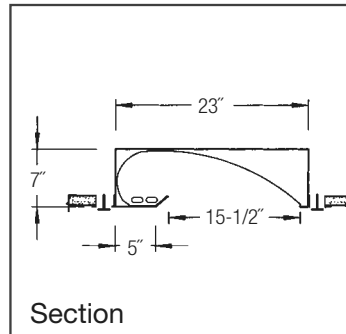
### Options

Ballast 120 or 200 Electronic Dimming (Standard)

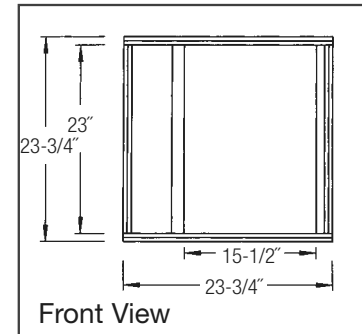
Alternate Dimming Ballasts

Finish White (Standard)  
Custom -Custom

Louver Diffuser Silver Parallel Blade -LV  
(Not Recommended)



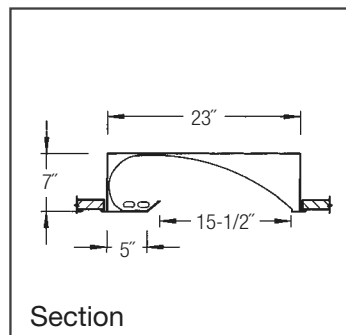
Section



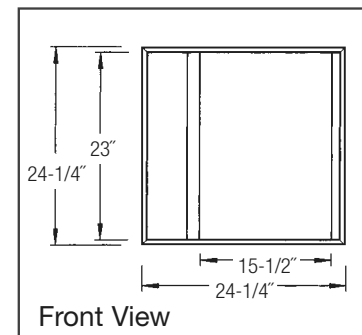
Front View

### VTTB Series for T-Bar Installations

Model No.	Standard Dimming Ballast	Lamp
140BXVT-TB	Lutron Eco (3-Wire)	(1) 40 watt Biax
150BXVT-TB	Lutron Eco (3-Wire)	(1) 50 watt Biax
155BXVT-TB	Mark X (2-Wire)	(1) 55 watt Biax
240BXVT-TB	Lutron Eco (3-Wire)	(2) 40 watt Biax
250BXVT-TB	Lutron Eco (3-Wire)	(2) 50 watt Biax
255BXVT-TB	Mark X (2-Wire)	(2) 55 watt Biax



Section

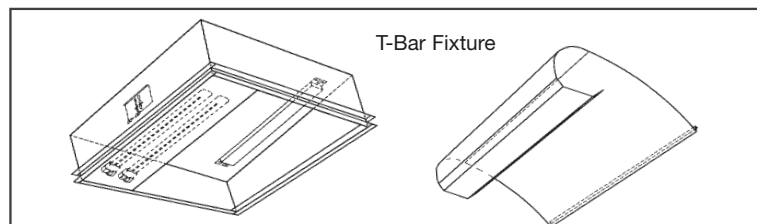


Front View

### VT Series for Drywall Installations

Model No.	Standard Dimming Ballast	Lamp
140BXVT	Lutron Eco (3-Wire)	(1) 40 watt Biax
150BXVT	Lutron Eco (3-Wire)	(1) 50 watt Biax
155BXVT	Mark X (2-Wire)	(1) 55 watt Biax
240BXVT	Lutron Eco (3-Wire)	(2) 40 watt Biax
250BXVT	Lutron Eco (3-Wire)	(2) 50 watt Biax
255BXVT	Mark X (2-Wire)	(2) 55 watt Biax

Rough-In Dimensions are 23-3/4" x 23-3/4"



T-Bar Fixture



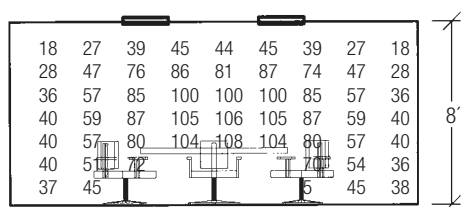
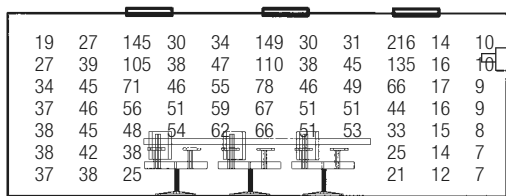
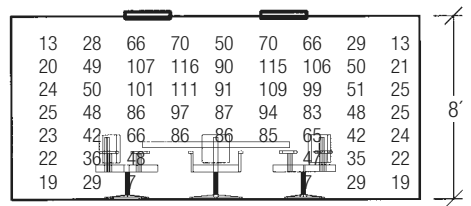
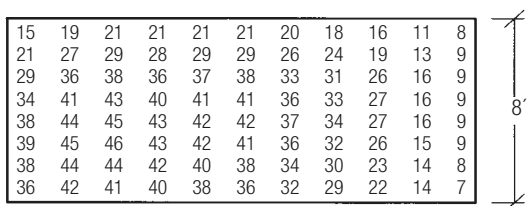
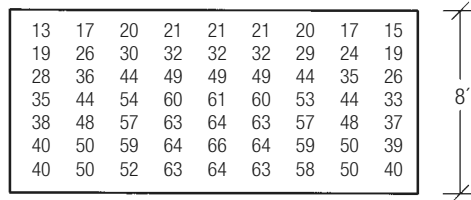
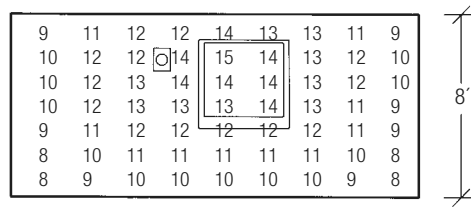
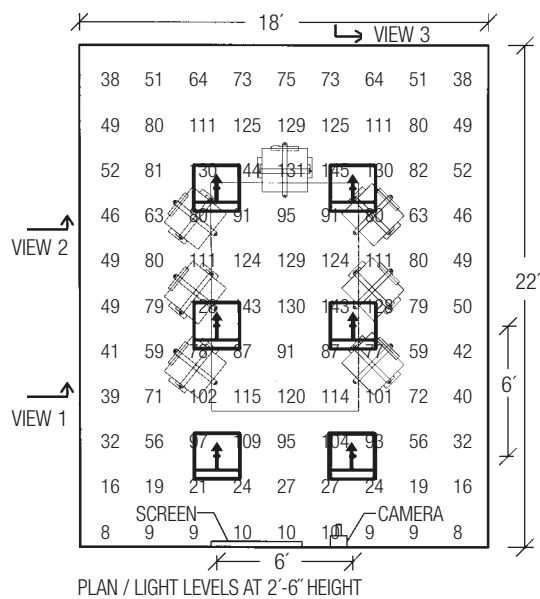
# VT & VTTB SERIES

Recessed 2'x 2' Indirect Video/Tele Conference Fixtures for Drywall and T-Bar

## Photometrics

## MODEL 255BXVT

Vertical light levels on participants should be a minimum of 50 to 75 fc for successful Video Conferencing. Light readings are shown in footcandles and were calculated with Lighting Analysts' AGI 32 utilizing independent test lab photometric file #1015A.IES. Readings are initial levels and the reflectances of the room for calculation purposes were Ceiling: .80, Walls: .50 and Floor: .20. To convert levels to Lux use the conversion factor of 1 fc = 10.765 Lux. Original photometric data on file at the factory. Specifications subject to change without notice or obligation.





## COOPER LIGHTING - SURE-LITES®

### DESCRIPTION

The LPX Series LED Exit is an economical, yet attractive, alternative to metal exits. Its contemporary round corner styling, designer white finish, and consistent family appearance enables it to blend with any decor. The tough injection molded polycarbonate materials resist discoloration. All components, including canopy and chevron directional indicators, are of snap-fit construction to facilitate installation. The under 5-minute installation time of the LPX Series Exit makes it the fastest installed exit on the market today. All LPX Series Exits are available in universal configurations.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

### SPECIFICATION FEATURES

#### Electrical

- Dual Voltage Input 120/277 VAC, 60Hz, isolation transformer
- Push-in AC power connectors facilitate installation
- Optional 2C (Two circuit, FTBR) available in 120/277 VAC in standard and emergency operation

#### Housing Construction

- All components are injection molded, color stable, high impact UL 94-5VA rated polycarbonate material
- Designer white or black textured finish standard
- Components are of snap-fit construction to facilitate under 5-minute installation
- Reinforcing ribs throughout to provide maximum strength

#### Housing Construction Cont.

- Molded-in wireways facilitate internal wire routing and connections
- All components are located inside the exit housing
- Snap-out or snap-in chevron directional indicators have full 3/4" stroke
- Universal exits can be field configured as single face or double face
- Knockout provided on housing for surface conduit attachment
- Snap-fit canopy with captive mounting screws included with all exits
- Exit can be ceiling, wall, or end mounted
- Universal J-box mounting pattern

#### Code Compliance

- Damp Location Listed
- UL 924 Listed
- Life Safety NFPA 101
- CSA Certified
- NEC/OSHA
- Most State and Local Codes
- Suitable for Floor Proximity Installation
- UL Listed for Two Circuit (FTBR)

#### Warranty

- Exit: 1-Year

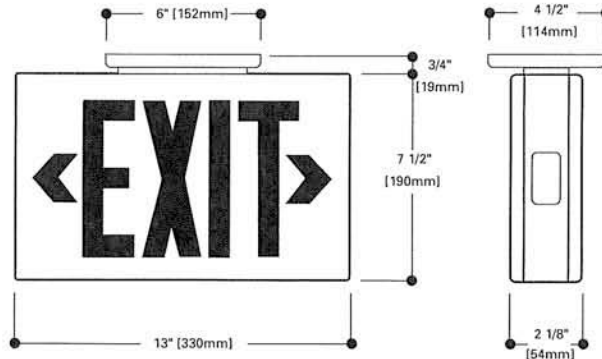
#### Lamp Data

- AC LED: Long-life LED lamps provide uniform diffused illumination



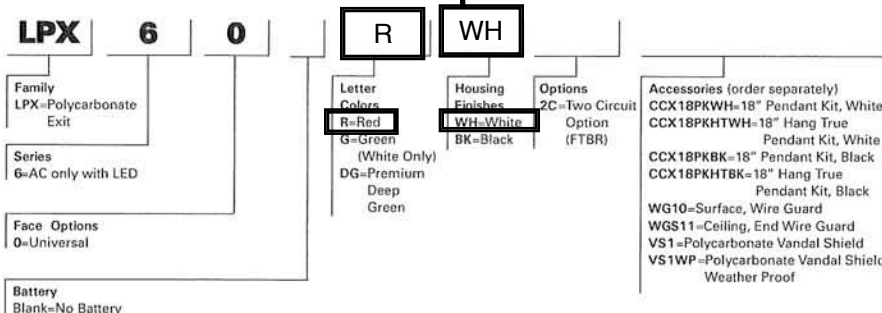
### LPX SERIES

POLYCARBONATE EXIT  
AC ONLY  
LED LAMPS  
Exit Lighting



### ORDERING INFORMATION

SAMPLE NUMBER: LPX60RWH



### ENERGY DATA

- LED Exits - Red**  
Input Power:  
120V = 2.4W  
277V = 2.5W  
Input Current (Max.):  
120V = .03A  
277V = .02A  
Power Factor:  
120V = > .78  
277V = > .73  
T.H.D.:  
120V = < 33%  
277V = < 48%
- LED Exits - Green**  
Input Power:  
120V = 5.6W  
277V = 5.9W  
Input Current (Max.):  
120V = .08A  
277V = .04A  
Power Factor:  
120V = > .55  
277V = > .53  
T.H.D.:  
120V = < 43%  
277V = < 45%
- Premium Deep Green**  
Input Power:  
120V = 2.6W  
277V = 2.6W  
Input Current (Max.):  
120V = .08A  
277V = .04A  
Power Factor:  
120V = > .28  
277V = > .28  
T.H.D.:  
120V = < 51%  
277V = < 53%



**Job Name:**  
Riverine & Combatant -

**Catalog Number:**  
LPX60RWH

Notes:

**Type:**

**EXIT**

WK08-1600

LPX SERIES

**TECHNICAL DATA**

**Lamps**

AC Only LED versions of the LPX Series Exits use energy efficient, long life LED lamps to provide uniform, diffuse illumination of the exit face. These red LED modules require no maintenance and consume as little as 2.5 watts. The Green LEDs have two shade options to meet any specification requirement. The low operating costs and zero maintenance requirement makes LED lamps the wisest choice for exit signs today.

**Housing Construction**

Rugged, durable, injection molded polycarbonate materials are used throughout the LPX Series Exits. All structural components are designed with reinforcing ribs to add additional rigidity and to maximize structural integrity. These materials are impact and scratch resistant, and they resist discoloration due to age and ultraviolet radiation.

All components are designed to be of snap-fit construction - no mechanical fasteners - to facilitate installation in under 5-minutes. Any components required for installation (wirenuts, wire leads, universal metal J-box bracket, etc.) are all included with each exit. The universal design of the LPX Series Exits enables universal exits to be configured as single or double face in the field. All AC Only LPX Series Exits can be wall, ceiling, or end mounted; a rugged, snap-fit, low profile canopy with captive screws is included with every exit for ceiling and end mounting applications.

**Lens**

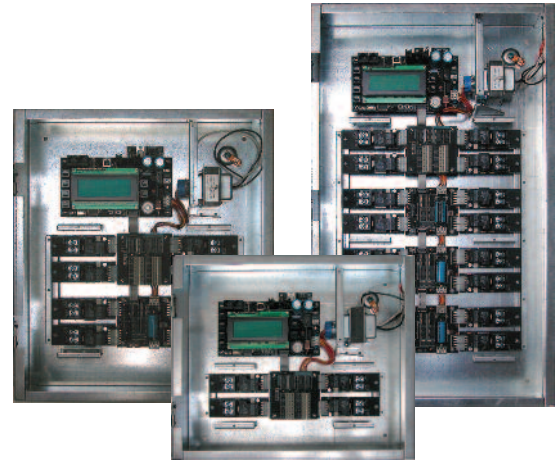
Lenses for AC Only LED versions of LPX Series Exits are made from durable impact resistant polycarbonate. All exit faces are designed with full 3/4" stroke snap-out or snap-in chevron directional indicators to insure maximum visibility and compliance with the latest codes.

**Warranty**

All Sure-Lites products are backed by a firm one-year warranty against defects in material and workmanship (including lamps).



- 365-day programmable Lighting Control Panel
- Removable hinged locking door standard
- ILC LightSync™ switch and accessory ready
- Network up to 48 control points
- Panel sizes to accommodate 4, 8, and 16 relay outputs
- Available with 4 to 48 hardwired inputs
- 48 programmable relay groups, presets, timers
- Uses ILC's new cost-effective Softcross™ or APII 2-pole relay
- All ON/All OFF push buttons for relay override
- Daylight Savings Time adjustment and Astro Clock standard
- Optional Add-on Modules
- UL 916 Listed FCC approval for commercial use
- Title 24 certified, ASHRAE 90.1 compliant



## Overview

The next generation ILC Apprentice II programmable lighting control panel is redesigned with the best in mind. Network up to 48 control points and up to 32 LightSync™ devices via RJ-45 ports, connect to your PC via a on-board USB 2.0 port and control via Apprentice II Pro software— these are just a few of the updates built into the ILC Apprentice II. Add-on cards are easy to install and add capabilities like: BACnet, LonWorks, N2 or MODBUS interface, TCP/IP or modem interface, DMX control and DTMF telephone switching. The ILC Apprentice II lighting control panel retains the same friendly interface, solid reliability, the flexibility to easily comply with energy codes and ships complete.

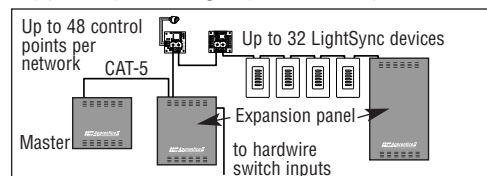
**Features**  
(see *Apprentice II Catalog for more details and optional devices*)

### Programming Options

- Integral keypad with 4-line LCD display
- Apprentice II Pro software

### Apprentice Network Capable

- Link multiple Apprentice II panels via CAT-5 cable to include up to 48 control points
- Supports up to 32 LightSync devices per network



### Relay Groups

- Relays may be assigned to any of 48 available groups
- Relay groups may be assigned to multiple Timers, Switch Inputs, and other panel functions

### Relay Presets

- Relays may be programmed to any of 48 presets available
- Presets may be controlled by Switch Inputs and Timers

### Open/Close Times

- Lighting Control Schedules may adjust based on business (retail) Open/Close hours
- Seven standard Open/Close times and 365 custom daily Open/Close times available
- Scheduled event may be programmed to occur before, after or at Open/Close times

### Relay Functions

- Each relay may be programmed for ON only, OFF only or ON/OFF control
- HID multilevel control (specialized output control for multilevel HID ballasts including warm-up sequence)

### Switch Types

- The ILC Apprentice II may be programmed to accept virtually any type of switch input, momentary or maintained

- Easy direct connection to motion and photo sensing devices via dry contact input or CAT-5
- Override inputs can Force ON, Force OFF or Hold Status any relay or group of relays
- Input disable based on time of day

### Switch Input to Relay Output Mapping

- All switch to relay settings are completely soft, requiring no field rewiring when changes are required
- Any switch can control any combination of 1 to 48 relays

### Automatic Power-Up Settings

- Relays may be programmed to automatically return ON or OFF after a power outage

### After Hours Sweeps

- Individual relay or groups of relays may be programmed to be swept OFF during non-operational hours

### Daylight Saving Time Adjustment

- Automatic adjustment for daylight saving changes (may be enabled or disabled from keypad or software)

### Astronomical Clock

- Automatic calculation of Sunrise and Sunset based on date and geographic position
- Scheduled events may be programmed to occur before, after or on an astro event

### Blink Alert

- Prior to a scheduled OFF event, lighting loads programmed for a Blink Alert will be momentarily turned OFF then back ON to alert occupants. To avoid the pending OFF sweep, the user simply turns their local switch ON again during the adjustable period (default is 5 min.) prior to the OFF sweep.

### Add-On Modules

- Easy to install add-on modules for applications requiring: DMX 512 control, Modicon® MODBUS BACnet, LonWorks, Metasys® N2 interface, ethernet, modem or DTMF telephone switching

INTELLIGENT LIGHTING CONTROLS, INC.

5229 Edina Industrial Boulevard  
Minneapolis, Minnesota 55439  
Phone 952 829 1900  
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1-800-922-8004  
www.ilc-usa.com



### Specifications

#### Physical:

- Apprentice lighting controllers are provided with pre-drilled mounting holes for easy mounting to unistrut framing or directly to wall
- All panels provided with a removable hinged locking door standard
- UL, NEMA-1 enclosure

#### Electrical:

- 120 or 277 VAC power supply ready

#### ILC SoftCross™ Single Pole Relays:

- 20 Amp ballast, 120 or 277 VAC
- 20 Amp resistive load, 120 or 277 VAC
- Available in Normally Open (NO) or Normally Closed (NC) configuration

#### ILC 2-Pole Relays:

- 20 Amp ballast
- 20 Amp resistive load
- 20 Amp general
- Up to 277 VAC/pole controlling 208/240/480 VAC circuits
- Normally Open (NO) contacts

#### Operating Environment:

- Location Interior space
- Operating Temp. 0° to 40° C
- Relative Humidity 10% to 90%  
Non-condensing

#### Certifications:

- UL, CUL
- FCC approval for commercial use
- California Title 24

#### Capacities:

- 4, 8 or 16 ILC SoftCross™ (SR-1) or APII 2-Pole (2PR) relays

#### Options:

- Additional switch input board(s)
- Add-on Modules: easy to install modules for applications requiring Modicon® MODBUS, BACnet, LonWorks, Metasys® N2 interface, DMX 512 control, ethernet, modem or DTMF telephone switching
- Flush mount enclosure border

#### Configuration:

- Soft configuration with greater than 50 year EEPROM memory retention in absence of power
- Minimum 45 day clock retention

### Ordering

Order the ILC Apprentice II controller

**ILC-APII - ① - ② - ③ - ④ - ⑤ - ⑥**

Sample: Order No. ILC-APII-04-0-A-TL-SR1-NO-FT = ILC Apprentice II standard controller in a size 04 enclosure with DTMF Telephone interface module, standard NO relays and flush trim ring.

- ① Consult the chart to determine the enclosure size required. All enclosures are NEMA-1 type with hinged locking cover standard. Fill in the size panel your installation requires; 04, 08 or 16

Enclosure Size Options				
Enclosure Type	Relays	Width	Height	Depth
Apprentice II 04	04	14 in.	12 in.	4 in.
Apprentice II 08	08	14 in.	16 in.	4 in.
Apprentice II 16	16	14 in.	24 in.	4 in.

- ② Fill in the number of additional AP II 4-input hardwire switch interface boards (ILC Part no. AP4I) if required (panels ship with one AP4I 4-input board installed); 08 will accept one additional, 16 will accept three (not applicable for 04 size)

- ③ Indicate if this is to be a standard (with display and keypad) or a network expansion panel (no display or keypad).  
A= Standard controller panel  
X= Network expansion panel

- ④ Use this space to order an optional add-on card to your Apprentice II.  
BAC = BACnet      LON = LonWorks  
MB = MODBUS      MX = DMX 512  
N2 = N2 Metasys    MD = modem  
TL = DTMF            ETH = ethernet

- ⑤ Indicate relay type: (NO or NC refers to default state of the relays in the event of a power out).  
SR1-NO= Single, Normally Open  
SR1-NC= Single, Normally Closed  
NOTE: SR1 Relays are shipped as NO unless otherwise specified  
2PR = 2-Pole Relay, Normally Open  
NOTE: 2PR 2-pole relays are only available Normally Open

- ⑥ Indicate optional flush mount trim ring:  
FT = include Flush Trim Ring  
NA = no Flush Trim Ring

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*A full line of compatible products including control software, photosensors, a wide variety of momentary or maintained switches, custom engraved plates and more are available. Consult factory or your local ILC Representative for more information.*



# 2R7 & 2R9 Relay Operational Summary

Magnetically Latched Relays



**2R7C Relay**

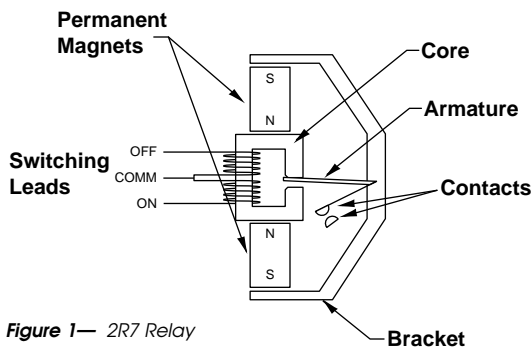


**2R9C Relay**  
(Status feedback capable)

2R7 and 2R9 split coil relay's unique construction has only one movable part (the contacts). This reliable relay design has a proven failure rate of less than .001 percent. It offers both the popular GE RR7 relay footprint and functionality (3 wire control) along with extreme reliability.

The following describes the actual internal operation of the 2R7 and 2R9 relay. To understand the proven durability of this product, we offer the following explanation of its simple magnetic latching operation.

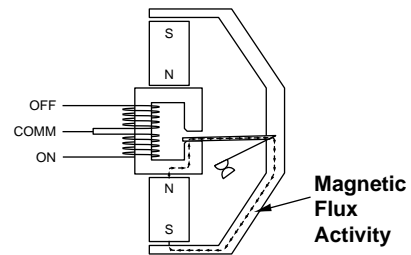
Figures 2 and 3 show the magnetic activity when no switching is being applied. As can be observed, the contacts are held in a steady state condition by the permanent magnets (during a power failure the relays will maintain their state).



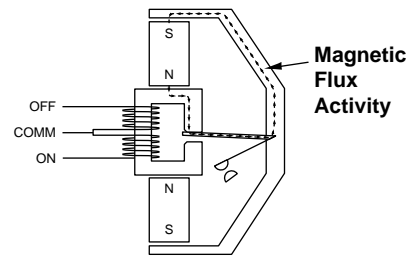
**Figure 1— 2R7 Relay**

Figure 1 is a drawing of the 2R7 showing the basic parts of the magnetic circuit. The leads of the split coil are color coordinated: Red (ON), Black (OFF), and Blue (COMMON).

The relay section of the 2R7 consists of two permanent magnets, a split coil switching winding, a steel bracket, a moving armature that supports the moving contacts, and a set of stationary contacts (90% silver, 10% cadmium).



**Figure 2— Magnets holding the contacts closed**



**Figure 3— Magnets holding the contacts open**

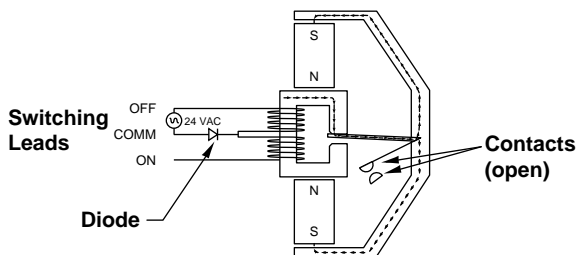


# 2R7 & 2R9 Relay Operational Summary

Magnetically Latched Relays

## Magnetism Theory

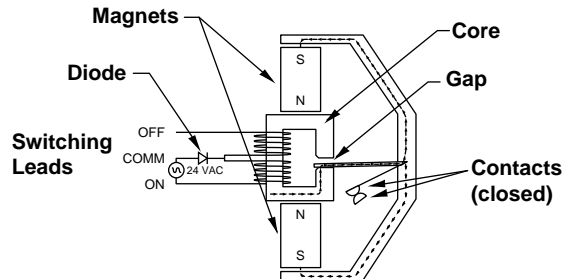
By convention, magnetism “flows” FROM the north pole TO the south pole. When a diode is placed between the switching leads, an electromagnet is created across the gap. By using two coils in opposite directions to each other, the 2R Relay is able to create two magnetic polarities opposite to each other.



**Figure 4**— The electromagnet and the permanent magnets combine to switch the contacts to the closed position.

Figure 4 shows the magnetism that is applied to the gap of the core to CLOSE the contacts.

When a half wave rectified source is placed between the switching leads (current from the Red wire towards the Blue wire), the flux that is produced sets up a magnetic field on both surfaces of the gap (top North and bottom South). Because the flipper arm is always connected to the North sides of the permanent magnets, the flipper arm is repelled from the North surface and is attracted to the South surface. The contact arm is connected to the flipper arm and, therefore, the contacts will close.



**Figure 5**— The electromagnet and the permanent magnets combine to switch the contacts to the open position.

Figure 5 shows the magnetism that is applied to the gap of the core to OPEN the contacts.

When a half wave rectified source is placed between the switching leads (current from the Black wire towards the Blue wire), the flux that is produced sets up a magnetic field on both surfaces of the gap (top North and bottom South). Because the flipper arm is always connected to the North sides of the permanent magnets, the flipper arm is repelled from the North surface and is attracted to the South surface. The contact arm is connected to the flipper arm and, therefore, the contacts will open.

As can be seen by examining Figure 4 and 5, the electromagnet reverses its polarity to switch the relay ON and OFF.

## Performance

The 2R7 and 2R9 relays have been proven in both the test lab and field applications. Intelligent Lighting Controls has over a decade of proven products and service to the commercial building industry with thousands of installations nationwide. To discuss your application requirements, call 1-800-922-8004 to talk with one of our applications engineers.

INTELLIGENT LIGHTING  
CONTROLS, INC.

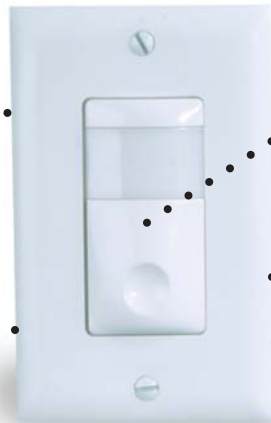
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# AS-100 Automatic Control Switch

Automatic or manual switching options

Simple retrofit installation and operation; no neutral needed

Shutoff warning with audible beep



Pushbutton overrides the shutoff event

Multi-way operation for 3 and 4 way switching

Terminal style back wiring

PROJECT

LOCATION/TYPE

## Product Overview

### Description

The IntelliSwitch® AS-100 Automatic Control Switch operates as both a manual and automatic control device. Manually, it allows users to control loads on/off. Automatically, it receives signals to turn lighting on or off from lighting control panels or other lighting control systems.

### Operation

The AS-100 replaces a standard wall switch. Occupants turn the lights on and off manually by its pushbutton. However, when a timed power interrupt signal is received from a lighting control panel, the AS is automatically commanded to turn on, turn off or delay off. The duration of the power interrupt signal determines how the AS-100 will operate (see back).

Used with a lighting control panel, the AS-100 allows users to manually turn lighting on in private offices, while lighting in common areas turns on automatically. After hours, if lights were not shut off by users, a signal from the control panel would command the switch to delay off. A shutoff signal

### Operation (continued)

warns users that lights will turn off in five minutes. The locator LED on the AS-100 blinks and an audible beep sounds (if enabled). If the button is pushed during this five minutes, the shutoff will be cancelled and the switch will remain on until the next commanded shutoff signal.

### Applications

Since signaling is accomplished through power interruption, the AS-100 does not require additional signal wiring from a lighting control system or panel. It is designed for easy retrofit of lighting shutoff control in buildings. This greatly reduces installation labor and costs, making it an economical and effective lighting control strategy.

## Features

- Settings are selected with the front pushbutton using configuration LEDs; face plate does not need to be removed for setup
- Users can select automatic ON operation, and an audible beep warning
- Selectable beep warning sounds every minute during last five minutes, and every five seconds during last minute
- Five minute delay OFF time with user ability to cancel impending shutoff
- Self-adjusting zero crossing switching for consistent, reliable operation of high inrush loads
- Can be used in 3-way, 4-way and multi-way switching applications
- Compatible with all electronic ballasts and motor loads
- Microcontroller enhances reliability
- Command OFF without delay OFF time



## Specifications

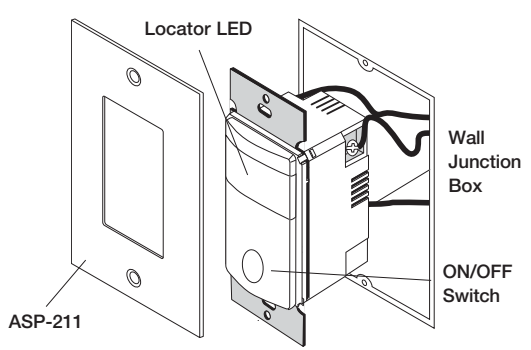
- Dual voltage 120/277 VAC, 60 Hz
- No minimum load requirements
- Power interruption signal resolution  $\pm 0.1$  seconds
- Dimensions: 2.69" x 1.75" x 1.81" (68.0mm x 45.0mm x 46.0mm) LxWxD
- UL and CUL listed; five year warranty

## Power Interruption Signals

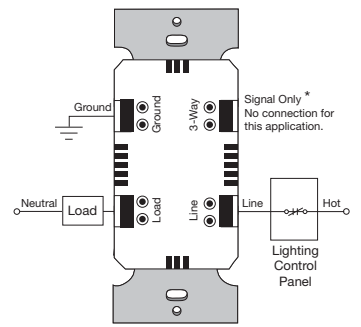
Duration	Operation	Operation description
<b>Normal Operating Mode</b>		
1-2 sec	Delay off	Initiates 5 minute delay before shutting load off. Locator light blinks and audible beep sounds (if enabled). Pushing the button cancels shut off from occurring.
3 sec	Turn on	Turns load on if automatic on feature is enabled
5 sec	Turn off	Turns load off

## Installation & Wiring

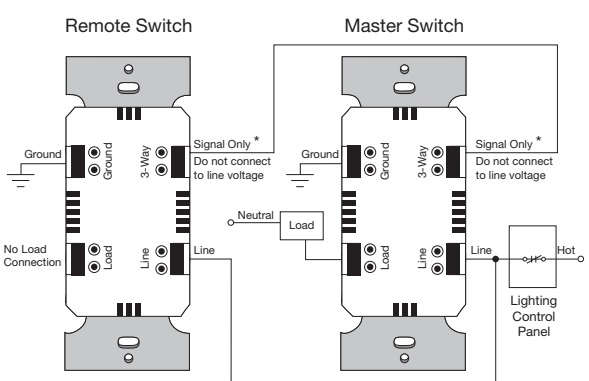
### Installation



### Single Switch Wiring with Panel

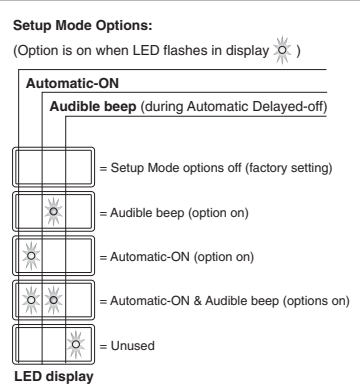


### Multi-way Switch Wiring with Panel



Each switch wired for multi-way operation has the ability to turn on, turn off or override a shutoff signal.

### Setup Mode Options



## Ordering Information

Catalog No.	Color	Description	Load Requirement
<input type="checkbox"/> AS-100-W	White	120 VAC, 60 Hz or 277 VAC, 60 Hz	0-1300W @ 120 V Watt Ballast & Tungsten or 0-3000W @ 277 V Watt Ballast
<input type="checkbox"/> AS-100-A	Lt. Almond		
<input type="checkbox"/> AS-100-I	Ivory		

One ASP-211 single-gang cover plate included. Order ASP-422 for blank 2-gang cover plate, ASP-432 for 2-gang cover plate with switch option (specify color).