



**Public Service
of New Hampshire**

The Northeast Utilities System

nhsaves@work
large business retrofit

2009 Lighting Rebate

Section A: CUSTOMER INFORMATION

Customer Name <i>City of Dover - City Hall</i>	Electric Account Number <i>569 064 01 021</i> <i>563 254 01037</i>	Rate	Application Number
Facility Address <i>288 Central Ave</i>	City <i>Dover</i>	State <i>NH</i>	Zip Code <i>03820</i>
Service Location Identification <i>CITY HALL</i>			
Mailing Address (if different from above)	City	State	Zip Code
Contact Person/Title <i>Rick Jones CD Coordinator</i>	Telephone Number <i>(603) 516-6008</i>	Incorporated? (Check one.) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	
Federal Tax Identification Number <i>02-6000230</i>	Rebate Payment Preference (Check one.) <input checked="" type="checkbox"/> Check <input type="checkbox"/> Bill Credit <input type="checkbox"/> Pay Contractor	Please Assign Payment to Contractor. Customer Signature:	

Section B: CONTRACTOR INFORMATION

Contractor Name <i>Johnson Controls</i>	Contact Person/Title (Print) <i>Kevin Strongren Project Manager</i>	Contact Person Signature <i>Kevin P. Strongren</i>	
Mailing Address <i>39 SALEM STREET</i>	City <i>Lynnfield</i>	State <i>MA</i>	Zip Code <i>01940</i>
Federal Tax Identification Number <i>39-0380010</i>	Incorporated? (Check one.) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	Telephone Number <i>860 335-6341</i>	

Section C: DOCUMENT APPROVALS

PRE-INSTALLATION INSPECTION			
Utility Signature	Date		
PRE-APPROVAL OFFER			
Technical Review / Utility Signature	Date		
Utility Signature	Date	Amount of Rebate Offer (\$)	Completion Date
<p>By signing and dating below, customer accepts this rebate offer and agrees to the Utility Terms and Conditions attached hereto. Pursuant to a Commission order, customer also agrees that the utility will capture all kW and kWh savings and to forgo applying directly or indirectly for any ISO-NE capacity payments resulting from this energy efficiency project. This agreement is contingent upon continued approval and authorization by the Commission to recover said amounts from the System Benefits Charge. The rebate amount cannot exceed the total project costs.</p>			
Customer Signature: <i>[Signature]</i>	Date: <i>12/11/09</i>		
POST-INSTALLATION INSPECTION			
Utility Signature <i>[Signature]</i>	Date	Total Project Cost (\$)	Amount of Rebate (\$)
Customer Signature	Date		
MANAGEMENT APPROVAL			
Utility Signatur.	Date		

Public Service of New Hampshire
2009 Lighting Rebate

PROJECT NAME: **City of Dover, - City Hall - Dover, NH**

61	61	Ceiling Mount Occupancy Sensor	1	2F32EEE	3	900	\$ 55.00	\$ 55.00
64	64	Wall Mount Occupancy Sensor	1	2F32EEE	1	1200	\$ 25.00	\$ 25.00
68	61	Ceiling Mount Occupancy Sensor	1	2F32EEE	2	1040	\$ 55.00	\$ 55.00
70	64	Wall Mount Occupancy Sensor	1	2F32EEE	1	600	\$ 25.00	\$ 25.00
77	64	Wall Mount Occupancy Sensor	1	2F32EEE	2	480	\$ 25.00	\$ 25.00
79	64	Wall Mount Occupancy Sensor	1	2F32EEE	1	1040	\$ 25.00	\$ 25.00
83	61	Ceiling Mount Occupancy Sensor	1	4F32EEE	1	4380	\$ 55.00	\$ 55.00
83	61	Ceiling Mount Occupancy Sensor		2F32EEE	2	4380		\$ -
86	61	Ceiling Mount Occupancy Sensor	1	2F32EEE	1	3504	\$ 55.00	\$ 55.00
88	64	Wall Mount Occupancy Sensor	1	2F32SSE	3	3000	\$ 25.00	\$ 25.00
90	64	Wall Mount Occupancy Sensor	1	2F32SSE	1	3000	\$ 25.00	\$ 25.00
94	61	Ceiling Mount Occupancy Sensor	1	2F32SSE	1	7884	\$ 55.00	\$ 55.00
								\$ -
								\$ -
								\$ 1,140.00

TOTAL COST OF PROPOSED PROJECT

Type of Measure	Equipment Costs	Labor Costs	Requested Incentive
Lighting Systems			\$ 1,710.00
Lighting Controls			\$ 1,140.00
TOTALS	\$ -	\$ -	\$ 2,850.00

2009 Lighting Rebate

Table C: Lighting Systems Inventory

This table or similar document must be completed by the Customer/Contractor/Vendor. Attach additional sheets as necessary. Each room or area in which lighting changes are proposed should be listed separately. When completed, submit this form or similar document to your Utility Representative along with manufacturer cut sheets showing photometrics.

Customer/Facility Name: **City of Dover, City Hall, Dover, NH**

Project Description: **Lighting** Date: _____

Existing Lighting System										Proposed Lighting System									
Room/Area	Qty	Description of Fixture	Fixture Code	Watts	Annual Hours of Operation	Qty	Description of Fixture	Fixture Code	Measure Code	Watts	Annual Hrs	Watts Reduction							
Map #2 Hallway	1	12L8' T8/ELIG		109	4000	1	12L4' T8EE/ELEE	2F32EEE	41	55	4000	54							
Map #3 City Manager's Receipt	2	4L4' T8/ELIG	4F32SSE	112	3250	2	2L4' T8EE/ELEE LBF	2F32EEL	41	48	3250	64							
Map #5 Human Resources	1	14L4' T8/ELIG	4F32SSE	112	2000	1	12L4' T8EE/ELEE LBF	2F32EEL	41	48	2000	64							
Map #5 Human Resources	1			48	2000	1	WALL SENSOR		64	48	600	-							
Map #6 Conf Rm Break Area	1			112	3250	1	WALL SENSOR		64	112	1625	-							
Map #6 Conf Rm Break Area	1	14L4' T8/ELIG	4F32SSE	112	3250	1	14L4' T8/ELIG	4F32SSE	112	112	1625	-							
Map #9 Welfare Department	2	4L4' T8/ELIG	4F32SSE	112	2000	2	2L4' T8EE/ELEE	2F32EEE	41	55	2000	57							
Map #10 Planning Open Office	1	14L4' T8/ELIG	4F32SSE	112	2000	1	12L4' T8EE/ELEE	2F32EEE	41	55	2000	57							
Map #10 Planning Open Office	1	14L4' T8/ELIG	4F32SSE	112	2000	1	12L4' T8EE/ELEE	2F32EEE	41	55	2000	57							
Map #10 Planning Open Office	1			55	2000	1	WALL SENSOR		64	55	800	-							
Map #14 Planning Office	1			60	2600	1	WALL SENSOR		64	60	780	-							
Map #14 Planning Office	1	12L4' T8/ELIG	2F32SSE	60	2600	1	12L4' T8/ELIG	2F32SSE	60	60	780	-							
Map #15 Tax Assessor's Open	3	4L4' T8/ELIG	4F32SSE	112	2600	3	2L4' T8EE/ELEE	2F32EEE	41	55	2600	57							
Map #16 Assessor's Open	1	14L4' T8/ELIG	4F32SSE	112	2600	1	12L4' T8EE/ELEE	2F32EEE	41	55	2600	57							
Map #16 Assessor's Open	1			55	2600	1	WALL SENSOR		64	55	780	-							
Map #17 Women's Room	2	2L2' T8/ELIG	2F17SSE	37	3250	2	2L2' T8/ELIG	2F17SSE	37	20	3,250	-							
Map #17 Women's Room	1	18W PL Lamp		20	3250	1	18W PL Lamp		20	3,250	-								
Map #17 Women's Room	1			57	3250	1	WALL SENSOR		64	57	1,950	-							
Map #18 Finance Open Office	2	4L4' T8/ELIG	4F32SSE	112	2600	1	14L4' T8EE/ELEE LBF	4F32EEL	42	96	2,600	16							
Map #18 Finance Open Office	1	14L4' T8/ELIG	4F32SSE	112	2600	1	12L4' T8EE/ELEE LBF	2L32EEL	41	48	2,600	64							
Map #19 Office	2	2L4' T8/ELIG	2F32SSE	60	2600	2	2L4' T8/ELIG	2F32SSE	60	60	2,600	-							
Map #19 Office	1			60	2600	1	WALL SENSOR		64	60	780	-							
Map #21 Office	1	12L4' T8/ELIG	2F32SSE	60	2600	1	12L4' T8/ELIG	2F32SSE	60	60	2,600	-							
Map #21 Office	1			60	2600	1	WALL SENSOR		64	60	780	-							
Map #21 Office	1	14L4' T8/ELIG	4F32SSE	112	2600	1	14L4' T8/ELIG	4F32SSE	112	112	2,600	-							
Map #22 Accounting Office	2	4L4' T8/ELIG	4F32SSE	112	2600	2	2L4' T8EE/ELEE	2F32EEE	41	55	2600	57							
Map #26 Function Room	5	CF13 Exit Sign		13	8760	5	1.5 WATT LED	1E0015	24	2	8,760	12							
Map #27 Building Inspector Off	2	4L4' T8/ELIG	4F32SSE	112	2600	1	14L4' T8EE/ELEE LBF	4F32EEL	42	96	2,600	16							
Map #28 Inspection Open Off	4	4L4' T8/ELIG	4F32SSE	112	2600	4	2L4' T8EE/ELEE LBF	2L32EEL	41	48	2,600	64							
Map #30 Conference Rm	4	4L4' T8/ELIG	4F32SSE	112	2000	4	4L4' T8/ELIG	4F32SSE	112	112	2,000	-							
Map #30 Conference Rm	1			112	2000	1	CEILING SENSOR		61	112	800	-							
Map #31 Open Office Area	5	4L4' T8/ELIG	4F32SSE	112	2600	5	4L4' T8/ELIG	4F32SSE	112	112	2,600	-							
Map #31 Open Office Area	4	4L4' T8/ELIG	4F32SSE	112	2600	4	4L4' T8/ELIG	4F32SSE	112	112	2,600	-							
Map #31 Open Office Area	1			112	2600	1	CEILING SENSOR		61	112	780	-							

2009 Lighting Rebate

Table C: Lighting Systems Inventory

This table or similar document must be completed by the Customer/Contractor/Vendor. Attach additional sheets as necessary.

Map #	Room Description	2 4L4' T8/ELIG	4F32SSE	112	2600	2 4L4' T8/ELIG	4F32SSE	112	2600	2 4L4' T8/ELIG	4F32SSE	112	2600
Map #32	Corner Office	1	2F32SSE	60	2600	1	CEILING SENSOR	112	2600	2 4L4' T8/ELIG	4F32SSE	112	2600
Map #33	Corner Office	1	2F32SSE	60	2600	1	CEILING SENSOR	112	2600	2 4L4' T8/ELIG	4F32SSE	112	2600
Map #34	Office	1	2F32SSE	60	2600	1	WALL SENSOR	60	2600	2 4L4' T8/ELIG	2F32SSE	60	2600
Map #35	Men's Room	1	2F32SSE	60	2600	1	WALL SENSOR	60	2600	1 2L4' T8/ELIG	2F32SSE	60	2600
Map #35	Men's Room	1	2F32SSE	60	2600	1	WALL SENSOR	60	2600	1 2L4' T8/ELIG	2F32SSE	60	2600
Map #36	Large Open Office	13	2F32SSE	60	2600	13	2L4' T8/ELIG	60	2600	13 2L4' T8/ELIG	2F32SSE	60	2600
Map #36	Large Open Office	1	4F32SSE	112	2000	4	4L4' T8/ELIG	112	2000	1	CEILING SENSOR	60	2600
Map #38	Conference Room	4	4F32SSE	55	2000	4	4L4' T8/ELIG	55	2000	4 2L4' T8/ELIG	2F32SSE	55	2000
Map #38	Conference Room	1	4F32SSE	112	1600	2	4L4' T8/ELIG	112	1600	1	CEILING SENSOR	60	2600
Map #41	Office	1	4F32SSE	112	1600	1	WALL SENSOR	112	1600	1	WALL SENSOR	64	112
Map #41	Office	1	4F32SSE	112	1600	1	WALL SENSOR	112	1600	1	WALL SENSOR	64	112
Map #43	Police Office	3	4F32SSE	112	1400	3	4L4' T8/ELIG	112	1400	3 2L4' T8/ELIG	2F32SSE	10	55
Map #44	Chief's Conference Rm	3	4F32SSE	112	2600	3	4L4' T8/ELIG	112	2600	3 2L4' T8/ELIG	2F32SSE	10	55
Map #44	Chief's Conference Rm	1	4F32SSE	55	2600	1	CEILING SENSOR	55	2600	1	CEILING SENSOR	61	55
Map #45	Captain's Office	3	4F32SSE	112	3000	3	4L4' T8/ELIG	112	3000	3 2L4' T8/ELIG	2F32SSE	10	55
Map #45	Captain's Office	1	4F32SSE	55	3000	1	CEILING SENSOR	55	3000	1	CEILING SENSOR	61	55
Map #46	Police Receipt Area	3	4F32SSE	112	3000	3	4L4' T8/ELIG	112	3000	3 2L4' T8/ELIG	2F32SSE	10	48
Map #47	Comm Supervisor Off	1	3F32SSE	88	3000	1	3L4' T8/ELIG	88	3000	1 2L4' T8/ELIG	2F32SSE	10	55
Map #47	Comm Supervisor Off	1	3F32SSE	55	3000	1	WALL SENSOR	55	3000	1	WALL SENSOR	64	55
Map #49	Interview Area	3	4F32SSE	112	3000	3	4L4' T8/ELIG	112	3000	3 2L4' T8/ELIG	2F32SSE	10	55
Map #54	Detective's Area	4	3F32SSE	88	3000	4	3L4' T8/ELIG	88	3000	4 2L4' T8/ELIG	2F32SSE	10	55
Map #55	Lieutenant's Office	2	3F32SSE	88	2600	2	3L4' T8/ELIG	88	2600	2 2L4' T8/ELIG	2F32SSE	10	55
Map #55	Lieutenant's Office	1	3F32SSE	55	2600	1	CEILING SENSOR	55	2600	1	CEILING SENSOR	61	55
Map #56	File Storage	1	3F32SSE	88	1000	1	3L4' T8/ELIG	88	1000	1 2L4' T8/ELIG	2F32SSE	10	55
Map #56	File Storage	1	3F32SSE	55	3000	1	WALL SENSOR	55	3000	1	WALL SENSOR	64	55
Map #57	Interview Room	1	3F32SSE	88	500	1	3L4' T8/ELIG	88	500	1 2L4' T8/ELIG	2F32SSE	10	55
Map #58	Interview Room	1	3F32SSE	88	500	1	3L4' T8/ELIG	88	500	1 2L4' T8/ELIG	2F32SSE	10	55
Map #59	Vestibule	2	4F32SSE	112	8760	2	4L4' T8/ELIG	112	8760	2 2L4' T8/ELIG	2F32SSE	10	48
Map #62	Sallyport Area	1	2F32SSE	109	8760	1	2L8' T8/ELIG	109	8760	1 4L4' T8/ELIG	4F32SSE	108	8,760
Map #62	Sallyport Area Storage	2	2F32SSE	60	1600	2	2L4' T8/ELIG	60	1600	2 1L4' T8/ELIG	1F32SSE	10	28
Map #63	Training Office	2	4F32SSE	112	1600	2	4L4' T8/ELIG	112	1600	2 2L4' T8/ELIG	2F32SSE	10	55
Map #63	Training Office	1	4F32SSE	55	1600	1	WALL SENSOR	55	1600	1	WALL SENSOR	64	55
Map #64	Traffic Bureau Off	1	4F32SSE	112	2600	1	4L4' T8/ELIG	112	2600	1 2L4' T8/ELIG	2F32SSE	10	55
Map #64	Traffic Bureau Off	1	4F32SSE	55	2600	1	WALL SENSOR	55	2600	1	WALL SENSOR	64	55
Map #65	Spent Shell Storage	1	2F40SEM	70	1000	1	2L4' EE/EE/MAG	70	1000	1 1L4' T8/ELIG	1F32SSE	41	28
Map #66	Mail Room	2	4F32SSE	112	8760	2	4L4' T8/ELIG	112	8760	2 2L4' T8/ELIG	4F32SSE	10	108
Map #66	Mail Room	2	4F32SSE	112	8760	2	4L4' T8/ELIG	112	8760	2 2L4' T8/ELIG	2F32SSE	10	55
Map #66	Mail Room	1	4F32SSE	163	8760	1	CEILING SENSOR	163	8760	1	CEILING SENSOR	61	163
Map #67	Shift Commander's Area	3	4F32SSE	112	8760	3	4L4' T8/ELIG	112	8760	3 2L4' T8/ELIG	2F32SSE	10	55
Map #68	Animal Control Hallway	1	4F32SSE	112	8760	1	4L4' T8/ELIG	112	8760	1 2L4' T8/ELIG	2F32SSE	10	55
Map #68	Animal Control Hallway	1	4F32SSE	55	8760	1	CEILING SENSOR	55	8760	1	CEILING SENSOR	61	55
Map #69	Men's Locker	3	2F32SSE	60	6000	3	2L4' T8/ELIG	60	6000	3 2L4' T8/ELIG	2F32SSE	60	6000
Map #69	Men's Locker	1	2F32SSE	60	6000	1	WALL SENSOR	60	6000	1	WALL SENSOR	64	60
Map #73	Women's Locker	1	2F32SSE	60	6000	1	2L4' T8/ELIG	60	6000	1 2L4' T8/ELIG	2F32SSE	60	6000
Map #73	Women's Locker	1	2F32SSE	60	6000	1	WALL SENSOR	60	6000	1	WALL SENSOR	64	60

Energy Savings Analysis

City of Dover - Dover City Hall - S2

Dover, NH

ESCO CODE	QTY	AVG. ANNUAL HOURS		AVG. ANNUAL OFF PK HOURS		UNIT KW BEFORE		TOTAL KW AFTER		UNIT KW AFTER		TOTAL KW AFTER		TOTAL KW SAVED		ANNUAL ON PK KWH SAVED		ANNUAL OFF PK KWH SAVED		ANNUAL TOTAL KWH SAVED		ON PK SAVINGS @ \$.1200 PER KWH		OFF PK SAVINGS @ \$.1200 PER KWH		DEMAND SAVINGS @ \$.00 PER KW		TOTAL SAVINGS
		TOTAL HOURS	ON PK HOURS	AVG. HOURS	ANNUAL OFF PK HOURS	UNIT KW	BEFORE	UNIT KW	AFTER	TOTAL KW	UNIT KW	AFTER	TOTAL KW	UNIT KW	SAVED	TOTAL KW	SAVED	ANNUAL ON PK KWH	SAVED	ANNUAL OFF PK KWH	SAVED	ANNUAL TOTAL KWH	SAVED	ON PK SAVINGS @ \$.1200 PER KWH	OFF PK SAVINGS @ \$.1200 PER KWH	DEMAND SAVINGS @ \$.00 PER KW		
ADF-T8-QXPS-UNV	2	3,000	3,000	-	-	0.060	0.12	0.028	0.06	0.032	0.06	0.032	0.06	192	192	-	192	23	-	-	0	23	-	-	0	23		
ADFWIN-QXPS-UNV	1	1,000	1,000	-	-	0.070	0.07	0.028	0.03	0.042	0.04	0.042	0.04	42	42	-	42	5	-	-	0	5	-	-	0	5		
AFWIN-(2)150-QXPS-UNV	1	500	500	-	-	0.300	0.30	0.055	0.05	0.245	0.25	0.245	0.25	123	123	-	123	15	-	-	0	15	-	-	0	15		
A-RL-XPS	2	8,760	8,760	-	-	0.060	0.12	0.060	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BDF-T8-QLXPS-UNV	5	5,304	5,304	-	-	0.112	0.56	0.048	0.24	0.064	0.32	0.064	0.32	1,697	1,697	-	1,697	204	-	-	0	204	-	-	0	204		
BDF-T8-QXPS-UNV	30	3,850	3,850	-	-	0.112	3.36	0.055	1.65	0.057	1.71	0.057	1.71	6,584	6,584	-	6,584	790	-	-	0	790	-	-	0	790		
BDFT-T8-QXPS-UNV	2	8,760	8,760	-	-	0.112	0.22	0.055	0.11	0.057	0.11	0.057	0.11	999	999	-	999	120	-	-	0	120	-	-	0	120		
BDFTWIN-T8-QLXPS-UNV	4	2,600	2,600	-	-	0.112	0.45	0.043	0.17	0.069	0.28	0.069	0.28	718	718	-	718	86	-	-	0	86	-	-	0	86		
BDFWIN-T8-QLXPS-UNV	4	2,775	2,775	-	-	0.112	0.45	0.048	0.19	0.064	0.26	0.064	0.26	710	710	-	710	85	-	-	0	85	-	-	0	85		
BDFWIN-T8-QXPS-UNV	14	2,471	2,471	-	-	0.112	1.57	0.055	0.77	0.057	0.80	0.057	0.80	1,972	1,972	-	1,972	237	-	-	0	237	-	-	0	237		
CDF-T8-QXPS-UNV	10	2,220	2,220	-	-	0.088	0.88	0.055	0.55	0.033	0.33	0.033	0.33	733	733	-	733	88	-	-	0	88	-	-	0	88		
CSS-120	13	1,615	1,615	-	-	0.259	3.37	-	-	0.259	3.37	0.259	3.37	5,436	5,436	-	5,436	652	-	-	0	652	-	-	0	652		
EDFWIN-T8-QXPS-UNV	1	4,000	4,000	-	-	0.109	0.11	0.055	0.05	0.054	0.05	0.054	0.05	216	216	-	216	26	-	-	0	26	-	-	0	26		
HDF/E-T8-QXPS-UNV	1	8,760	8,760	-	-	0.109	0.11	0.108	0.11	0.001	0.00	0.001	0.00	9	9	-	9	1	-	-	0	1	-	-	0	1		
K1/R-CF13-UNV	5	8,760	8,760	-	-	0.013	0.07	0.001	0.01	0.012	0.06	0.012	0.06	526	526	-	526	63	-	-	0	63	-	-	0	63		
MH70-MF1/2-Q500-UNV	1	3,650	3,650	-	-	0.300	0.30	0.095	0.09	0.205	0.21	0.205	0.21	748	748	-	748	90	-	-	0	90	-	-	0	90		
NO UPGRADE	181	44	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NOUNPGRADE-18WPL	1	3,250	3,250	-	-	0.020	0.02	0.020	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NOUNPGRADE-22LT8NP	2	3,250	3,250	-	-	0.037	0.07	0.037	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NOUNPGRADE-42L32WT8NP	31	3,237	3,237	-	-	0.060	1.86	0.060	1.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NOUNPGRADE-44L32WT8NP	15	2,350	2,350	-	-	0.112	1.68	0.112	1.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NOUNPGRADE-VENDINGMACHINE	2	8,760	8,760	-	-	0.400	0.80	0.400	0.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SL520-160-120	56	3,815	3,815	-	-	0.060	3.36	0.020	1.12	0.040	2.24	0.040	2.24	8,546	8,546	-	8,546	1,025	-	-	0	1,025	-	-	0	1,025		
SL59G-125-120	12	1,000	1,000	-	-	0.025	0.30	0.009	0.11	0.016	0.19	0.016	0.19	192	192	-	192	23	-	-	0	23	-	-	0	23		
SLSR3020/D-175-120	4	1,600	1,600	-	-	0.075	0.30	0.020	0.08	0.055	0.22	0.055	0.22	352	352	-	352	42	-	-	0	42	-	-	0	42		
SLSR3020-165-120	5	1,600	1,600	-	-	0.065	0.32	0.020	0.10	0.045	0.22	0.045	0.22	360	360	-	360	43	-	-	0	43	-	-	0	43		

Energy Savings Analysis City of Dover - Dover City Hall - S2

Dover, NH

ESCO CODE	QTY	AVG. ANNUAL HOURS		AVG. ANNUAL OFF PK HOURS		UNIT KW BEFORE		UNIT KW AFTER		TOTAL KW		TOTAL KW SAVED		ANNUAL ON PK KWH SAVED		ANNUAL OFF PK KWH SAVED		ANNUAL TOTAL KWH SAVED		ON PK SAVINGS @ \$.1200 PER KWH		OFF PK SAVINGS @ \$.1200 PER KWH		DEMAND SAVINGS @ \$.00 PER KW		TOTAL SAVINGS
		TOTAL	AVG.	TOTAL	AVG.	BEFORE	AFTER	BEFORE	AFTER	TOTAL	SAVED	ON PK	OFF PK	TOTAL	ON PK	OFF PK	TOTAL	ON PK	OFF PK	ON PK	OFF PK	ON PK	OFF PK	ON PK	OFF PK	
SP-120/277	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VSS-120	2	2,891	2,891	0.400	0.80	0.400	0.80	0.400	0.80	0.80	0.80	0.80	0.80	2,313	2,313	2,313	2,313	2,313	2,313	278	278	278	278	278	278	278
WIRE MOLD EXTENSION BOX	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WSS-120	15	1,093	1,093	0.101	1.52	0.101	1.52	0.101	1.52	1.52	1.52	1.52	1.52	1,656	1,656	1,656	1,656	1,656	1,656	199	199	199	199	199	199	199
WSS-DT-120	2	2,640	2,640	0.120	0.24	0.120	0.24	0.120	0.24	0.24	0.24	0.24	0.24	634	634	634	634	634	634	76	76	76	76	76	76	76
Total	429				23.32		10.05		57%	13.27		34,755		34,755		4,171		4,171		0		0		0		4,171

Fixture Locations
City of Dover - Dover City Hall - S2
Dover, NH

Map	Location	Hours	Qty	Code	Notes
1	City Clerk's Open Office	-	6	NO UPGRADE	Existing 4' 2L T8 Surface Mount Wrap
2	Hallway	-	2	NO UPGRADE	Existing CF in Hanging Decorative Fixture
2	Hallway	-	12	NO UPGRADE	Existing 1 x 4 2L T8 Wrap
2	Hallway	4,000	1	EDFW/N-T8-QXPS-UNV	Behind Stairwell
2	Hallway	8,760	1	NOUPGRADE-VENDINGMACHINE	Dasani Machine in Elevator Alcove
2	Hallway	8,760	1	VSS-120	
3	City Manager's Reception Area	3,250	2	BDFWW/N-T8-QLXPS-UNV	
3	City Manager's Reception Area	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
4	City Manager's Office	-	6	NO UPGRADE	Existing 2L Incandescent Wall Mounted Decorative Fixture
4	City Manager's Office	-	1	NO UPGRADE	Existing 8L Incandescent Hanging Chandelier
4	City Manager's Office	-	1	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Box
4	City Manager's Office	-	1	NO UPGRADE	Existing 2 x 4 2L Decorative Surface Mount Fixture
5	Human Resources	2,000	1	WSS-120	
5	Human Resources	2,000	1	BDFWW/N-T8-QLXPS-UNV	
6	Conference Room/Break Area	3,250	1	NOUPGRADE-4'4L32WT8NP	Existing 8' 4L T8 Surface Mount Wrap
6	Conference Room/Break Area	3,250	1	WSS-120	
6	Conference Room/Break Area	-	1	WIRE MOLD EXTENSION BOX	
6	Conference Room/Break Area	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
7	Copy Room	-	1	NO UPGRADE	Existing 4' 2L T8 Chain Hung Wrap Fixture on Sensor
8	Tax Collector/Water & Sewer Dept. Open Office	-	7	NO UPGRADE	Existing 8' 4L T8 Surface Mount Wrap
8	Tax Collector/Water & Sewer Dept. Open Office	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap in Vault
9	Welfare Department	2,000	2	BDFWW/N-T8-QXPS-UNV	
10	Planning Open Office	2,600	1	BDFWW/N-T8-QXPS-UNV	
10	Planning Open Office	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
10	Planning Open Office	2,000	1	BDFWW/N-T8-QXPS-UNV	In Rear Office
10	Planning Open Office	2,000	1	WSS-120	
10	Planning Open Office	-	1	WIRE MOLD EXTENSION BOX	
11	Room #10	-	2	NO UPGRADE	Existing 4' 2L T8 Surface Mount Wrap

Fixture Locations
City of Dover - Dover City Hall - S2
Dover, NH

Map	Location	Hours	Qty	Code	Notes
12	Men's Room	-	1	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Wrap on Sensor
12	Men's Room	-	2	NO UPGRADE	Existing 2 x 4 2L T8 Surface Mount Box Fixture on Sensor
13	Planning Open Office Area	-	8	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Wrap
13	Planning Open Office Area	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
14	Planning Office	2,600	3	NOUPGRADE-4'2L32WT8NP	Existing 1 x 4 2L T8 Surface Mount Wrap
14	Planning Office	2,600	1	WSS-120	
15	Tax Assessor's Open Office	2,600	3	BDFWW/N-T8-QXPS-UNV	
15	Tax Assessor's Open Office	-	1	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Wrap
16	Assessor's Office	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
16	Assessor's Office	2,600	1	BDFWW/N-T8-QXPS-UNV	
16	Assessor's Office	2,600	1	WSS-120	
17	Women's Room	3,250	1	WSS-120	
17	Women's Room	3,250	1	NOUPGRADE-18WPL	Existing 18W CF Recessed Can
17	Women's Room	3,250	2	NOUPGRADE-2'2LT8NP	Existing 1 x 2 2L T8 Surface Mount Wrap
18	Finance Open Office	2,600	2	BDFTW/N-T8-QLXPS-UNV	
18	Finance Open Office	2,600	1	BDFWW/N-T8-QLXPS-UNV	Over File Cabinets
19	Office	2,600	2	NOUPGRADE-4'2L32WT8NP	Existing 1 x 4 2L Decorative Drop Lens Surface Mount Fixture
19	Office	2,600	1	WSS-120	
21	Office	2,600	1	WSS-120	
21	Office	2,600	1	NOUPGRADE-4'4L32WT8NP	Existing 8' 4L T8 Surface Mount Wrap
21	Office	2,600	1	NOUPGRADE-4'2L32WT8NP	Existing 4' 2L T8 Surface Mount Wrap
22	Accounting Office	2,600	2	BDFWW/N-T8-QXPS-UNV	
22	Accounting Office	-	2	NO UPGRADE	Existing 4' 2L T8 Surface Mount Wrap
23	Office	-	2	NO UPGRADE	Existing 8' 4L T8 Surface Mount Wrap
23	Office	-	1	NO UPGRADE	Existing CF Schoolhouse Globe
23	Office	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap in Vault
24	Custodial Closet	-	2	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap on Sensor
25	3rd Floor - Rear Stairwell	-	3	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap

Fixture Locations
City of Dover - Dover City Hall - S2
Dover, NH

Map	Location	Hours	Qty	Code	Notes
26	Function Room	-	16	NO UPGRADE	Existing 2 x 4 4L T8 Surface Mount Box
26	Function Room	8,760	5	K1/R-CF13-UNV	In Decorative Exit Signs
27	Building Inspector's Office	2,600	2	BDF1WW/N-T8-QLXPS-UNV	
28	Inspection Open Office	2,600	4	BDFWW/N-T8-QXPS-UNV	
29	Women's Room	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
29	Women's Room	-	1	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Wrap
30	Conference Room	2,000	4	NOUPGRADE-4'4L32WT8NP	Existing 8' 4L T8 Surface Mount Wrap
30	Conference Room	2,000	1	CSS-120	W1000A
30	Conference Room	1,000	12	SLS9G-125-120	Wall Mounted Decorative Fixture
31	Open Office Area	2,600	5	NOUPGRADE-4'4L32WT8NP	Existing 8' 4L T8 Surface Mount Wrap
31	Open Office Area	2,600	4	NOUPGRADE-4'2L32WT8NP	Existing 4' 2L T8 Surface Mount Wrap
31	Open Office Area	2,600	2	CSS-120	W500A
32	Corner Office	2,600	2	NOUPGRADE-4'4L32WT8NP	Existing 8' 4L T8 Surface Mount Wrap
32	Corner Office	2,600	1	CSS-120	CX105
33	File Area	-	2	NO UPGRADE	Existing 8' 4L T8 Surface Mount Wrap; Sensor in Place
34	Office	2,600	2	NOUPGRADE-4'2L32WT8NP	Existing 4' 2L T8 Surface Mount Wrap
34	Office	2,600	1	WSS-120	
34	Office	-	1	WIRE MOLD EXTENSION BOX	
35	Men's Room	2,600	1	NOUPGRADE-4'2L32WT8NP	Existing 4' 2L T8 Surface Mount Wrap
35	Men's Room	2,600	1	WSS-DT-120	
35	Men's Room	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap in Small Entry Vestibule
36	Large Open Office Area	2,600	2	CSS-120	W500A
36	Large Open Office Area	2,600	13	NOUPGRADE-4'2L32WT8NP	Existing 4' 2L T8 Surface Mount Wrap
37	Corridor	-	2	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
37	Corridor	-	11	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Wrap
38	Conference Room	2,000	4	BDF-T8-QXPS-UNV	
38	Conference Room	2,000	1	CSS-120	DT200
38	Conference Room	-	1	SP-120/277	

Fixture Locations City of Dover - Dover City Hall - S2 Dover, NH

Map	Location	Hours	Qty	Code	Notes
39	Council Chambers	-	8	NO UPGRADE	Existing 8' 4L T8 Pendant Mount Wrap
39	Council Chambers	-	2	NO UPGRADE	Existing 4' 2L T8 Pendant Mount Wrap
40	Legal Office	-	4	NO UPGRADE	Existing 2 x 4 2L T8 Recessed Troffer
41	Office	1,600	2	NOUPGRADE-4'4L32WT8NP	Existing 2 x 4 4L T8 Prismatic Recessed Troffer
41	Office	1,600	1	WSS-120	WI200 w/ Photo
42	Basement - Boiler Room	-	7	NO UPGRADE	Existing 4' 2L T8 Industrial Fixture
43	Chief of Police Office	1,400	3	BDF-T8-QXPS-UNV	Sensor in Place
44	Chief's Conference Room	2,600	3	BDF-T8-QXPS-UNV	
44	Chief's Conference Room	2,600	1	CSS-120	DT200
45	Captain's Office	3,000	3	BDF-T8-QXPS-UNV	
45	Captain's Office	3,000	1	CSS-120	DT200
46	Police Reception Area	3,000	3	BDF-T8-QLXPS-UNV	
47	Communication Supervisor's Office	3,000	1	CDF-T8-QXPS-UNV	
47	Communication Supervisor's Office	3,000	1	WSS-120	
48	Dispatch Area	-	4	NO UPGRADE	Existing 2 x 4 3L T8 18-Cell Parabolic Recessed Troffer
48	Dispatch Area	-	3	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
48	Dispatch Area	1,600	4	SLSR3020/D-I75-120	Dimmable; Replacing 75W Incandescent Recessed Can
48	Dispatch Area	-	3	NO UPGRADE	Existing 4' 1L T8 Indirect Fixture
49	Interview Area	3,000	3	BDF-T8-QXPS-UNV	
50	Room	-	2	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Troffer Recessed
50	Room	1,600	5	SLSR3020-165-120	Replacing 65W Incandescent
51	Hallway	-	4	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Troffer
52	Records Room	-	8	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Troffer
53	IT Room	-	2	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Troffer; On Sensor
54	Detective's Area	3,000	4	CDF-T8-QXPS-UNV	
55	Lieutenant's Office	2,600	2	CDF-T8-QXPS-UNV	
55	Lieutenant's Office	2,600	1	CSS-120	CX105
56	File Storage	1,000	1	CDF-T8-QXPS-UNV	

Fixture Locations City of Dover - Dover City Hall - S2 Dover, NH

Map	Location	Hours	Qty	Code	Notes
56	File Storage	1,000	1	WSS-120	
57	Interview Room	500	1	CDF-T8-QXPS-UNV	
58	Interview Room	500	1	CDF-T8-QXPS-UNV	
59	Vestibule	8,760	2	BDF-T8-QLXPS-UNV	
60	Booking Room	-	3	NO UPGRADE	Existing 2 x 4 3L T8 Prismatic Troffer
60	Booking Room	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
61	Hold Cell Area	-	4	NO UPGRADE	Existing 1 x 4 2L Vandal Proof Prismatic T8 Troffer
61	Hold Cell Area	-	5	NO UPGRADE	Existing 1L T8 Corner Mount Vandal Proof Fixture
62	Sallyport Area	8,760	1	HDF/E-T8-QXPS-UNV	
62	Sallyport Area - Small Storage Side	3,000	2	ADF-T8-QXPS-UNV	
63	Training Office	1,600	2	BDF-T8-QXPS-UNV	
63	Training Office	1,600	1	WSS-120	
64	Traffic Bureau Office	2,600	1	BDF-T8-QXPS-UNV	
64	Traffic Bureau Office	2,600	1	WSS-120	
65	Spent Shell Storage Area	1,000	1	ADF/W-N-QXPS-UNV	Existing 1 x 4 2L T12 Wrap Fixture
65	Spent Shell Storage Area	-	1	NO UPGRADE	Existing 1 x 4 2L T8 Surface Mount Wrap in Vault
66	Mail Room	8,760	2	BDFT-T8-QXPS-UNV	
66	Mail Room	-	1	SP-120/277	
66	Mail Room	8,760	2	BDF-T8-QXPS-UNV	
66	Mail Room	8,760	1	CSS-120	DT200
67	Shift Commander's Area	8,760	3	BDF-T8-QXPS-UNV	
68	Animal Control Hallway	8,760	1	BDF-T8-QXPS-UNV	
68	Animal Control Hallway	8,760	2	A-RL-XPS	Existing 2x4 2L T8 PRismatic Troffer
68	Animal Control Hallway	8,760	1	CSS-120	
69	Men's Locker	6,000	3	NOUPGRADE-4'2L32WT8NP	Existing 1 x 4 2L T8 Surface Mount Wrap
69	Men's Locker	6,000	1	WSS-DT-120	
71	Shower Area	-	2	NO UPGRADE	Existing CF Wall Mounted Vanity Fixture; On Sensor
71	Shower Area	-	4	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Troffer; On Sensor

Fixture Locations

City of Dover - Dover City Hall - S2 Dover, NH

Map	Location	Hours	Qty	Code	Notes
72	Exercise Room	2,000	4	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Recessed Troffer; Sensor in Place
73	Women's Locker	6,000	1	NOUPGRADE-4'2L32WT8NP	Existing 1 x 4 2L T8 Surface Mount Wrap; Lens Missing
73	Women's Locker	6,000	1	WSS-120	
74	Prosecutor's Office	2,600	4	BDF-T8-QXPS-UNV	Sensor in Place
75	Copy Area	8,760	1	BDF-T8-QXPS-UNV	
75	Copy Area	-	1	NO UPGRADE	Existing 4' 1L T8 Strip Fixture in Display Cabinet
76	Vending Area	8,760	1	VSS-120	
76	Vending Area	-	1	NO UPGRADE	Existing 1 x 2 2L T8 Surface Mount Wrap
76	Vending Area	8,760	1	NOUPGRADE-VENDINGMACHINE	Coke Machine
77	Bathroom	8,760	1	NOUPGRADE-4'2L32WT8NP	Existing 2 x 4 2L T8 Recessed Troffer; Lens and Door Missing
77	Bathroom	8,760	1	CSS-120	W500A
78	Evidence Storage Room	-	4	NO UPGRADE	Existing 2 x 4 2L T8 Prismatic Troffer; No Access
79	Storage	-	2	NO UPGRADE	Existing 1 x 4 2L T8 Wrap Fixture
80	Attic Area to Clock Tower	3,650	1	MH70-MF1/2-Q500-UNV	Replacing 500W Roof Mounted Quartz Fixture; 1/2" Nipple Mount
80	Attic Area to Clock Tower	500	3	SLS20-160-120	Replacing 60W Incandescent
80	Attic Area to Clock Tower	500	1	AFW/N-(2)150-QXPS-UNV	Replacing (2) 150W Incandescent
80	Attic Area to Clock Tower	500	2	SLS20-160-120	Replacing 60W Incandescent; On Landing Below Clock Tower
80	Attic Area to Clock Tower	4,368	48	SLS20-160-120	Replacing 60W Incandescent Around Clock Face
80	Attic Area to Clock Tower	500	3	SLS20-160-120	Replacing 60W Incandescent; Landing Lighting

Total

429

**Material Purchasing
City of Dover - City Hall - S1**

Bldg Name	Component	PO Order Total	Vendor	Mfg Name	Mfg #	Notes
City Hall	Ballast 1 lamp Electronic UNV QHEN Super Saver	2	WESCO	Advance	IOP-1P32-SC	
City Hall	Ballast 2 lamp Electronic UNV QHEL Super Saver	5	WESCO	Advance	IOP-2P32-LW-SC	
City Hall	Ballast 2 lamp Electronic UNV QHEN Super Saver	40	WESCO	Advance	IOP-2P32-SC	
City Hall	Ballast 4 lamp Electronic UNV QHEN Super Saver	2	WESCO	Advance	IOP-4P32-SC	
City Hall	Reflector Kit 2x4 Miro-4 2-Lamp	47	EPA	EPA	RTR2402T832ENLSS	
City Hall	Reflector Kit 4' 1 lamp Miro-4	2	EPA	EPA	RST1401T832ENCCLSLST	
City Hall	Reflector kit 8' 4 lamp Miro-4	1	EPA	EPA	RST1804T832ENCCLSLST	
City Hall	Wire Mold Extension Box	3		Labor to Purchase		
City Hall	CF 20 Watt Lamp w/ Ballast Screw In	56	WESCO	Philips	SLS20/ALTO	
City Hall	CF 20 watt quad flood lamp (Ref) SLSR30	5	WESCO	Philips	139394 ELJA BR30 16 ALTO	
City Hall	CF 20 watt quad flood lamp (refl) SLSR30 Dimmable	4	WESCO	Philips	137075 ELJA R30 16 DIMM REFLECTOR	
City Hall	CF 9W Globe Candlebra Lamp with Ballast	12	WESCO	Philips	1517-2	
City Hall	Lamp 4' T8 XPS Super Saver 841	153	WESCO	Philips	F32T8/ADV841/ALTO	
City Hall	New Fixture 4' 2 lamp wide wrap w/refl UNV QHEL	4	Re-Nova	Re-Nova	ECS-MPW4-MN-232-UNV-2L-IOP	
City Hall	New Fixture 4' 2 lamp wide wrap w/reflector UNV QHEN	14	Re-Nova	Re-Nova	ECS-MPW4-MN-232-UNV-2N-IOP	
City Hall	New Fixture 8' 4 lamp wide wrap w/refl UNV QHEL	2	Re-Nova	Re-Nova	ECS-MPW8-MN-432-UNV-4L-IOP	
City Hall	New Fixture 4' 1 lamp wrap UNV QHEN with reflector	1	Re-Nova	Re-Nova	ECS-NPW4-MN-132-UNV-1N-IOP	
City Hall	New Fixture 4' 2 lamp wrap UNV QHEN with Reflector	1	Re-Nova	Re-Nova	ECS-NPW4-MN-232-UNV-2N-IOP	
City Hall	New Fixture 8' 2 lamp wrap w/reflector UNV QHEN	1	Re-Nova	Re-Nova	ECS-NPW8-MN-232-UNV-2N-IOP	
City Hall	Ceiling mounted occupancy sensor	1	MUNRO	Sensor Switch	HW-13	
City Hall	Ceiling mounted occupancy sensor	5	MUNRO	Sensor Switch	CM-9	
City Hall	Ceiling mounted occupancy sensor	1	MUNRO	Sensor Switch	CM-PDT-9	
City Hall	Power Pack for Ceiling or Hailway Sensor	13	MUNRO	Sensor Switch	MP-20	
City Hall	Slave Pack 120/277	2	MUNRO	Sensor Switch	MP-20	
City Hall	Vending Machine Miser VM150	2	MUNRO	Vending Miser	VM150	
City Hall	Wall switch occupancy sensor SensorSwitch	14	MUNRO	Sensor Switch	WSD-I	
City Hall	Wall switch occupancy sensor SensorSwitch	1	MUNRO	Sensor Switch	WSD-I PHOTO	
City Hall	Wall switch occupancy sensor Dual Tech SensorSwitch	2	MUNRO	Sensor Switch	WSD-PDT-I	
City Hall	Ceiling mounted occupancy sensor	2	MUNRO	Sensor Switch	WV-16	
City Hall	Exit Sign Single Face LED Retro Kit -120	5	MUNRO	Skyline	XFR-HW	

Material Purchasing City of Dover - City Hall - S1						
Bldg Name	Component	PO Order Total	Vendor	Mfg Name	Mfg #	Notes
City Hall	New Fixture 70W MH Mini Flood UNV 1/2 Nipple	1	MUNRO Int		FLO70MH	
City Hall	Ceiling mounted occupancy sensor	4	MUNRO	Sensor Switch	WV-PDT-16	

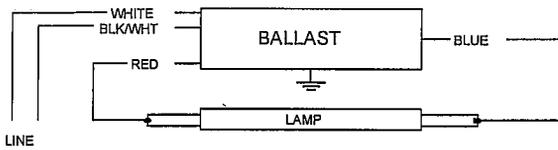


IOP-1P32-SC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
* F17T8	1	17	-20/-29	0.14	16	0.90	10	0.99	1.5	5.63
F25T8	1	25	-20/-29	0.20	23	0.88	10	0.99	1.5	3.83
F32T8	1	32	-20/-29	0.25	28	0.87	10	0.99	1.5	3.11
F32T8/ES (25W)	1	25	60/16	0.20	23	0.87	10	0.99	1.5	3.78
F32T8/ES (28W)	1	28	60/16	0.22	25	0.87	10	0.99	1.5	3.48
F32T8/ES (30W)	1	30	60/16	0.23	27	0.87	10	0.99	1.5	3.22

Wiring Diagram

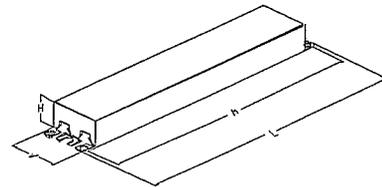


Diag. 63

The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 08/02/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.

O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
 Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
 Corporate Offices: Phone: 800-322-2086



IOP-1P32-SC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

- 2.1 Ballast shall be _____ (Instant or Programmed) Start.
- 2.2 Instant start ballast shall provide Independent Lamp Operation (ILO) for Instant Start ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail. Programmed Start ballast shall provide semi-independent lamp operation.
- 2.3 Instant start ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.4 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.
- 2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz through 52 kHz to avoid interference with infrared devices and eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
- 2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 or 0.71 for Low Watt, 0.87 or 0.88 for Normal Light Output, and 1.18 for High Light.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.
- 2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.
- 2.11 Ballast shall have a minimum starting temperature of -20F (-29C) Instant Start IntelliVolt or 0F (-18C) Programmed Start IntelliVolt for standard T8 lamps and 60F (16C) for energy-saving T8 lamps.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.
- 2.13 Ballast shall contain an anti-striation circuitry to prevent striation on energy savings lamps.
- 2.14 Programmed start ballasts shall provide lamp EOL protection circuitry.
- 2.15 Instant Start Ballasts - Remote or tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder. For tandem wiring, any lamp can be remote mounted.
 Programmed Start 2-lamp (normal and LW) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps.
 Programmed Start 3&4-lamp (normal light) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.
 Programmed Start 3&4-lamp (LW) - Tandem wiring allowed to a maximum of 10 feet between ballast and lamp holder for standard T8 lamps and energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.

Section III - Regulatory Requirements

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.4 Ballast shall comply with ANSI C82.11 where applicable.
- 3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

3.7 Ballast shall meet NEMA/CEE High Performance T8 Lighting System Specifications.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9001:2000 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a 90 C designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90 C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Note: Consult lamp manufacturers for applications with Ballast Factor > 1.2

Revised 08/02/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER - 10275 WEST HIGGINS ROAD
ROSEMONT, ILLINOIS 60018
TELEPHONE: (847) 390-5000 FAX: (847) 390-5109



IOP2P32LWSC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F32T8/ES (25W)	1	25	60/16	0.20	24	0.90	10	0.99	1.6	3.75
* F32T8/ES (25W)	2	25	60/16	0.32	38	0.77	10	0.99	1.6	2.03

Wiring Diagram

Diag. 64

The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

Enclosure

Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
 O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
 Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
 Corporate Offices: Phone: 800-322-2086



IOP2P32LWSC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

- 2.1 Ballast shall be _____ (Instant or Programmed) Start.
- 2.2 Instant start ballast shall provide Independent Lamp Operation (ILO) for Instant Start ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail. Programmed Start ballast shall provide semi-independent lamp operation.
- 2.3 Instant start ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.4 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.
- 2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz through 52 kHz to avoid interference with infrared devices and eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
- 2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 or 0.71 for Low Watt, 0.87 or 0.88 for Normal Light Output, and 1.18 for High Light.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.
- 2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.
- 2.11 Ballast shall have a minimum starting temperature of -20F (-29C) Instant Start IntelliVolt or 0F (-18C) Programmed Start IntelliVolt for standard T8 lamps and 60F (16C) for energy-saving T8 lamps.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.
- 2.13 Ballast shall contain an anti-striation circuitry to prevent striation on energy savings lamps.
- 2.14 Programmed start ballasts shall provide lamp EOL protection circuitry.
- 2.15 Instant Start Ballasts - Remote or tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder. For tandem wiring, any lamp can be remote mounted.
 Programmed Start 2-lamp (normal and LW) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps.
 Programmed Start 3&4-lamp (normal light) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.
 Programmed Start 3&4-lamp (LW) - Tandem wiring allowed to a maximum of 10 feet between ballast and lamp holder for standard T8 lamps and energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.

Section III - Regulatory Requirements

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.4 Ballast shall comply with ANSI C82.11 where applicable.
- 3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

3.7 Ballast shall meet NEMA/CEE High Performance T8 Lighting System Specifications.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9001:2000 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a 90 C designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90 C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Note: Consult lamp manufacturers for applications with Ballast Factor > 1.2

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER - 10275 WEST HIGGINS ROAD
ROSEMONT, ILLINOIS 60018
TELEPHONE: (847) 390-5000 FAX: (847) 390-5109

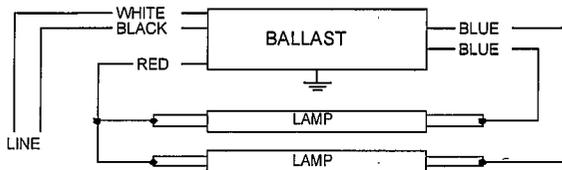


IOP-2P32-SC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F32T8/ES (25W)	1	25	60/16	0.23	27	1.05	10	0.99	1.6	3.89
* F32T8/ES (25W)	2	25	60/16	0.37	44	0.87	10	0.99	1.6	1.98

Wiring Diagram

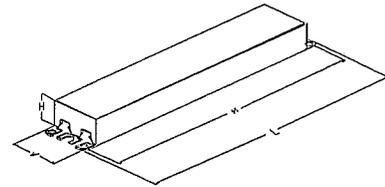


Diag. 64

The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.

O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
 Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
 Corporate Offices: Phone: 800-322-2086



IOP-2P32-SC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

- 2.1 Ballast shall be _____ (Instant or Programmed) Start.
- 2.2 Instant start ballast shall provide Independent Lamp Operation (ILO) for Instant Start ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail. Programmed Start ballast shall provide semi-independent lamp operation.
- 2.3 Instant start ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.4 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.
- 2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz through 52 kHz to avoid interference with infrared devices and eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
- 2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 or 0.71 for Low Watt, 0.87 or 0.88 for Normal Light Output, and 1.18 for High Light.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.
- 2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.
- 2.11 Ballast shall have a minimum starting temperature of -20F (-29C) Instant Start IntelliVolt or 0F (-18C) Programmed Start IntelliVolt for standard T8 lamps and 60F (16C) for energy-saving T8 lamps.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.
- 2.13 Ballast shall contain an anti-striation circuitry to prevent striation on energy savings lamps.
- 2.14 Programmed start ballasts shall provide lamp EOL protection circuitry.
- 2.15 Instant Start Ballasts - Remote or tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder. For tandem wiring, any lamp can be remote mounted.
 Programmed Start 2-lamp (normal and LW) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps.
 Programmed Start 3&4-lamp (normal light) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.
 Programmed Start 3&4-lamp (LW) - Tandem wiring allowed to a maximum of 10 feet between ballast and lamp holder for standard T8 lamps and energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.

Section III - Regulatory Requirements

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.4 Ballast shall comply with ANSI C82.11 where applicable.
- 3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

3.7 Ballast shall meet NEMA/CEE High Performance T8 Lighting System Specifications.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9001:2000 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a 90 C designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90 C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Note: Consult lamp manufacturers for applications with Ballast Factor > 1.2

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER - 10275 WEST HIGGINS ROAD
ROSEMONT, ILLINOIS 60018
TELEPHONE: (847) 390-5000 FAX: (847) 390-5109

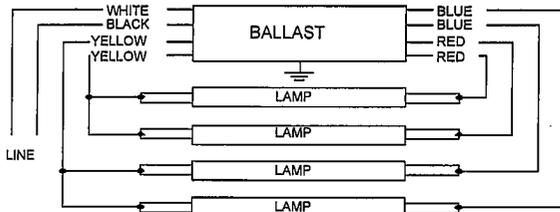


IOP-4P32-SC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F32T8/ES (25W)	3	25	60/16	0.59	70	0.97	10	0.99	1.6	1.39
* F32T8/ES (25W)	4	25	60/16	0.73	87	0.87	10	0.99	1.6	1.00

Wiring Diagram

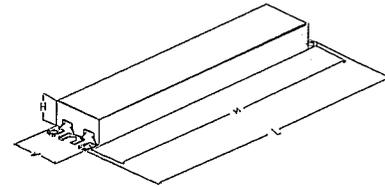


Diag. 66

The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.

O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
 Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
 Corporate Offices: Phone: 800-322-2086



IOP-4P32-SC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

- 2.1 Ballast shall be _____ (Instant or Programmed) Start.
- 2.2 Instant start ballast shall provide Independent Lamp Operation (ILO) for Instant Start ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail. Programmed Start ballast shall provide semi-independent lamp operation.
- 2.3 Instant start ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.4 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.
- 2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz through 52 kHz to avoid interference with infrared devices and eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
- 2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 or 0.71 for Low Watt, 0.87 or 0.88 for Normal Light Output, and 1.18 for High Light.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.
- 2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.
- 2.11 Ballast shall have a minimum starting temperature of -20F (-29C) Instant Start IntelliVolt or 0F (-18C) Programmed Start IntelliVolt for standard T8 lamps and 60F (16C) for energy-saving T8 lamps.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.
- 2.13 Ballast shall contain an anti-striation circuitry to prevent striation on energy savings lamps.
- 2.14 Programmed start ballasts shall provide lamp EOL protection circuitry.
- 2.15 Instant Start Ballasts - Remote or tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder. For tandem wiring, any lamp can be remote mounted.
 Programmed Start 2-lamp (normal and LW) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps.
 Programmed Start 3&4-lamp (normal light) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.
 Programmed Start 3&4-lamp (LW) - Tandem wiring allowed to a maximum of 10 feet between ballast and lamp holder for standard T8 lamps and energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.

Section III - Regulatory Requirements

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.4 Ballast shall comply with ANSI C82.11 where applicable.
- 3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

3.7 Ballast shall meet NEMA/CEE High Performance T8 Lighting System Specifications.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9001:2000 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a 90 C designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90 C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Note: Consult lamp manufacturers for applications with Ballast Factor > 1.2

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER - 10275 WEST HIGGINS ROAD
ROSEMONT, ILLINOIS 60018
TELEPHONE: (847) 390-5000 FAX: (847) 390-5109

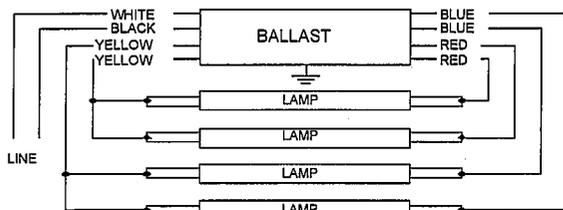


IOP4P32LWSC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F32T8/ES (25W)	3	25	60/16	0.52	62	0.85	10	0.99	1.6	1.37
* F32T8/ES (25W)	4	25	60/16	0.65	77	0.65	10	0.99	1.6	0.84

Wiring Diagram

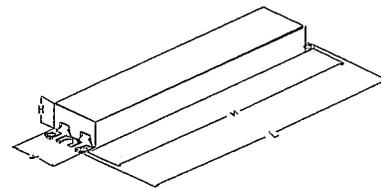


Diag. 66

The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.

O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
 Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
 Corporate Offices: Phone: 800-322-2086



IOP4P32LWSC@120V	
Brand Name	OPTANIUM 2.0
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

- 2.1 Ballast shall be _____ (Instant or Programmed) Start.
- 2.2 Instant start ballast shall provide Independent Lamp Operation (ILO) for Instant Start ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail. Programmed Start ballast shall provide semi-independent lamp operation.
- 2.3 Instant start ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.4 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.
- 2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz through 52 kHz to avoid interference with infrared devices and eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
- 2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 or 0.71 for Low Watt, 0.87 or 0.88 for Normal Light Output, and 1.18 for High Light.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.
- 2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.
- 2.11 Ballast shall have a minimum starting temperature of -20F (-29C) Instant Start IntelliVolt or 0F (-18C) Programmed Start IntelliVolt for standard T8 lamps and 60F (16C) for energy-saving T8 lamps.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.
- 2.13 Ballast shall contain an anti-striation circuitry to prevent striation on energy savings lamps.
- 2.14 Programmed start ballasts shall provide lamp EOL protection circuitry.
- 2.15 Instant Start Ballasts - Remote or tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder. For tandem wiring, any lamp can be remote mounted.
 Programmed Start 2-lamp (normal and LW) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps.
 Programmed Start 3&4-lamp (normal light) - Tandem wiring allowed to a maximum of 20 feet between ballast and lamp holder for standard T8 lamps and 10 feet between ballast and lamp holder for energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.
 Programmed Start 3&4-lamp (LW) - Tandem wiring allowed to a maximum of 10 feet between ballast and lamp holder for standard T8 lamps and energy saving lamps. RED and YELLOW must be in the same fixture as the ballast.

Section III - Regulatory Requirements

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.4 Ballast shall comply with ANSI C82.11 where applicable.
- 3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

3.7 Ballast shall meet NEMA/CEE High Performance T8 Lighting System Specifications.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9001:2000 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a 90 C designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90 C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Note: Consult lamp manufacturers for applications with Ballast Factor > 1.2

Revised 08/03/2005



Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER - 10275 WEST HIGGINS ROAD
ROSEMONT, ILLINOIS 60018
TELEPHONE: (847) 390-5000 FAX: (847) 390-5109

envirobrite

ENERGY PLANNING ASSOCIATES

RTR TROFFER REFLECTOR KIT

2x4 Troffer Fixture Retrofit Kit

Description

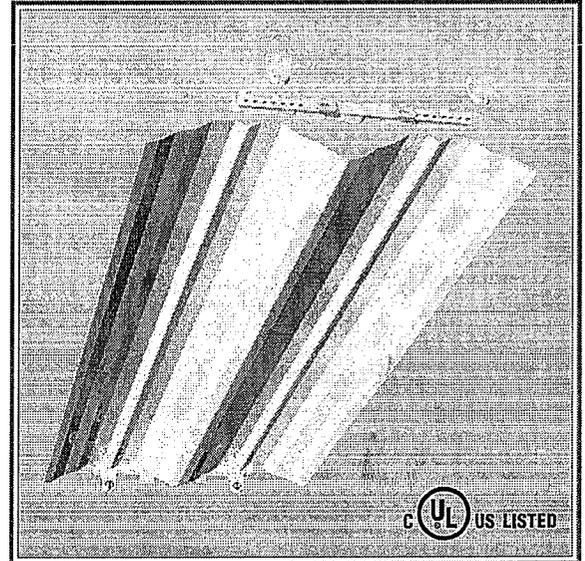
Envirobrite's® RTR Troffer Reflector kits dramatically enhance existing fixture efficiencies creating substantial energy savings with excellent return on investment. All Envirobrite® kits have four different specialized material options which offer various light distributions with minimal up-front investments. These kits, in conjunction with numerous ballast and lamp configurations, can easily produce ideal IES recommended light levels with minimized energy consumption. Envirobrite® kits will continue to provide consistent fixture performance and repeat annual energy savings for up to 25 years.

Application

Since 1994, millions of 2x4 lensed troffers and 18 cell parabolic louvers have been successfully de-lamped with Envirobrite® troffer kits. These kits are recognized worldwide as the industry leading retrofit kit for the majority of all commercial 2x4 fixtures. It's ideal optics, universal fit configuration and flexible stamped bracketing system allows proper fit in office spaces, classrooms, hospitals, and many other commercial locations.

Design

Envirobrite® kits are designed by our expert in house lighting engineers for ideal photometry and trouble-free installation. Every Envirobrite® kit is designed to meet UL 1570 specifications for safety. Integral to ideal kit functionality is the combination of our bracketing system which centers the lamps specifically to the optics of the reflector design. Envirobrite® reflectors are fabricated with Energy Planning Associates custom-made multi-stage progressive roll forming machinery. Our unique high speed equipment consistently produces multi-faceted linear fluorescent reflectors within precise quality tolerance. Our process enables us to add additional facets for superior reflector performance significantly reducing production cost and improving lead times. Our rigid, light weight bracketing systems are produced with custom designed stamping dies and are very easy to install. As with all Envirobrite® products Cost-A-Mized solutions are available to meet every customer's needs.



Primary Features & Benefits

- Proudly Designed, Made and Assembled in the USA
- Qualifies for maximum \$.60 square foot EPACT tax deduction
- Significant reduction in maintenance costs
- Reinforced multi function universal bracketing system
- Aluminum components generate a rust-free approach to less maintenance and lasting appeal
- Utility rebate friendly throughout the U.S.
- 25 facet optical design for maximum performance
- Superior lighting directly to the work plane
- Flexibility for tandem wiring applications

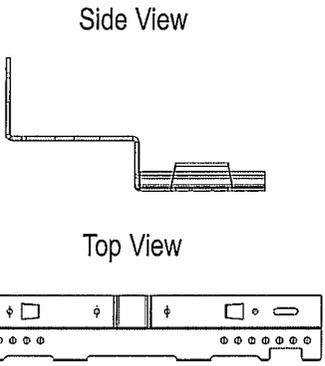
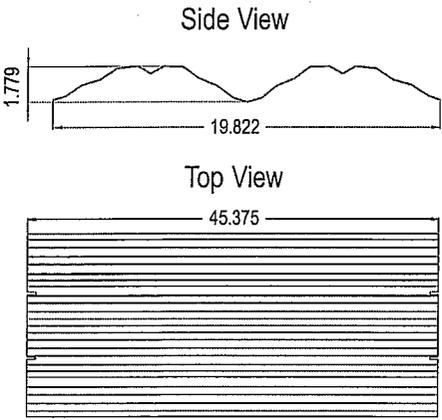
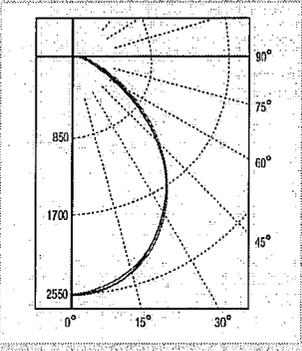
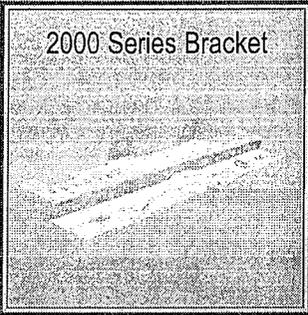
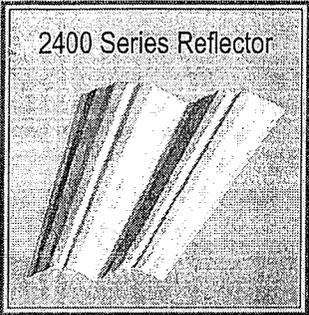
Quick, Safe and Labor Efficient Installation

- Variable tek screw slot locations for multiple mounting options
- Unique bracket design UL approved for no wire guard requirement
- Lance and form bracket design for easy pinch in reflector installation
- Snap-in lamp holders won't fall out during overhead installation
- Streamlined packaging for easy job site material management
- Slots, instead of holes, provided for easy end to end bracket to bracket centering
- With 1/3 the weight of steel aluminum components permit reduced shipping cost and simpler installation
- 25 facet reflectors for added rigidity and a sturdy fit
- Less than 2" reflector depth to fit shallow fixtures
- Toolless ballast access for simple maintenance
- Rounded-edged brackets to avoid injury during installation
- 9-3/4" lamp spacing enhances appearance of 18-cell parabolic retrofits

For added efficiency include high quality T5 or T8 lamps with either instant or programmed start ballasts. Adding an Envirobrite® approved motion sensor system to your retrofit project will further enhance energy savings and create an even faster payback.

envirobrite





0° — Candela Plot
45° — 2 Lamp T8
90° —

Zonal Lumen Summary

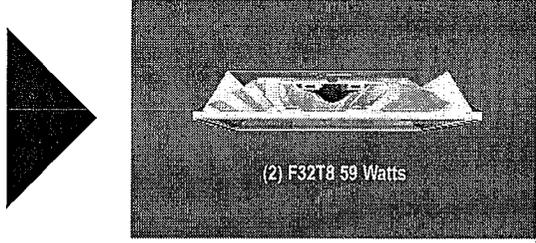
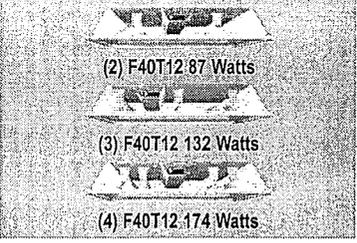
Zone	Lumens	% Lamp	Fixture
0-30	1895	31.1	35.3
0-40	2987	49.0	55.7
0-60	4630	75.9	86.3
0-90	5364	87.9	100.0

2x4 Kit includes

- (1 qty) 2400 series aluminum reflector made from your choice of specified material (95% Enhanced Miro4, 93% Micro Matte, 91% White-painted or 87% Anodized Aluminum)
- (2 qty) 2000 series white-painted stamped aluminum brackets
- (4, 6 or 8 qty) specified shunted or unshunted high quality chemical resistant thermoplastic body UL approved lamp holders
- (5 qty) tek screws

RTR2402T832ENLSS used for test
Total Luminaire Optical Efficiency = 87.9%

Luminaire Spacing Criterion
0 deg - 1.2 90 deg - 1.1
Call factory for full photometric report



"SAVINGS"

- 32% Energy Savings
- 55% Energy Savings
- 66% Energy Savings

Ordering Information
Sample number: RTR2402T832ENLSS

TYPE	DIMENSION	LAMPS	LAMP TYPE	REFLECTOR
○ RTR=Troffer Reflector Kit	○ 24=2x4	○ 02=2 Lamp	○ T832=32W	○ EN=95% MIRO 4 Enhanced
		○ 03=3 Lamp	○ T554=54W	○ MN=93% Micro Matte
		○ 04=4 Lamp		○ WN=91% White-Aluminum
				○ AN=87% Anodized Aluminum

LAMPHOLDER TYPE	INSERTION METHOD
○ LS= Shunted	○ S=T8 Short Twist Lock (Standard)
○ LU= Unshunted	○ N=T8 Short Snap In Twist Lock
	○ P=T5 Plunger Socket

envirobrite

ENERGY PLANNING ASSOCIATES

RST INDUSTRIAL STRIP KIT

4' & 8' Kits

Description

Envirobrite's® RST Industrial Reflector Strip Kits are used to re-lamp or de-lamp 4' and 8' T12 and older T8 industrial strip fixtures. The result is substantial energy savings, improved lighting with excellent returns on investments. All Envirobrite® strip kits have four different specialized material options and two up-light material options. Utilizing our Cost-A-Mized program will provide an endless variety of widths to fit any application. These kits, in conjunction with numerous ballast and lamp configurations, can easily produce ideal IES recommended light levels with minimized energy consumption. Envirobrite kits will continue to provide consistent fixture performance and repeat annual energy savings for up to 25 years.

Application

Since 1994, millions of reflector and industrial strips have been successfully de-lamped or re-lamped with Envirobrite® kits. These kits are recognized worldwide as the industry leading retrofit kit for the majority of all commercial 2x4 fixtures. It's ideal optics, universal fit configuration and flexible patented clip strip bracketing system allows proper fit in office spaces, hospitals, and many other commercial locations.

Design

Envirobrite® kits are designed by our expert in house lighting engineers for ideal photometry and trouble-free installation. Every Envirobrite® kit is designed to meet UL 1570 specifications for safety. Integral to ideal kit functionality is the combination of our "Clip Strip" bracketing system which was designed to handle unknown, or numerous channel sizes between 4.0"-5.25". Envirobrite® reflectors are fabricated with Energy Planning Associates custom-made multi-stage progressive roll forming machinery. Our unique high speed equipment consistently produces multi-faceted linear fluorescent reflectors within precise quality tolerance. Our process enables us to add additional facets for superior reflector performance significantly reducing production cost and improving lead times. Our rigid, light weight bracketing systems are produced with custom designed stamping dies and are very easy to install. As with all Envirobrite® products Cost-A-Mized solutions are available to meet every customer's needs.

Primary Features & Benefits

- Proudly Designed, Made and Manufactured in the USA
- Utility rebate friendly throughout the U.S.
- Significant reduction in maintenance costs
- Superior lighting directly to the work plane
- Unique and patented "Clip Strip" bracket is reversible for one, two or three lamp configurations
- Considerable reduction in energy costs
- Reflectors meet UL classified ballast covers – quarter turn
- 1, 2, or 3 lamp options available
- Aluminum components generate a rust-free approach to less maintenance and lasting appeal

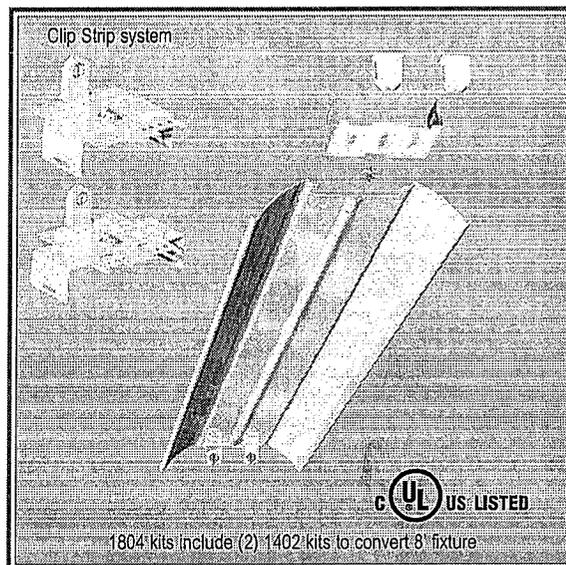
"Clip Strip" Bracket

- Adjusts to any channel size between 4.0" to 5.25"
- Reversible for one, two or three lamp configurations
- Tek screw slots for easy 48" lamp centering
- Locking lampholder notches
- Rounded edges for installer safety

Quick, Safe and Labor Efficient Installation

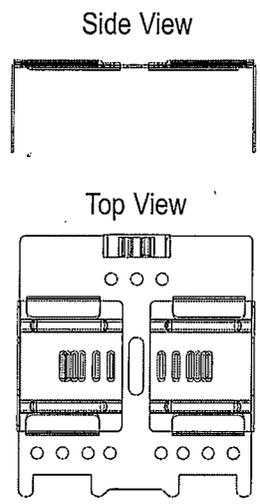
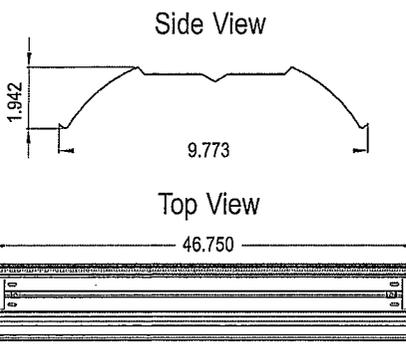
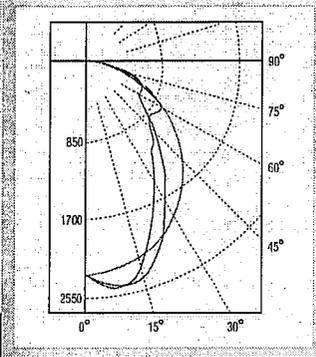
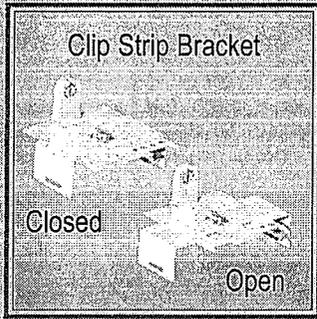
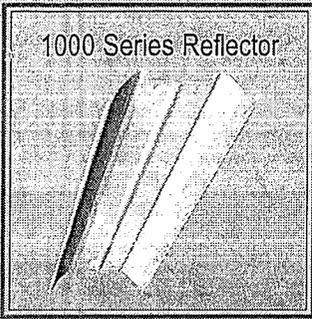
- Two 4' kits can be used to retrofit 8' sections
- Snap-in lamp holders won't fall out during overhead installation
- Streamlined packaging for easy job site material management
- With 1/3 the weight of steel aluminum components permit reduced shipping cost and simpler installation
- Quarter turn reflectors for easy installation
- Toolless ballast access for simple maintenance
- Rounded edge "Clip Strip" bracket adjust to any channel between 4.0" and 5.25"

For added efficiency include high quality T5 or T8 lamps with either instant or programmed start ballasts. Adding an Envirobrite® approved motion sensor system to your retrofit project will further enhance energy savings and create an even faster payback.



envirobrite





0° — Candela Plot
45° — 2 Lamp T8
90° — 2 Lamp T8

Zonal Lumen Summary

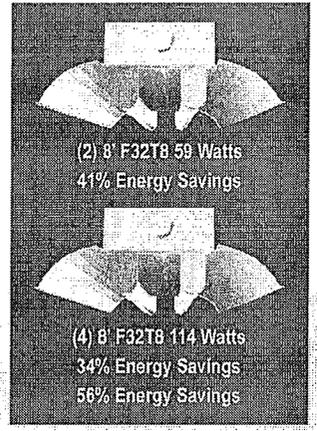
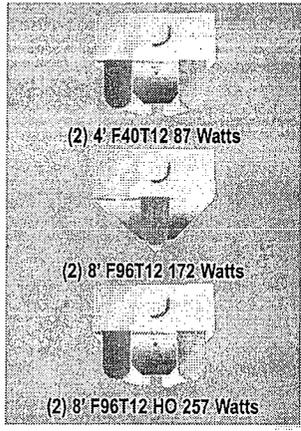
Zone	Lumens	% Lamp	Fixture
0-30	1810	30.7	31.5
0-40	2797	47.4	48.6
0-60	4527	76.7	78.7
0-90	5747	97.4	99.9

Standard RST 1400 4' Series Kit includes

- (1) 1400 series aluminum reflector made from your choice of specified material (95% Enhanced Miro4, 93% Micro Matte, 91% White-painted or 87% Anodized Aluminum with two up-light options as well)
- (2 or 4) specified shunted or unshunted high quality chemical resistant thermoplastic body UL approved lamp holders
- (2) quarter turns when ordered with a reflector
- (5) tek screws

Standard RST 1800 8' Series Kit includes

- (2) 1400 series reflector made from your choice of specified material (95% Enhanced Miro4, 93% Micro Matte, 91% White-painted or 87% Anodized Aluminum with two up-light options as well)
- (4, 6, or 8) specified shunted or unshunted high quality chemical resistant thermoplastic body UL approved lamp holders
- (4) quarter turns when ordered with a reflector
- (10) tek screws



Ordering Information

Sample number: **RST1402T832ENCCLSST**

TYPE	DIMENSION	LAMPS	LAMP TYPE	REFLECTOR
○ RST=Strip Reflector Kit (1000 series)	○ 14=1x4	○ 01=1 Lamp ○ 04=4 Lamp	○ T832=32W	○ EN=95% MIRO 4 Enhanced
	○ 18=1x8	○ 02=2 Lamp ○ 06=6 Lamp	○ T524=54W	○ WN=91% White
		○ 03=3 Lamp		○ MN=93% Micro Matte
				○ AN=87% Anodized Aluminum

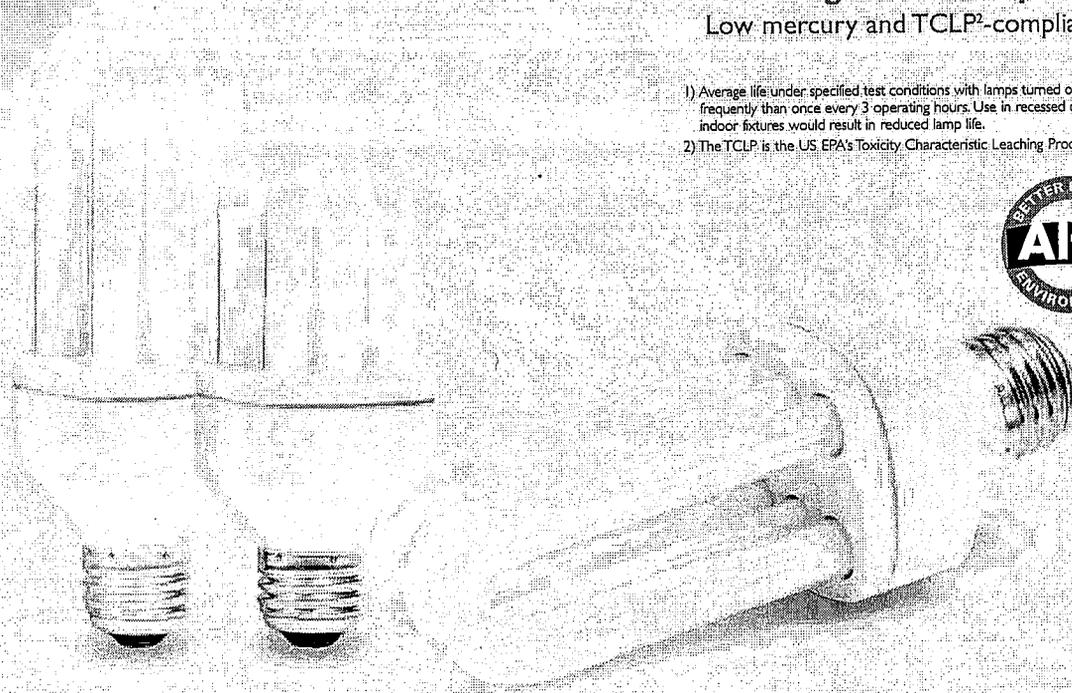
*REQUIRED FOR STRIP FIXTURE PRODUCTS	LAMPHOLDER TYPE	INSERTION METHOD
○ CCLS=Clip Strip	○ LS= Shunted	○ T=T8 Tall Twist Lock (Standard)
○ C043=4.3	○ LU= Unshunted	○ N=T8 Short Snap In Twist Lock
○ C050=5.0		○ P=T5 Plunger Socket

Philips Marathon[®] Energy Saver Universal Family

featuring ALTO[®] Lamp Technology



*Ideal for table lamps, wall sconces,
ceiling fixtures, surface mounted
light fixtures and hanging lamps*



▶ Extensive Range of Uses

Available in 60/75/100 watt incandescent lamp equivalents for use in a variety of applications

▶ Provides Soft, White Light

▶ Amalgam Technology

Provides stable light output over a broad range of temperatures

▶ Super Long Life

- The 20 and 25W Universal have 15,000 hours rated average life¹! The longest lasting Marathon[®] Compact Fluorescent
- The 14W Universal has 12,000 hours rated average life¹

▶ Energy Savings

Saves up to 75% in electricity costs compared to standard incandescent lamps

▶ Featuring ALTO[®] Lamp Technology

Low mercury and TCLP²-compliant

¹) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Use in recessed cans or totally enclosed indoor fixtures would result in reduced lamp life.

²) The TCLP is the US EPA's Toxicity Characteristic Leaching Procedure.



PHILIPS

Philips Lighting Company
 200 Franklin Square Drive
 P.O. Box 6800
 Somerset, NJ 08875-6800
 1-800-555-0050

www.philips.com

Philips Lighting
 281 Hillmount Road
 Markham, Ontario
 Canada L6C 2S3
 1-800-555-0050
 A Division of Philips Electronics Ltd.

A Division of Philips Electronics North America Corporation
 Printed in USA 6/05 P-3754-C

Philips Marathon® Energy Saver Universal

Electrical, Technical and Ordering Data (Subject to change without notice)

Product Number	Description	Volts	Nom. Watts	Approx. Incand. Equiv.	Base	Color Temp. (Kelvin)	CRI	Approx. Initial Lumens ¹	MOL (In.)	Rated Avg. Life (Hrs.) ²	Lamp Current (mAmps)	Power Factor	Min. Starting Temp. ³	Max. Ambient Temp.
14691-0	Universal SLS 14 ALTO	120	14	60A19	Med	2700	82	860	4.9	12,000	230	.50-.60	-22F/-30C	60F/140F
13077-3	Universal SLS 20 ALTO	120	20	75A19	Med	2700	82	1200	5.6	15,000	285	.50-.60	-22F/-30C	60F/140F
13574-9	Universal SLS 25 ALTO	120	25	100A19	Med	2700	82	1750	6.2	15,000	335	.50-.60	-22F/-30C	60F/140F

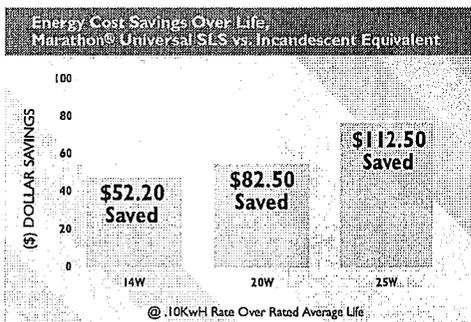
Shipping Data (Subject to change without notice)

Product Number	SKU UPC (0-46677)	Outer Bar Code (5-00-46677)	Case Qty.	Case Weight (lbs.)	Case Cube (cu. ft.)	Pallet Qty.	SKUs Per Layer	Layers High	SKU Dimensions (WxDxH) (In.)	Case Dimensions (WxDxH) (In.)	Pallet Dimensions (WxDxH) (In.)
14691-0	13075-6	13075-1	6	2	0.17	2016	336	6	2.2 x 2.2 x 5.3	7.0 x 5.0 x 6.0	42.4 x 38.5 x 42.0
13077-3	13077-0	13077-5	6	2	0.20	2016	336	6	2.2 x 2.2 x 6.0	7.0 x 5.0 x 7.0	42.4 x 38.5 x 47.3
13574-9	13574-4	13574-9	6	2	0.8	2016	336	6	2.2 x 2.2 x 6.5	7.0 x 5.0 x 7.3	49.4 x 38.5 x 47.9

- 1) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life under standard laboratory conditions.
- 2) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Use in recessed cans or totally enclosed indoor fixtures could result in reduced lamp life.
- 3) Suitable for indoor or outdoor use down to -22° F. UL listed for damp locations. Outdoor use requires an enclosed or weather-protected fixture.

Bulb Type	Wattage Comparison*	Table/Floor Lamp	Outdoor Postlight	Wall Sconce	Surface Mount	Reading Lamp	Border Lights	Recessed Fixture	Other
Mini Deco Twister	11=40, 15=60, 20=75, 27=100	•	•	•	•	•	•	•	•
Deco Twister	12=50	•	•	•	•	•	•	•	•
Circline Adapter	22=90, 28=120	•	•	•	•	•	•	•	•
R20 Reflector	12=50	•	•	•	•	•	•	•	•
R30/R40 Reflector	16=65, 20=85	•	•	•	•	•	•	•	•
PAR30 Reflector	20=75	•	•	•	•	•	•	•	•
Soft White Plus	16=60, 20=75	•	•	•	•	•	•	•	•
Big-A-Way	16=60	•	•	•	•	•	•	•	•
Deco Candelabra	9=40	•	•	•	•	•	•	•	•
Deco Medium Base	12=60	•	•	•	•	•	•	•	•
Vanity Globe	12=60	•	•	•	•	•	•	•	•
Decor Globe	16=60, 20=100	•	•	•	•	•	•	•	•
Decor Globe	27=100, 20=75, 25=95	•	•	•	•	•	•	•	•
3-Way	34, 26, 18=150, 100, 50	•	•	•	•	•	•	•	•
Outdoor	15=60, 18=75	•	•	•	•	•	•	•	•

- *Chart comparison shows Marathon wattages and their equivalent to standard incandescent bulb wattages(s).
- This product utilizes ALTO® Lamp Technology.



Lamp Dimensions

	SLS 14	SLS 20	SLS 25
MOL A	4.9"	5.6"	6.2"
Max. Diameter B	2.3"	2.3"	2.3"
Weight	3.6 oz.	3.9 oz.	4.2 oz.
Lamp Harp Fit	7"	8"	9"

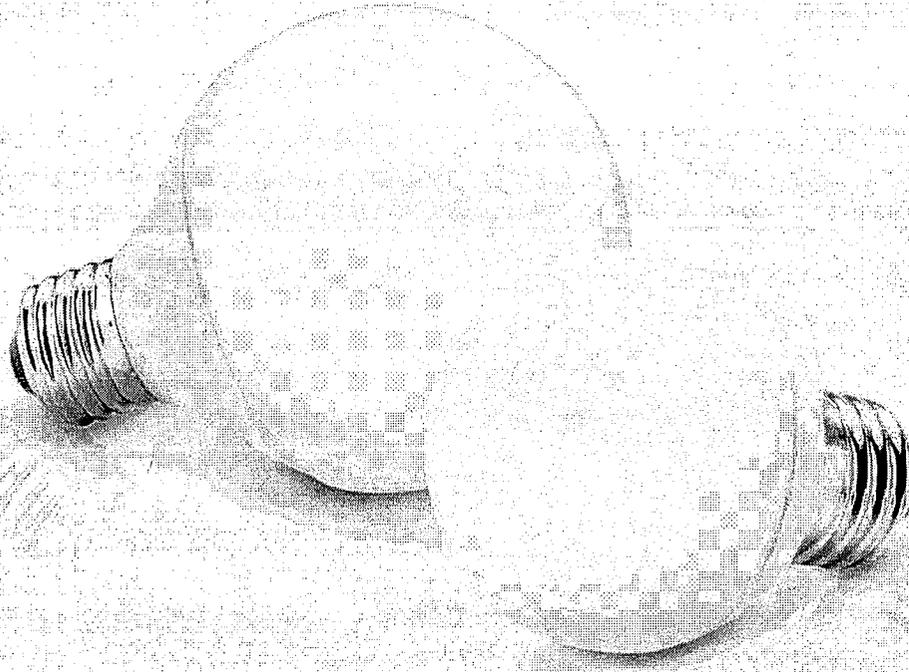
CAUTION: Risk of electric shock—do not use where directly exposed to water, rain or snow. Do not use with dimmers. Before using this product with electronic timing or photocell devices, check to determine whether device is compatible with electronic compact fluorescent lamps. Use with incompatible devices will cause premature lamp failure.

This product complies with Part 18 of the FCC rules. These products may cause interference with radios, cordless telephones, and remote control devices. Interference may cease after a brief 90 second lamp warm-up period. If interference continues, relocate the lamp away from the device or plug into a different outlet.

**These lamps are better for the environment because of their reduced mercury content. All Philips ALTO® Lamps give you end-of-life options which can simplify and reduce your lamp disposal costs depending on your state and local regulations.



B



Compact Fluorescent
Energy Saver Globes

*Ideal for use in vanity strips
and hanging pendants*

ENERGY SAVER

Energy saver globes

Philips Compact Fluorescent Energy Saving Globes provide energy savings and reduce operating costs without sacrificing quality of light compared to incandescent equivalents.

Direct replacement for incandescent bulbs

- Provides warm and inviting soft white light
- Fits into incandescent fixtures
- Similar look of a standard incandescent globe
- Perfect for bathroom vanity strips

Long life

- Lasts 7 years*

Energy savings

- Saves up to \$41 over the life of the lamp when you replace a 75W G40 incandescent globe with a 23W energy saver G40 globe**

* Based on an average daily usage of 3-4 hours per day, 7 days per week.

** Energy savings based on wattage saved x replacement lamp rated average life (8000 hours) ÷ 1000 x \$0.10 kWh rate.

PHILIPS
sense and simplicity

Compact Fluorescent Energy Saver Globes

Ordering, Electrical and Technical Data

Product Number	Description	Volts	Nom. Watts	Approx. Incand. Equiv.	Color Temp. (Kelvin)	CRI	Approx. Initial Lumens ¹	MOL (In.)	Diam. (In.)	Rated Avg. Life (Hrs.) ²	Min. Starting Temp.	Max. Ambient Temp.	
15717-2	Vanity Globe EL/A 9 G18	120	9	40G25	Med.	2700	82	400	3 3/4	2.1	8000	-4°F/-20°C	122°F/50°C
15718-0	Vanity Globe EL/A 9 G25	120	9	40G25	Med.	2700	82	500	4 3/4	3.1	8000	-4°F/-20°C	122°F/50°C
21106-0	Decor Globe EL/A 16 G30	120	16	60G30	Med.	2700	82	900	5 1/4	3.75	8000	-4°F/-20°C	122°F/50°C
21107-8	Decor Globe EL/A 23 G40	120	23	75G40	Med.	2700	82	1400	6	5.0	8000	-4°F/-20°C	122°F/50°C

Shipping Data

Product Number	SKU UPC (0-46677)	Outer		Case		Case		SKUs			SKU Dimensions (W x D x H) (In.)	Case Dimensions (W x D x H) (In.)	Pallet Dimensions (W x D x H) (In.)
		Bar Code (5-00-46677)	Case Qty.	Weight (lbs.)	Cube (cu. ft.)	Pallet Qty.	Per Layer	Layers High					
15717-2	15717-3	15717-8	6	1.5	0.119	2106	234	9	2.6 x 2.6 x 3.8	5.6 x 8.2 x 4.5	39.4 x 46.8 x 40.5		
15718-0	15718-0	15718-5	6	6.0	0.223	1050	150	7	3.3 x 3.3 x 4.9	6.6 x 10.3 x 5.7	37.5 x 45.9 x 38.8		
21106-0	21106-6	21106-1	6	3.0	0.39	840	120	6	3.8 x 3.8 x 6.2	12.1 x 8.0 x 7.0	48.5 x 40.0 x 49.0		
21107-8	21107-3	21107-8	6	2.1	0.39	420	60	6	5.1 x 5.1 x 5.7	15.8 x 10.7 x 6.0	47.0 x 37.3 x 42.0		

- 1) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life under standard laboratory conditions.
 - 2) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Use in recessed cans or enclosed indoor fixtures could result in reduced lamp life.
 - Amalgam Technology provides stable light output from -4°F to 122°F.
 - ENERGY STAR® Bulb: As an ENERGY STAR® Partner, Philips has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.
- Above specifications subject to change without notice.

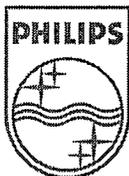
WARNINGS & CAUTIONS: Do not use with dimmers. Some electronic timer and photosensor switches contain dimming circuitry, so before using such a switch, check with its manufacturer to ensure compatibility with electronic CFL bulbs. Do not use with emergency exit fixtures or lights. Outdoor use requires a weather-protected fixture. Turn off power before changing bulb. This device complies with Part 18 of the FCC Rules.

Use in recessed cans or enclosed indoor fixtures could result in reduced lamp life.

Reliable operating temperature range -4F/-20C to 122F/50C.

Note: This product may cause interference with radios, televisions, telephones, or remote controls. If interference occurs, move this product away from device or plug into another outlet.

Bulb Type	Table/Floor Lamp	Outdoor Postlight	Wall Sconce	Surface Mount	Reading Lamp	Border Lights	Recessed Fixture	Open Hanging	Vanity Strip	Ceiling Fan
Decorative Twister	•		•		•			•		
Universal	•	•	•	•	•	•	•	•		
3-Way	•									
Reflector Flood							•	•		
Dimmable Reflector Flood							•	•		
Candle		•	•		•					•
Vanity & Decor Flood								•	•	•
Soft White Plus	•	•	•		•	•		•		•
Outdoor		•				•				
Bug-A-Way		•								
Circline	•									
Genie	•	•	•	•	•	•	•	•	•	•



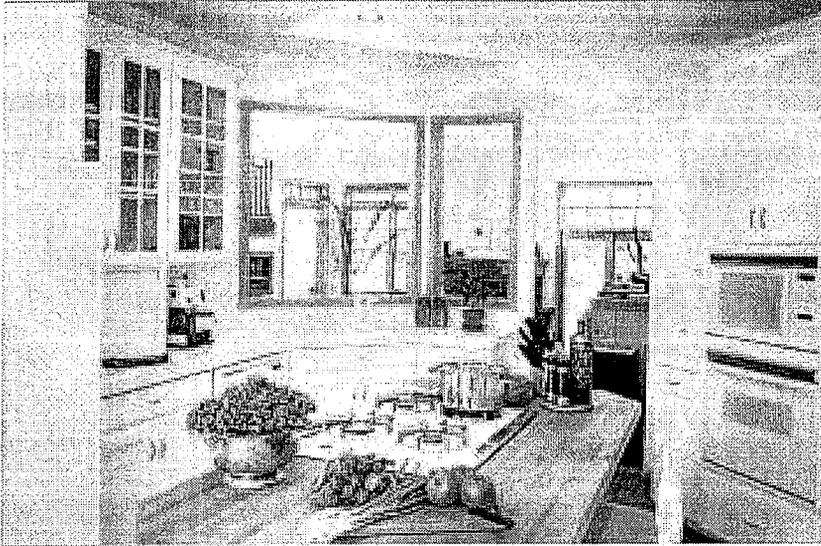
© 2008 Philips Lighting Company. All rights reserved.
 Printed in USA 1/08
 P-8515-B
www.philips.com

Philips Lighting Company
 200 Franklin Square Drive
 P.O. Box 6800
 Somerset, NJ 08875-6800
 1-800-555-0050
 A Division of Philips Electronics North America Corporation

Philips Lighting
 281 Hillmount Road
 Markham, Ontario
 Canada L6C 2S3
 1-800-555-0050
 A Division of Philips Electronics Ltd.

Marathon™

ENERGY SAVER FLOOD—R30 AND R40



Ideal for recessed light fixtures in both residential and commercial applications

▶ Popular Flood Reflector Shape

▶ Provides Smooth, Even Light Without Hot Spots

▶ Super Long Life

Lasts 5 years, based on 3–4 hours average daily usage, 7 days per week (up to 4 times longer than standard incandescent flood lamps)

▶ Energy Savings

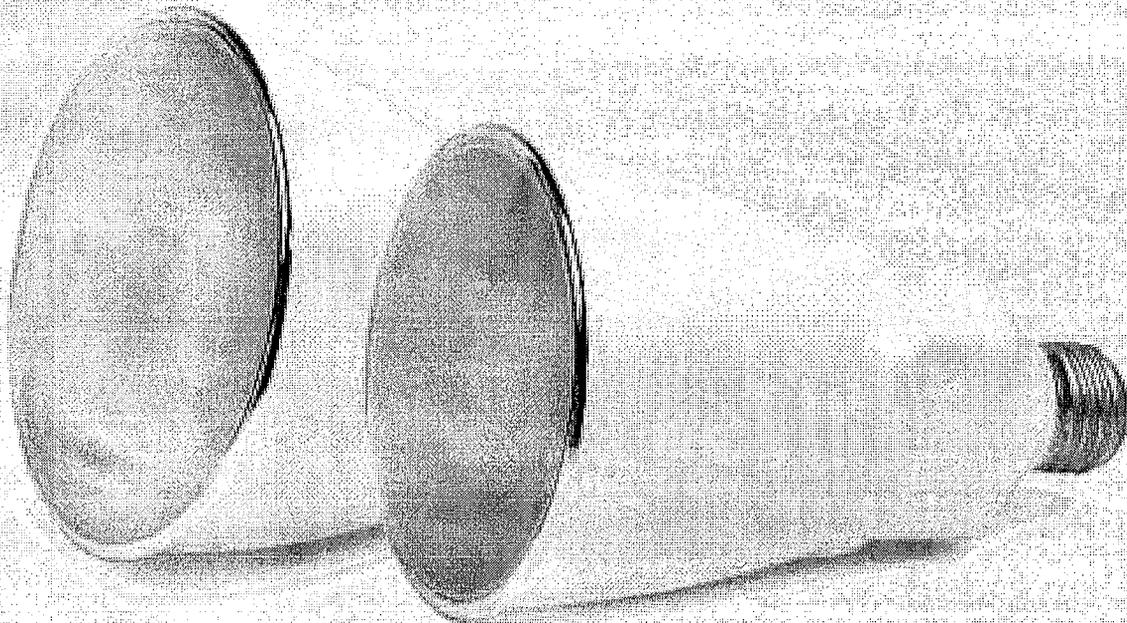
Saves up to 75% in electricity costs compared to standard incandescent flood lamps

▶ Removable Lens

Allows flexibility in lighting design

▶ ENERGY STAR® Qualified

For more information on ENERGY STAR, visit www.energystar.gov



PHILIPS

Philips Lighting Company
 200 Franklin Square Drive • P.O. Box 6800
 Somerset, NJ 08875-6800
 1-800-555-0050

www.lighting.philips.com/nam

A Division of Philips Electronics North America Corporation

Printed in USA 5/03

P-3756-B

Philips Lighting
 281 Hillmount Road
 Markham, Ontario
 Canada L6C 2S3
 1-800-555-0050

www.lighting.philips.com/nam

A Division of Philips Electronics Ltd.

Marathon™ Flood—R30 and R40

Electrical, Technical and Ordering Data (Subject to change without notice)

Product Number	Description	Volts	Nom. Watts	Approx. Incand. Equiv./Lumen	Base	Std. Pkg. Qty.	Color Temp. (Kelvin)	CRI	Approx. Initial Lumens	MOL (In.)	Rated Avg. Life (Hrs.) ¹	Lamp Current (mAmps)	Power Factor	Min. Starting Temp. ²	Max. Ambient Temp.	Lumen Maint. ³
37246-6	Flood SLS/R30 15	120	15	65BR30FL/635	Med.	6	2700K	82	500	6.0	8000	230	0.55 to 0.62	-10°F/-20°C	140°F/60°C	80%
37248-2	Flood SLS/R30 20	120	20	65BR30FL/635	Med.	6	2700K	82	575	6.0	8000	285	0.55 to 0.62	-10°F/-20°C	140°F/60°C	80%
37256-5	Flood SLS/R40 15	120	15	65BR40FL/635	Med.	6	2700K	82	625	6.6	8000	230	0.55 to 0.62	-10°F/-20°C	140°F/60°C	80%
37262-3	Flood SLS/R40 20	120	20	85BR40FL/925	Med.	6	2700K	82	825	6.6	8000	285	0.55 to 0.62	-10°F/-20°C	140°F/60°C	80%

Shipping Data (Subject to change without notice)

Product Number	SKU UPC (0-46677)	Outer Bar Code (5-00-46677)	Case Qty.	Case Weight (lbs.)	Case Cube (cu. ft.)	Pallet Qty.	SKUs Per Layer	Layers High	SKU Dimensions (W x D x H) (In.)	Case Dimensions (W x D x H) (In.)	Pallet Dimensions (W x D x H) (In.)
37246-6	22035-8	37246-5	6	3	0.39	960	120	8	3.8 x 3.8 x 5.9	12.0 x 8.0 x 7.0	49.8 x 42.2 x 49.0
37248-2	22038-9	37248-9	6	3	0.39	960	120	8	3.8 x 3.8 x 5.9	12.0 x 8.0 x 7.0	49.8 x 42.2 x 49.0
37256-5	22037-2	37256-4	6	4	0.69	432	72	6	4.8 x 4.8 x 5.9	15.0 x 10.0 x 8.0	46.3 x 41.2 x 45.8
37262-3	22039-6	37262-6	6	4	0.69	432	72	6	4.8 x 4.8 x 5.9	15.0 x 10.0 x 8.0	46.3 x 41.2 x 45.8

- Lamps operated in extreme environments will have reduced life (i.e., recessed or enclosed lighting fixtures with elevated line voltage).
- Suitable for indoor or outdoor use down to -10°F. UL listed for damp locations. Outdoor use requires an enclosed or weather-protected fixture.
- Percentage of initial lumens at 40% of rated average life (3200 hours).

Marathon™		Table/Floor Lamps	Outdoor Post Lights	Wall Sconce	Surface Mount	Enclosed Indoor Fixture	Reading Lamp	Border Lights	Recessed Lighting	Open Hanging	Baro Bulb	Vanity Strip
UNIVERSAL	15/20/25 = 60/75/100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DECO TWISTER	15/20/25 = 60/75/90	✓		✓			✓			✓	✓	
MINI-DECO TWISTER	15 = 60	✓		✓			✓			✓	✓	
HOUSEHOLD	20 = 75	✓	✓	✓			✓			✓	✓	
BIH-HOUSEHOLD	16 = 60	✓	✓	✓			✓	✓		✓	✓	
3-WAY	18/25/34 = 60/90/150	✓										
DIMMABLE	15/20/25 = 60/75/90	✓		✓				✓			✓	
TABLE	34 = 120	✓		✓			✓					
OUTDOOR	18 = 90 16 = 75		✓							✓	✓	
BIG-A-WAY	15 = 60		✓							✓	✓	
FLOOD	18 = 65 20 = 85							✓	✓	✓	✓	
REFLECTOR FLOOD	18 = 65							✓	✓	✓	✓	
DIMMABLE FLOOD	20 = 85							✓	✓	✓	✓	
DECO GLOBE	18 = 75 20 = 100									✓	✓	✓
VANITY GLOBE	12 = 40									✓	✓	✓

*Comparison shows Marathon wattage(s) and their equivalent to standard incandescent bulb wattages(s).

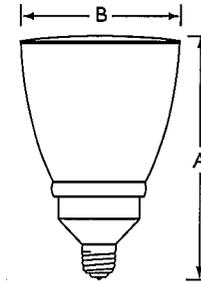
CAUTION: Risk of electric shock—do not use where directly exposed to water, rain or snow. Do not use with dimmers. For dimming circuits use Marathon R30 or R40 Dimmable Flood.

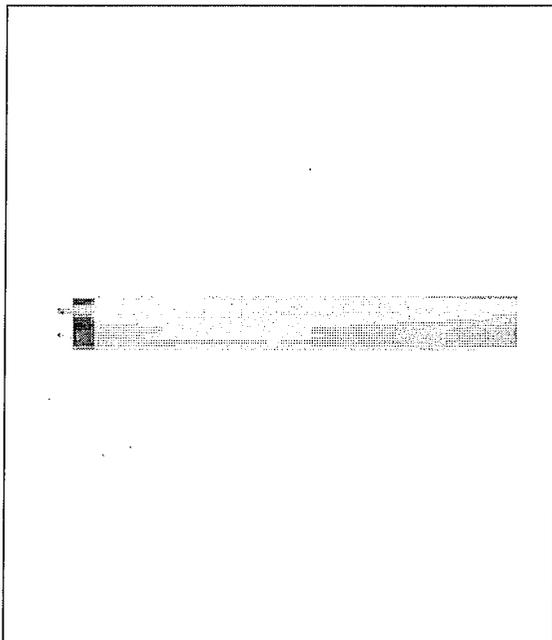
Before using this product with electronic timing or photocell devices, check to determine whether device is compatible with electronic compact fluorescent lamps. Use with incompatible devices will cause premature lamp failure.

This product complies with Part 18 of the FCC rules. These products may cause interference with radios, cordless telephones, and remote control devices. Interference may cease after a brief 90 second lamp warm-up period. If interference continues, relocate the lamp away from the device or plug into a different outlet.

Lamp Dimensions

	SLS/R30	SLS/R30 15	SLS/R30 20
MOL A		6.0"/152mm	6.0"/152mm
Max. Diameter B		3.8"/95mm	3.8"/95mm
Weight (oz./g)		5.7 oz./161g	6.1 oz./172g
	SLS/R40	SLS/R40 15	SLS/R40 20
MOL A		6.6"/168mm	6.6"/168mm
Max. Diameter B		4.8"/121mm	4.8"/121mm
Weight (oz./g)		5.6 oz./186g	6.9 oz./195g





F32T8 ADV841

ALTO

Product family description

High performance, extra low mercury

Features/Benefits

- Ultimate System solution
- High lumens enable multiple system options to maximize energy savings and reduce lighting costs.
- Fully dimmable without burn-in.
- Better for the environment
- Only 1.7mg of mercury with ALTO II™ Technology
- Reduced impact on the environment without sacrificing performance
- Warranty period: 36 months

Applications

- Ideal for applications requiring maximum light output.

Notes

- Rated average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently. (202)
- Average life under engineering data with lamps turned off and restarted once every 12 operating hours. (241)
- Approximate Initial Lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. (203)
- For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate Ballast Factor for each of their ballasts when they are informed of the designated lamp. The Ballast Factor is a multiplier applied to the designated lamp lumen output. (204)
- Design Lumens are the approximate lamp lumen output at 40% of the lamp's Rated Average Life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. (208)
- Design lumens rated at 3 hours per start on Instant Start ballast. (239)
- Exclusive to Philips Lighting Company.

Product data

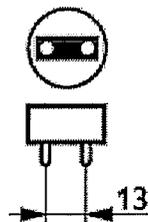
Product Number	139899
Full product name	F32T8 ADV841 ALTO

Product data	
Ordering Code	F32T8/ADV841 /ALTO
Pack type	1 Lamp
Pieces per Sku	1
Skus/Case	25
Pack UPC	046677139896
EAN2US	
Case Bar Code	50046677139891
Successor Product number	
Base	Medium Bi-Pin [Medium Bi-Pin Fluorescent]
Base Information	Green Base
Bulb	T8
Packing Type	1LP [1 Lamp]
Packing Configuration	25
Type	F32T8
Feature	ALTO II™
Ordering Code	F32T8/ADV841 /ALTO
Pack UPC	046677139896
Case Bar Code	50046677139891
Energy Saving	Energy Saving
Rated Avg Life [12-Hr Prog St]	36000 hr
Rated Avg Life [12-Hr Inst St]	30000 hr
Rated Avg Life [3-Hr Prog St]	30000 hr
Rated Avg Life [3-Hr Inst St]	24000 hr
Watts	32W
Mercury (Hg) Content	1.7 mg
Picogram per Lumen Hour	24 p/LuHr
Color Code	Advantage 841 [CCT of 4100K]
Color Rendering Index	85 Ra8
Color Designation	Advantage 841
Color Temperature	4100 K
Initial Lumens	3100 Lm
Design Mean Lumens	3000 Lm
Nominal Length [inch]	48
Product Number	139899





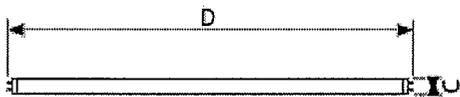
F-T8-Adv Med Bipin/GB



Base Medium Bi-Pin



Energy Saving Energy Saving



F-T8-Adv Med Bipin



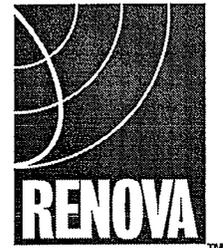
Category: ECS
Energy
Conservation
Series

Prefix:
MPW

Fixture Series (Name):
Medium Profile Wrap



GE Lighting North America



renovat ve L ght ng deas
Energy Eff c ent So ut ons

Medium Profile Wrap Series general purpose fluorescent luminaire

GENERAL DESCRIPTION

The Medium Profile Wrap (MPW) Series has been developed for general illumination for surface or pendant mounted applications. This series utilizes computer designed reflector technology for optimal fixture efficiency, reduction of energy consumption and improved quality of light. It also provides instant-on operation and offers many other energy saving options.

Typical applications for this type of product are interior spaces where finished ceilings exist. Applications include:

- Corporate / Office Buildings
- Hospitals, Government Facilities and Military Bases
- Retail and Industrial Facilities
- Schools, Colleges and Universities

DESIGN FEATURES / SPECIFICATIONS

CONSTRUCTION

- Precision die formed from 22 ga. cold rolled steel.
- Mechanically fastened or resistance welded depending on model.
- Heavy gauge steel (CRS) may be custom ordered.
- Finish to be pre-painted gloss white polyester powder coat.
- Post-painted polyester powder coat finishes are available. Consult factory for all special colors and finishes.
- Heavy guage steel (NYC) and heavy guage aluminum are available as alternate materials.

REFLECTOR

- Precision die formed optics which has been designed for maximum efficiency and photometric properties using the latest CAD software.
- Choice of optics includes focused, normal and spread beam distribution. Consult factory for custom optics design and spacing criteria options.
- Choice of materials include:
 - Alanod Miro4® Enhanced Specular Aluminum, 95% total reflectance, 25 year warranty.
 - Enhanced Specular Aluminum, 92% total (min.) reflectance, 25 year warranty.
 - High Reflectance White Powder Coated Aluminum, 91% total reflectance, 10 year warranty.
 - Polished Aluminum, 87% total (min.) reflectance, 25 year warranty.
- Consult factory for availability of all other material choices.

LAMP HOLDERS

- Vossloh-Schwabe® premium type featuring:
 - Anti-vibration internal lamp locking design
 - High temperature resistant ("T" marking).
 - Heat and UV blocking shield to prevent degradation of material.
 - Multi-point contact design for optimum lamp pin contact.
 - Produced in accordance with DIN ISO 9001 and IEC standards.

BALLASTS

- All standard ballasts are electronic, energy saving, thermally protected, Class-P, non-PCB, Sound Rated "A", 0 degree (Type 1 Outdoor). Verify with factory for latest information regarding High Temperature (HT) or Extreme Low Temperature (XLT) rated ballast options.
- UL/CSA certified, where applicable. Compliant with Federal Ballast Law (Public Law 100-357, 1988).
- Choice of ballast factors. L=Low, N=Normal, H=High.
- Choice of dedicated, universal or special voltage - Consult factory for available options.
- Warranted by ballast manufacturer. Typical ballast warranty is for 5 years (120-277v) and 3-years (347-480v). Consult factory for latest warranty information.

LAMPS

- Supplied by others unless otherwise specified.
- Factory installed if required - Consult factory.
- Lamp type, CRI ratings, temperature colors, lamp life ratings are all viable options which can be supplied - Consult factory for information.

LENS (Diffuser)

- Extruded profile for precision fit.
 - 100% virgin clear acrylic resin (for max. optical clarity).
 - Linear prisms extruded into sides of lens.
 - Pattern 12 prisms embossed into bottom of lens
 - 30% "DR" additive (standard) to resist breakage (50% "DR" additive optional).
 - Consult factory for all available lens options.

MOUNTING

- The luminaire may be surface mounted or may be suspended by pendant, threaded rod, hook, chain or cable. (Mounting hardware supplied by others unless otherwise specified).

ELECTRICAL

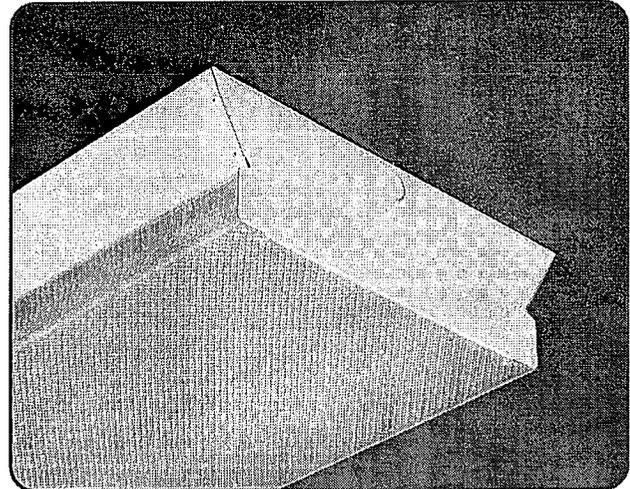
- Luminaire is bi-national listed and labeled (UL 1598 and CSA C22.2 No. 250.0-00) and is suitable for damp locations.
- Product includes luminaire disconnect as specified in NEC 410.73(G), 2005 Edition, and CEC part I, rule 30-308(4), 2006 Edition.

QUALITY CONTROL

- All fixtures and retrofit kits are designed, fabricated, assembled and tested at RENOVA's manufacturing facility. All fixtures are 100% lamp tested, inspected and labeled prior to shipment.

GUARANTEE

- RENOVA warrants all fixtures to be free of defects in manufacturing and workmanship for a period of (1) year from date of purchase. This warranty excludes damage of any kind resulting from improper installation, misuse, abuse, accidents, mis-application, or natural disasters. Please refer to the "Terms and Conditions" section of the RENOVA website for additional information.



Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

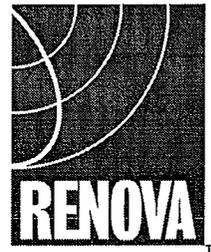
RENOVA Lighting Systems, Inc. 300 Highpoint Avenue Portsmouth, RI 02871 (800) 635-6682 www.renova.com

RLS-4940A-3

Category: ECS
Energy
Conservation
Series

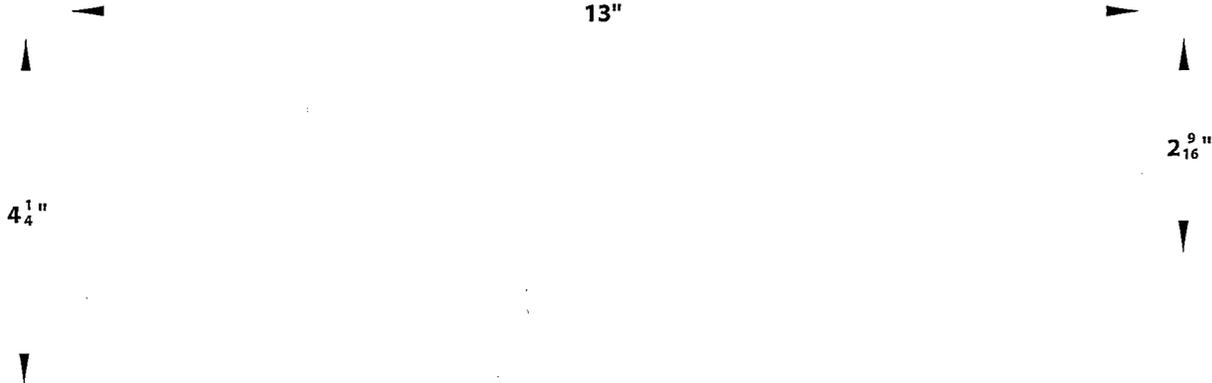
Prefix:
MPW

Fixture Series (Name):
Medium Profile Wrap



Renovate Lighting Ideas
Energy Efficient Solutions

2-Lamp T8 Medium Profile Wrap Cross Section Shown

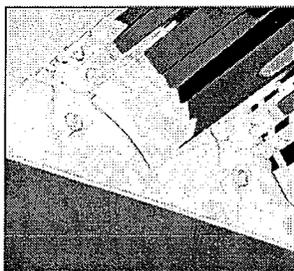


ORDERING GUIDE

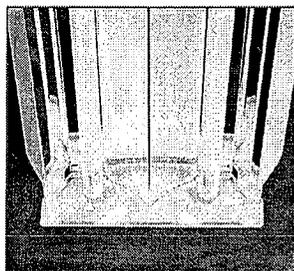
CATEGORY	SERIES	SIZE	REFLECTOR MATERIAL	REFLECTOR PHOTOMETRY	NUMBER OF LAMPS	LAMP TYPE (WATTAGE)	BALLAST VOLTAGE	NUMBER OF BALLASTS	LAMPS PER BALLAST	BALLAST FACTOR	OPTIONS
ECS	MPW	4	M	N	2	32	UNV	1	2	N	
Energy Conservation Series	MPW - MEDIUM PROFILE WRAP	2 - 24" 3 - 36" 4 - 48" 6 - 72" 8 - 96"	M - MICRO4 (95% TR) E - ENHANCED ALUMINUM (92% TR min.) W - WHITE (91% TR) A - ALUMINUM (87% TR min.) B - BALLAST COVER (White) (83% TR min.) R - MICRO4 MICRO-MAT (95% TR)	F - FOCUSED N - NORMAL S - SPREAD C - CUSTOM OPTICS *N - NORMAL IS STANDARD (BLANK=N) *C - CUSTOM OPTICS ARE DESCRIBED IN OPTIONS BOX	1 - 1L HSG 2 - 2L 3 - 3L 2 - 2L HSG 4 - 4L 6 - 6L 6 & 8 HSG	17 17w T8 25 25w T8 32 32w T8 14 14w T5 21 21w T5 28 28w T5 24 24w T5HO 39 39w T5HO 54 54w T5HO	120 - 120v, 60 Hz 277 - 277v, 60 Hz 347 - 347v, 60 Hz UNV - 120v - 277v, 60 Hz 480 - 480v, 60 Hz xxx - Less Ballast	S - SLAVE (BLANK) - 1 2 - 2 3 - 3 4 - 4	(BLANK) - 0 1 - 1 2 - 2 3 - 3 4 - 4	L - Low N - Normal H - High	<p>*Use Suffix "M" for Master (Example: 4M)</p> <p>*ADDITIONAL OPTIONS (See "Options" sheet for all available options)</p>



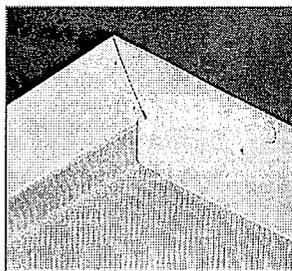
Photometric data, IES files and all other information is available upon request.



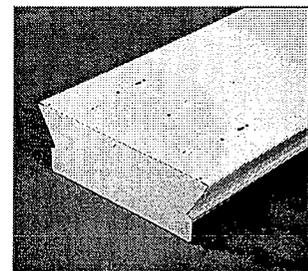
Vossloh Locking Lampholders (Standard)



Multi-Faceted Reflector (Designed for Maximum Efficiency)



Standard Lens (Bottom: Pattern 12 Prismatic Embossment) (Side: Linear Prisms)



Mounting Details (Included in all Housings)

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

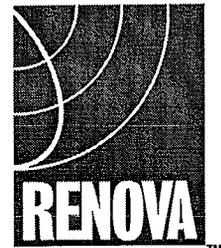
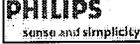
RENOVA Lighting Systems, Inc. 300 Highpoint Avenue Portsmouth, RI 02871 (800) 635-6682 www.renova.com

RLS-4940A-3

Category: ECS
Energy
Conservation
Series

Prefix:
NPW

Fixture Series (Name):
Narrow Profile Wrap



renova ve l ght ng deas
Energy Eff c ent So ut ons

Narrow Profile Wrap Series general purpose fluorescent luminaire

GENERAL DESCRIPTION

The Narrow Profile Wrap (NPW) Series has been developed for general illumination for surface or pendant mounted applications. This series utilizes computer designed reflector technology for optimal fixture efficiency, reduction of energy consumption and improved quality of light. It also provides instant-on operation and offers many other energy saving options.

Typical applications for this type of product are interior spaces where finished ceilings exist. Applications include:

- Corporate / Office Buildings
- Hospitals, Government Facilities and Military Bases
- Retail and Industrial Facilities
- Schools, Colleges and Universities

DESIGN FEATURES / SPECIFICATIONS

CONSTRUCTION

- Precision die formed from 22 ga. cold rolled steel.
- Mechanically fastened or resistance welded depending on model.
- Heavy gauge steel (CRS) may be custom ordered.
- Finish to be pre-painted gloss white polyester powder coat.
- Post-painted polyester powder coat finishes are available. Consult factory for all special colors and finishes.
- Heavy gauge steel (NYC) and heavy gauge aluminum are available as alternate materials.

REFLECTOR

- Precision die formed optics which has been designed for maximum efficiency and photometric properties using the latest CAD software.
- Choice of optics includes focused, normal and spread beam distribution. Consult factory for custom optics design and spacing criteria options.
- Choice of materials include:
 - Alanod Miro4® Enhanced Specular Aluminum, 95% total reflectance, 25 year warranty.
 - Enhanced Specular Aluminum, 92% total (min.) reflectance, 25 year warranty.
 - High Reflectance White Powder Coated Aluminum, 91% total reflectance, 10 year warranty.
 - Polished Aluminum, 87% total (min.) reflectance, 25 year warranty.
- Consult factory for availability of all other material choices.

LAMP HOLDERS

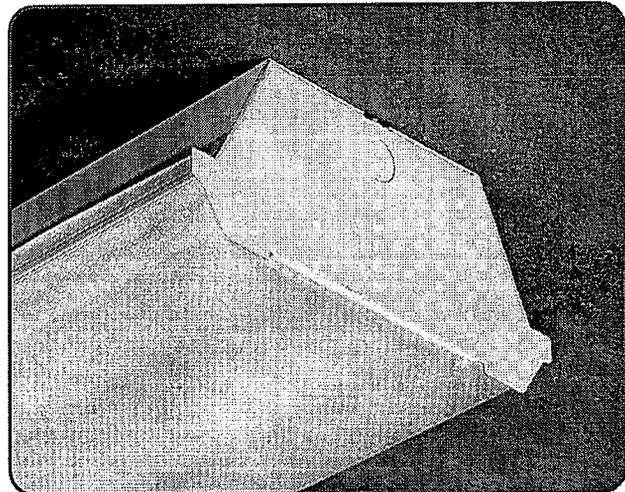
- Vossloh-Schwabe® premium type featuring:
 - Anti-vibration internal lamp locking design
 - High temperature resistant ("T" marking).
 - Heat and UV blocking shield to prevent degradation of material.
 - Multi-point contact design for optimum lamp pin contact.
 - Produced in accordance with DIN ISO 9001 and IEC standards.

BALLASTS

- All standard ballasts are electronic, energy saving, thermally protected, Class-P, non-PCB, Sound Rated "A", 0 degree (Type 1 Outdoor). Verify with factory for latest information regarding High Temperature (HT) or Extreme Low Temperature (XLT) rated ballast options.
- UL/CSA certified, where applicable. Compliant with Federal Ballast Law (Public Law 100-357, 1988).
- Choice of ballast factors. L=Low, N=Normal, H=High.
- Choice of dedicated, universal or special voltage - Consult factory for available options.
- Warranted by ballast manufacturer. Typical ballast warranty is for 5 years (120-277v) and 3-years (347-480v). Consult factory for latest warranty information.

LAMPS

- Supplied by others unless otherwise specified.
- Factory installed if required - Consult factory.
- Lamp type, CRI ratings, temperature colors, lamp life ratings are all viable options which can be supplied - Consult factory for information.



LENS (Diffuser)

- Extruded profile for precision fit.
 - 100% virgin clear acrylic resin (for max. optical clarity).
 - Linear prisms extruded into sides of lens.
 - Pattern 12 prisms embossed into bottom of lens
 - 30% "DR" additive (standard) to resist breakage (50% "DR" additive optional).
 - Consult factory for all available lens options.

MOUNTING

- The luminaire may be surface mounted or may be suspended by pendant, threaded rod, hook, chain or cable. (Mounting hardware supplied by others unless otherwise specified).

ELECTRICAL

- Luminaire is bi-national listed and labeled (UL 1598 and CSA C22.2 No. 250.0-00) and is suitable for damp locations.
- Product includes luminaire disconnect as specified in NEC 410.73(G), 2005 Edition, and CEC part I, rule 30-308(4), 2006 Edition.

QUALITY CONTROL

- All fixtures and retrofit kits are designed, fabricated, assembled and tested at RENOVA's manufacturing facility. All fixtures are 100% lamp tested, inspected and labeled prior to shipment.

GUARANTEE

- RENOVA warrants all fixtures to be free of defects in manufacturing and workmanship for a period of (1) year from date of purchase. This warranty excludes damage of any kind resulting from improper installation, misuse, abuse, accidents, mis-application, or natural disasters. Please refer to the "Terms and Conditions" section of the RENOVA website for additional information.

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

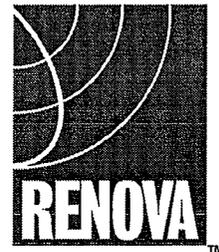
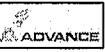
RENOVA Lighting Systems, Inc. 300 Highpoint Avenue Portsmouth, RI 02871 (800) 635-6682 www.renova.com

RLS-5015A-3

Category: ECS
Energy Conservation Series

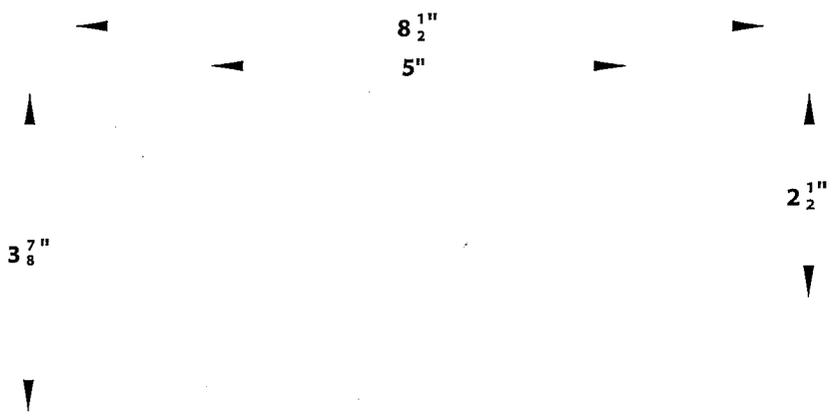
Prefix:
NPW

Fixture Series (Name):
Narrow Profile Wrap



Renova Lighting Systems
Energy Efficient Solutions

2-Lamp T8 Narrow Profile Wrap Cross Section Shown

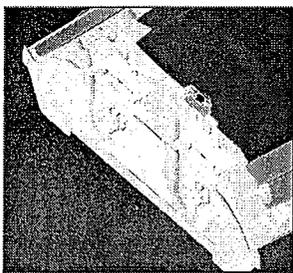


ORDERING GUIDE

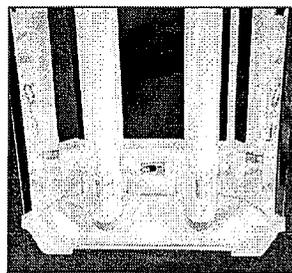
CATEGORY	SERIES	SIZE	REFLECTOR MATERIAL	REFLECTOR PHOTOMETRY	NUMBER OF LAMPS	LAMP TYPE (WATTAGE)	BALLAST VOLTAGE	NUMBER OF BALLASTS	LAMPS PER BALLAST	BALLAST FACTOR	OPTIONS
ECS	NPW	4	M	N	2	32	UNV	1	2	N	
Energy Conservation Series	NPW - NARROW PROFILE WRAP	2 - 24" 3 - 36" 4 - 48" 6 - 72" 8 - 96"	M - MICRO4 (95% TR) E - ENHANCED ALUMINUM (92% TR min.) W - WHITE (91% TR) A - ALUMINUM (87% TR min.) B - BALLAST COVER (White) (83% TR min.) R - MICRO4 MICRO-MAT (95% TR)	F - FOCUSED N - NORMAL S - SPREAD C - CUSTOM OPTICS *N - NORMAL IS STANDARD *(BLANK)=N *C - CUSTOM OPTICS ARE DESCRIBED IN OPTIONS BOX	1 - 1L 2 - 2L 3 - 3L 2 - 2L 4 - 4L 6 - 6L	17 17w T8 25 25w T8 32 32w T8 14 14w T5 21 21w T5 28 28w T5 24 24w T5HO 39 39w T5HO 54 54w T5HO	120 - 120v, 60 Hz 277 - 277v, 60 Hz 347 - 347v, 60 Hz UNV - 120v - 277v, 60 Hz 480 - 480v, 60 Hz xxx - Less Ballast	S - SLAVE (BLANK) - 1 2 - 2 3 - 3 4 - 4	(BLANK) - 0 1 - 1 2 - 2 3 - 3 4 - 4	L - Low N - Normal H - High	

Photometric data, IES files and all other information is available upon request.

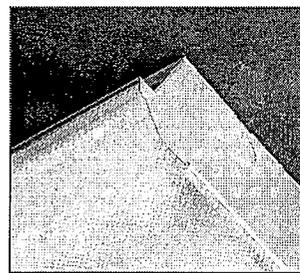
***ADDITIONAL OPTIONS**
(See "Options" sheet for all available options)



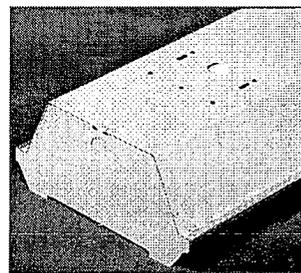
Vossloh Locking Lampholders (Standard)



Multi-Faceted Reflector (Designed for Maximum Efficiency)



Standard Lens (Bottom: Pattern 12 Prismatic Embossment) (Side: Linear Prisms)



Mounting Details (Included in all Housings)

Note: RENOVA products are constantly being improved; therefore, the information shown is subject to change without notice. Always consult your lighting representative or RENOVA Lighting Systems, Inc. for the latest information.

RENOVA Lighting Systems, Inc. 300 Highpoint Avenue Portsmouth, RI 02871 (800) 635-6682 www.renova.com

CATALOG NO. _____

Stonco

TYPE NO. _____

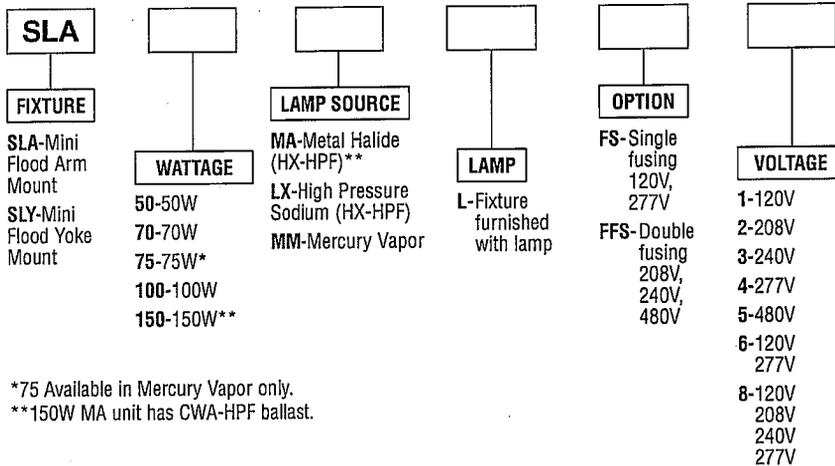
JOB NAME _____

1-5

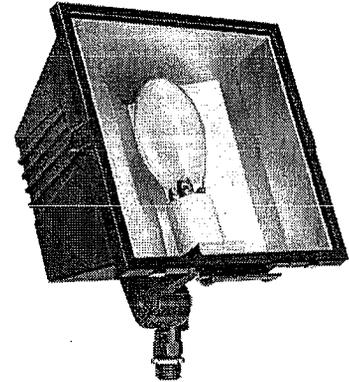
SLA Series Mini Flood

ORDERING INFORMATION

Catalog Number: Example: SLA100MALFS-4



*75 Available in Mercury Vapor only.
**150W MA unit has CWA-HPF ballast.



PRODUCT SPECIFICATIONS

- The SLA Series Mini Flood is designed for general purpose floodlighting applications.
- One piece precision die cast aluminum housing with Duraplex II bronze polyester powder.
- Die cast aluminum lens frame is fully gasketed and hinged to body for ease of relamping.
- High temperature and shock resistant tempered glass lens.
- Unit can be aimed above and below horizontal. Serrated teeth lock arm mount unit into position.
- HPS sockets are pulse rated for 4KV.
- Three piece anodized aluminum reflector for wide beam distribution, NEMA 7 x 7.
- Fixtures available with 1/2" arm mount, yoke, or optional surface mount, order SLW10.

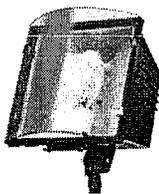
ACCESSORIES

- SL552**-Lexan® Shield, UV stabilized clear polycarbonate.*
- TL550**-Wire guard.*
- SLW10**-Surface adapter to convert 1/2" arm to surface mount.
- SLA552**-Replacement lens kit.

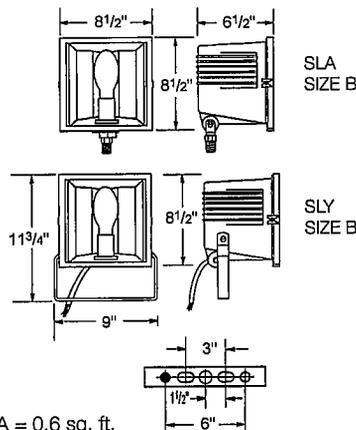
- P110A**-Pencil photocontrol (120V) with integral swivel. 1/2" NPS arm for external mounting in 2 or 3 hole cover or surface splice box.
 - 9010126**-Tamper proof screws (2 per).
- *SL552 & TL550 can not be used together.
Mounting Accessories - See page 1-A

TECHNICAL INFORMATION

All HPS lamps are E/B17 medium base. Metal halide lamps are ED17 medium base. Mercury Vapor lamp is E/B17 medium base. Normal power factor and high power factor ballasts available, see lamp source for specific ballast information. High pressure sodium capable of starting at -40° F and metal halide at -20° F.



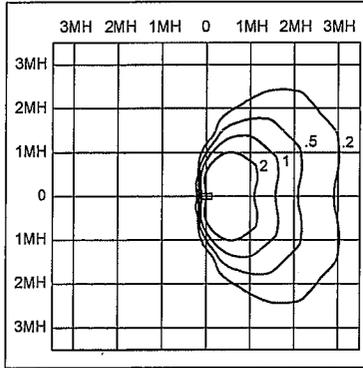
SLA Mini Flood with SL552 shield



UL
UL Wet Location Listed.
UL File Number: E86021

Crescent Stonco
A OBOITE Company

PHOTOMETRICS



SLA100MA
MH100/U/MED
7,800 Lumens
15' Mounting Hgt.
71° Aim

FOOTCANDLE CORRECTION
Multiply the following factors times the footcandle values for changes in mounting height.

To Change from 15'					
New Height	8'	10'	15'	20'	25'
Factor	3.5	2.3	1.0	.60	.36

SUGGESTED SPECIFICATIONS

Fixture shall be weatherproof outdoor floodlight for E17/B17/ED17 medium base high pressure sodium, metal halide or mercury vapor lamp.

Fixture shall present a crisp silhouette.

Fixture shall be made of die-cast aluminum, finished in architectural dark bronze polyester powder.

Fixture shall be equipped with integral (high power factor) (normal power factor) reactor ballast, a three-piece diffused surface anodized aluminum reflector for wide-beam general purpose light distribution, and a medium base porcelain socket pulse-rated for 4KV.

Fixture shall be enclosed with clear tem-

pered glass lens sealed within a die-cast aluminum frame, hinged and gasketed.

Fixture shall have a die-cast fully-adjustable arm threaded 1/2" NPS with cast-in aiming quadrant and serrated locking teeth. Fixture is also available with full steel yoke.

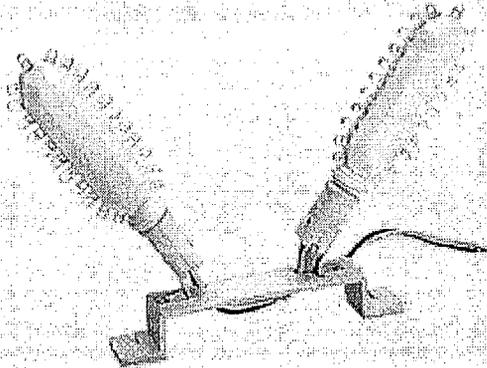
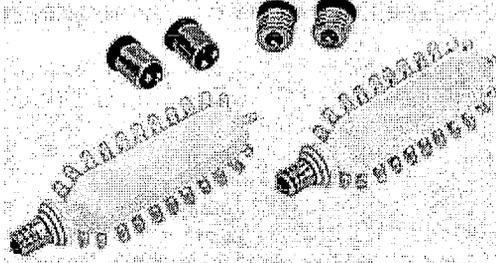
Fixture shall be Cat. No. Stonco (specify).



Phone (434) 817-9595
 Fax (434) 817-9596

LED Lighting Retrofit Kits

Exit Signs:

Model XFR-HE & XFG-HW	Model XFR & XFG
<p>Hard Wire Units</p>  <ul style="list-style-type: none"> ▶ For 120V or 277V applications ▶ 2.8 Watts per kit. ▶ Kits come complete with mounting bracket & double face tape. 	<p>Screw In Units</p>  <p style="text-align: right;"></p> <ul style="list-style-type: none"> ▶ For 120V applications ▶ 2.8 Watts per kit. ▶ Socket adapters supplied. (For signs with bayonet, intermediate or candelabra bases) ▶ Each unit is 5-1/8" tall by 1-5/8" wide. (Add 1/8" when using adapters)

Ordering Information				
Kit #	Installation	Color	For Use With	Watts per Kit
XFR-HW	Hardwire	Red	120/277V Applications	2.8 W
XFG-HW	Hardwire	Green	120/277V Applications	2.8 W
XFR	Screw In	Red	120V Applications	2.8 W
XFG	Screw In	Green	120V Applications	2.8 W

| [Home](#) | [Exit Signs](#) | [Emergency Lighting](#) | [Accessories](#) | [Contact Us](#) |

Skyline Lighting
 Copyright April 2003
www.skylinelighting.net

TECHNICAL DATA

TYPICAL APPLICATIONS

- Private Offices
- Storage Closet
- Conference Room
- Restroom w/o stalls

FEATURES

- PIR Occupancy Detection
- Communicates with Other Sensors
- Time Delay: 30 sec. to 20 minutes, selectable in 2.5 min increments
- Green LED Activity Indicator
- 100 Hr. Burn-in Timer Mode

AVAILABLE OPTIONS

- Isolated Low Voltage Relay (-R)
- Photocell Daylight Override (-P)
- Automatic Dimming Control (-ADC)
- Low Temp/Hi Humidity (-LT)

SPECIFICATIONS

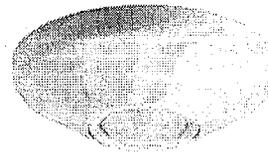
- Size: Circular, 4.55" Dia., 1.55" Deep (11.56 cm Dia., 3.94 cm Deep)
- Sensor Weight: 5 Ounces
- Sensor Color: White
- Mounting: Ceiling Tile Surface, Round Fixture or Junction Box
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 160° F (-10° to 71° C)
- Storage Temp: -14° to 160° F (-26° to 71° C)
- UL and CUL Listed
- 5 Year Warranty
- Made in U.S.A.

LOW TEMP/HI HUMIDITY(-LT)

- Conformally coated Circuit Board is corrosion resistant from moisture
- Operates down to -40° F (-40° C)

CM-9 SERIES

*w/ Enhanced Photocell
& Dimming Options!*



The *CM-9 Series* sensor offers amazing performance and sensitivity to small motions for a standard Passive Infrared (PIR) Ceiling Mount Sensor. Ideal for small rooms with drop ceilings and areas without obstructions, the *CM-9* is a snap to install. Its light weight allows surface mounting to drop ceilings or a ceiling grid. The *CM-9* sensor can cover entire private offices or smaller rooms by itself, however it is also the ideal lead sensor for odd shaped rooms. For example a *CM-9* in a restroom vestibule can communicate with a *CM-PDT* Dual Technology sensor in a main stall area. Another application is a *CM-9* controlling an entrance hall to a classroom and communicating with a *WV-PDT* controlling the main room. In both cases the lights would be activated "On" by the *CM-9*. For mounting above 15 feet, see the *CM-6* Technical Data Sheet.

SENSOR OPERATIONS

The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12 to 24 VAC/VDC and typically operates with a *PP-20* or *MP-20* Power Pack; enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is selectable at 2.5 minute increments from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art design requires no manual field adjustments.

PHOTOCCELL DAYLIGHT OVERRIDE / DIMMING OPTIONS

This series offers a Photocell (-P) option for spaces with abundant daylight and an Automatic Dimming Control (-ADC) option for use with dimmable ballasts. These options are ideal for public spaces with windows like vestibules, corridors, or bathrooms. As the daylight levels change in the room, both options insure that an adequate light level is maintained according to a programmable set-point value. The Photocell option provides two modes of operation; one simply inhibits the lights from turning on, while the other has full On/Off control of the lights. The -ADC option allows the sensor to control a dimmable ballast. It also provides a secondary dim time-out that enables the lights to go to a dim setting after one time-out and then turn fully off after a second time-out. For more detailed information on the operation of Photocell control and/or dimming, see the *CM-PC-ADC* Technical Data Sheet.

INTERNAL LOW VOLTAGE RELAY OPTION (CM-9-R)

To enable a sensor to interface with a building management system, the -R option provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay. The relay coil is energized and changes state when ALL connected sensors register "Unoccupied". When using multiple sensors, only one sensor per zone needs to have a relay. **Note:** Sensor must have power at all times for the relay to function.

CATALOG INFORMATION

MODEL #	DESCRIPTION	TEMPERATURE	OP. VOLTAGE	CURRENT
CM-9	Passive Infrared Ceiling Mount Sensor	14° to 160° F	12 to 24 VAC/VDC	4 mA
Add suffix				
-R	SPDT Relay, 1 Amp			16 mA
-P	Photocell Daylight Override			4 mA
-RP	Relay & Photocell			16 mA
-ADC	Automatic Dimming Control			4 mA
-LT	Low Temp/High Humidity	-40° to 160° F		

WIRING INSTRUCTIONS

Wire lead connections are Class II, 18 to 22 AWG.

STANDARD CM-9

RED - 12 to 24 VAC/VDC

BLACK - Common

WHITE - Output (HI DC for Occupancy)

RELAY OPTION (-R)

GRAY / BROWN - Connected during Occupied state

VIOLET / BROWN - Connected during Unoccupied state

Note: Relay is energized during Unoccupied state

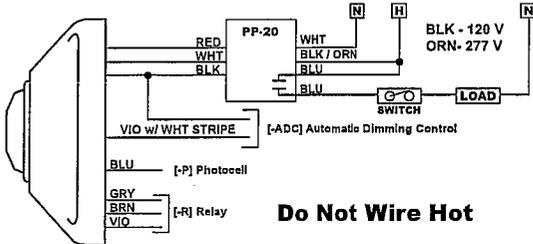
PHOTOCELL OPTION (-P)

BLUE - Photocell output (High: Occupied & Low Light)

Use Blue wire from sensor in place of White wire. For multi-level control, use 2 Power Packs and connect White to primary load and Blue to daylight load.

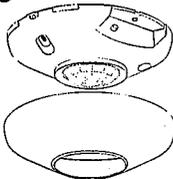
AUTOMATIC DIMMING CONTROL (-ADC)

VIOLET/WHITE striped - Connect to Violet wire from 0-10 VDC dimmable ballast. Also connect ballast Gray wire to sensor Black wire. (Note: -ADC option disables Photocell inhibit mode of -P option.)



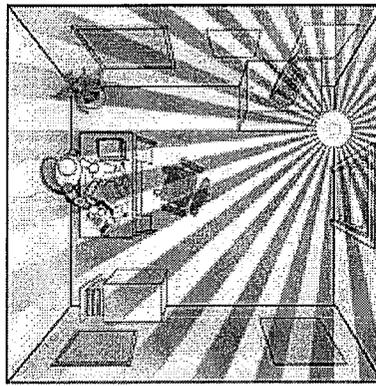
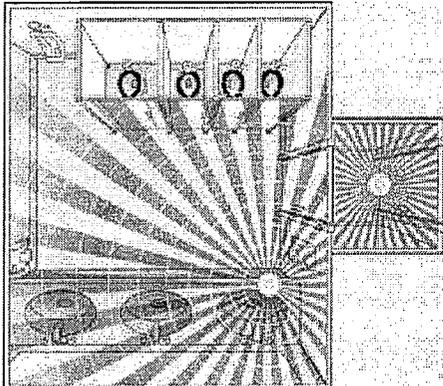
MOUNTING CONSIDERATIONS

The CM-9 is provided with 2 self tapping mounting screws. The sensor typically mounts directly to the ceiling tile or metallic grid. If desired, the mounting holes are slotted to line up with a standard round or rectangular box (screws not provided).



INSTALLATION CONSIDERATION

In smaller spaces like 12' x 12' (3.66 x 3.66 m) private offices, it is best to locate the CM-9 along the entrance wall so that the occupant breaks the collector beams upon entrance, while passersby do not falsely trip the unit (see field-of-view diagram). The discrete outer beams used for initial detection can be aligned for maximum coverage.



Note: Heat producing sources controlled by the sensor must not be in the view pattern of the sensor. Symptom: Sensor cycles or appears to continually stay "On". Solution: Move sensor or mask lens segments that view the source.

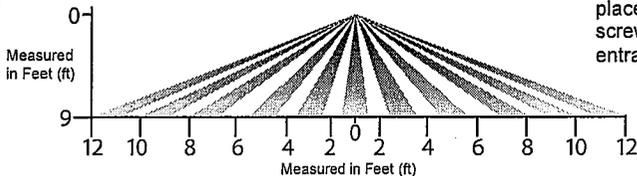
PIR used with PDT

- CM-9 PIR in vestibule initiating the light "On"
- Microphonics™ in CM-PDT is activated by the CM-9.
- CM-PDT detects occupants in stalls

Small Office

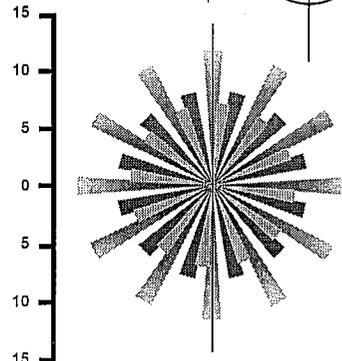
- Mount sensor near entrance wall viewing entire room without seeing out doorway
- Low Voltage sensors provide easiest installation in drop Ceilings.

SIDE VIEW



Note: For maximum distance place the sensor so that the screw axis is aligned with the entrance axis.

TOP VIEW



WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and a replacement product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.



SENSOR SWITCH, INC.
 900 Northrop Rd., Wallingford, CT 06492
 (203) 265-2842 info@sensorswitch.com
 www.sensorswitch.com

revised 2/07/2006
 copyright Sensor Switch, Inc. 2006

TYPICAL APPLICATIONS

- Partitioned Cubical Spaces
- Restroom with Stalls
- Library Study Carrels & Stacks

FEATURES

- Patented Dual Technology with PIR/Microphonics™ Detection
- Communicates with Other Sensors
- Time Delay: 30 sec. to 20 minutes
- Push-Button Programmable
- Green LED Indicator
- 100 Hr. Lamp Burn-in Timer Mode

AVAILABLE OPTIONS

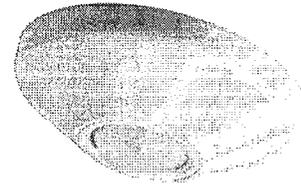
- Isolated SPDT Relay (-R)
- On/Off Photocell (-P)
- Auto Dimming Cntl. Photocell (-ADC)
- Low Temp/Hi Humidity (-LT)

SPECIFICATIONS

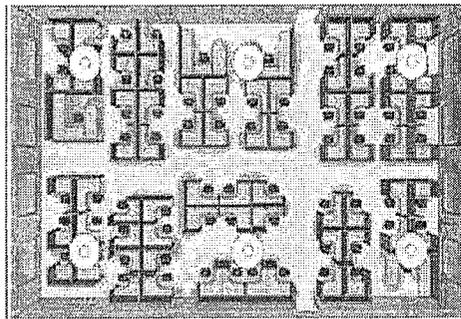
- Size: Circular, 4.55" Dia., 1.55" Deep (11.56 cm Dia., 3.94 cm Deep)
- Sensor Weight: 5 Ounces
- Sensor Color: White
- Mounting: Ceiling Tile Surface, Round Fixture or Junction Box
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 160° F (-10° to 71° C)
- Storage Temp: -14° to 160° F (-26° to 71° C)
- UL, CUL, and Title 24 Compliant
- 5 Year Warranty
- Made in U.S.A.
- **LOW TEMP/HI HUMIDITY(-LT)**
- Conformally coated Circuit Board is corrosion resistant from moisture
- Operates down to -4° F(-20° C)

CM-PDT SERIES

w/ Enhanced Daylighting Control Options!



Open area office lighting control is made cost effective with the use of the *CM-PDT Series* Passive Dual Technology occupancy sensor. This small, yet powerful sensor provides line of sight PIR detection of small motion in a circular pattern and combines overlapping Microphonics™ coverage for detection of occupants working in their cubical space. By installing multiple *CM-PDTs* on 30 foot centers, large zones are created (typically one per circuit of lighting). The lighting is then controlled in blocks similar to manual switching, only no one will ever have to remember to turn off the lights! Restrooms with stalls, large storage areas with shelving, and libraries with study carrels are also easily and cost effectively controlled by the *CM-PDT*.



SENSOR OPERATIONS

Sensors with Passive Dual Technology (PDT) first "See" motion using Passive Infrared (PIR) and then engage Microphonics™ to "Hear" sounds that indicate continued occupancy. This patented technology uses Automatic Gain Control (AGC) to dynamically self adapt a sensor to its environment by filtering out constant background noise and detecting only noises typical of

human activity. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12 to 24 VAC/VDC and typically operates with a PP-20 or MP-20 Power Pack; enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is selectable at 2.5 minute increments from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected.

DAYLIGHTING CONTROL OPTIONS

For spaces with abundant natural light from windows or skylights, this series offers an On/Off Photocell (-P) option and an Automatic Dimming Control (-ADC) Photocell option. The -P option is ideal for public areas like vestibules, corridors, or restrooms;

while the -ADC option is perfect for classrooms and private offices. As the daylight levels change in the room, both options insure that an adequate light level is maintained according to a programmable set-point value. The -P option provides two modes of operation; one simply inhibits the lights from turning on, while the other has full On/Off control of the lights. The -ADC option allows the sensor to control a dimmable ballast. It also provides a secondary dim time-out that enables the lights to go to a dim setting after one time-out and then turn fully off after a second time-out. For more detailed information on these daylighting control features, see the CM-PC-ADC Technical Data Sheet.

SENSORS vs. LIGHTING PANELS

Lower cost, convenience, reliability, and greater energy savings are all provided by installing *CM-PDTs* rather than computer based lighting control panels. No programming, no confusing overrides, no chance of turning off while the area is still occupied, and no reason for leaving the lights on in "anticipation" of occupants! Real time detection of occupancy always outperforms a pre-programmed time clock. All this at a fraction of the total installed cost of a lighting panel!

CATALOG INFORMATION

MODEL #	DESCRIPTION	TEMPERATURE	OP. VOLTAGE	CURRENT
CM-PDT	Dual Technology Ceiling Mount Sensor	14° to 160° F	12 to 24 VAC/VDC	4 mA
Add suffix				
-R	SPDT Relay, 1 Amp			16 mA
-P	On/Off Photocell			4 mA
-RP	Relay & On/Off Photocell			16 mA
-ADC	Automatic Dimming Control Photocell			4 mA
-LT	Low Temp/High Humidity	-4° to 160° F		

WIRING INSTRUCTIONS

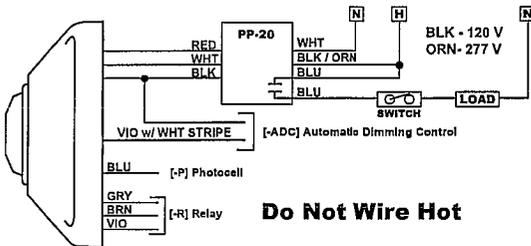
Wire lead connections are Class II, 18 to 22 AWG.

STANDARD CM-9

RED - 12 to 24 VAC/VDC

BLACK - Common

WHITE - Output (HI DC for Occupancy)



RELAY OPTION (-R)

GRAY / BROWN - Connected during Occupied state

VIOLET / BROWN - Connected during Unoccupied state

Note: Relay is energized during Unoccupied state

PHOTOCELL OPTION (-P)

BLUE - Photocell output (High: Occupied & Low Light)

Use Blue wire from sensor in place of White wire. For multi-level control, use 2 Power Packs and connect White to primary load and Blue to daylight load.

AUTOMATIC DIMMING CONTROL (-ADC)

VIOLET/WHITE striped - Connect to Violet wire from 0-10 VDC dimmable ballast. Also connect ballast Gray wire to sensor Black wire. Note: If both the -P and the -ADC options are selected the "Inhibit" mode of the -P option is not available.

INTERNAL LOW VOLTAGE RELAY OPTION

To enable a sensor to interface with a building management system, the -R option provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay. The relay coil is energized and changes state when ALL connected sensors register "Unoccupied". When using multiple sensors, only one sensor per zone needs to have a relay.

Note: Sensor must have power at all times for the relay to function.

MOUNTING CONSIDERATIONS

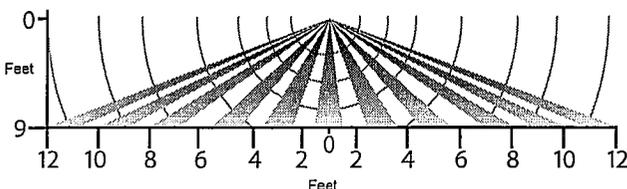
The CM-PDT is provided with 2 self tapping mounting screws. The sensor typically mounts directly to the ceiling tile, or to the metallic grid. However, if desired, the mounting holes are slotted to line up with a standard round or rectangular box (screws not provided).

Note: The ceiling tile provides insulation from stray plenum noises. Only penetrate tile to allow for mounting screws and wires (3 small holes).

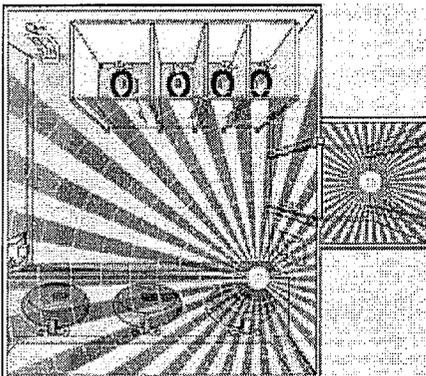
FIELD OF VIEW

The CM-PDT's dome lens provides a maximum viewing angle of 56° in a complete 360° conical pattern. The Microphonics™ detects normal human activity up to 20 feet, but will detect greater distances in spaces with hard floors or very quiet rooms with little or no background noise. Place the sensor along the entrance door wall to prevent it from viewing out into the hallway. Avoid locating the sensor near HVAC air diffusers because the "noise" generated from air flow will decrease the sensitivity of the Microphonics™ sensor.

SIDE VIEW



Multi-Stall Restroom w/Vestibule

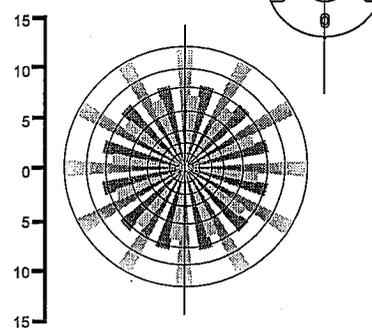


PIR used with PDT

- CM-9 PIR in vestibule initiating the light "On"
- Microphonics™ in CM-PDT is activated by the CM-9.
- CM-PDT detects occupants in stalls

Note: For maximum distance place the sensor so that the screw axis is positioned with the entrance axis.

TOP VIEW



WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and a replacement product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.



SENSOR SWITCH, INC.
 900 Northrop Rd., Wallingford, CT 06492
 (203) 265-2842 info@sensorswitch.com
 www.sensorswitch.com

revised 06/13/2006
 copyright Sensor Switch, Inc. 2006

TECHNICAL DATA

TYPICAL APPLICATIONS

- Hallway Sensing

FEATURES

- PIR Occupancy Detection
- Coverage up to 130 Feet
- Communicates with Other Sensors
- Programmable w/o removing cover
- Time Delay: 30 sec. to 20 minutes, selectable in 2.5 min. increments
- Green LED Activity Indicator
- 100 Hr. Burn-in Timer Mode

AVAILABLE OPTIONS

- Isolated Low Voltage Relay (-R)
- Photocell Daylight Override (-P)
- Low Temp/Hi Humidity (-LT)

SPECIFICATIONS

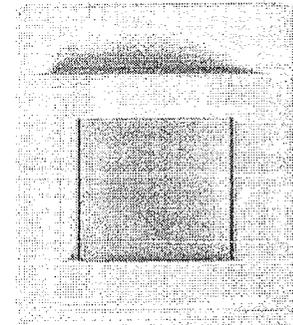
- Size: Rectangular, 3.0" x 3.6" x 1.75" (7.62 cm x 9.14 cm x 4.45 cm)
- Sensor Weight: 4 Ounces
- Sensor Color: White
- Mounting: 7 to 10 ft in Corner or Ceiling using bracket (WV-BR)
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 160° F (-10° to 29° C)
- Storage Temp: -14° to 160° F (-26° to 71° C)
- Operating Voltage: 12 - 24 VAC/VDC
- UL and CUL Listed
- 5 Year Warranty
- Made in U.S.A.

LOW TEMP/HI HUMIDITY(-LT)

- Conformally coated Circuit Board is corrosion resistant from moisture
- Operates down to -40° F (-40° C)

HW-13 SERIES

Programmable Edition!



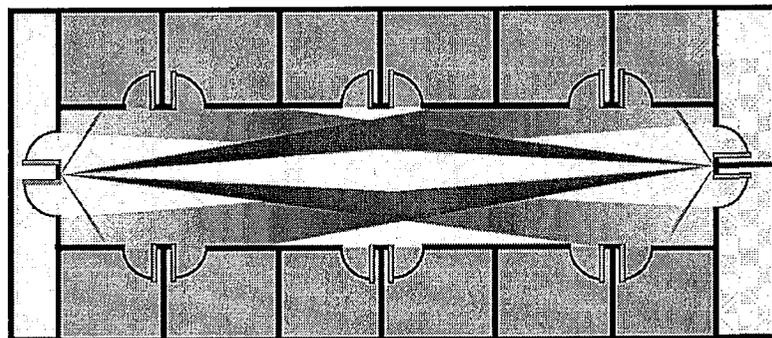
Long narrow Passive Infrared (PIR) detection is provided by the HW-13 for control of Hallway lighting. Typically mounted at either end of a long corridor, the HW-13 detects occupants entering the hallway up to 130 feet away. Detection at these distances is for entrances at right angles to the beam pattern. Wired in parallel, the HW-13 may be used with other low voltage sensors. For example, a CM-10 ceiling sensor may be in a vestibule at one end while the HW-13 is at the other. The HW-13 is best mounted at 7 feet.

SENSOR OPERATIONS

The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12 to 24 VAC/VDC and typically operates with a PP-20 or MP-20 Power Pack; enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is selectable at 2.5 minute increments from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art design requires no manual field adjustments.

PASSIVE INFRARED DETECTION TECHNOLOGY

The HW-13 has one main PIR collector beam. Motions are detected as occupants cross into or out of this beam. PIR detects motions across the beam much better than motions directly into the beam; therefore care must be taken to make sure the sensor is not viewing out the end of the corridor where crossing traffic provides stronger detection signals than occupants entering directly at the sensor. Positioning sensors at both ends and ensuring that they do not view out of the corridor will provide proper performance.



CATALOG INFORMATION

MODEL #	DESCRIPTION	TEMPERATURE	OP. VOLTAGE	CURRENT
HW-13	Passive Infrared Hallway Sensor	14° to 160° F	12 to 24 VAC/VDC	4 mA
Add suffix				
-R	SPDT Relay, 1 Amp			16 mA
-P	Photocell - Daylight Override			4 mA
-RP	Relay & Photocell			16 mA
-LT	Low Temp/High Humidity	-40° to 160° F		
Accessory				
WV-BR	Ceiling Mount Bracket			

PHOTOCELL DAYLIGHT HARVESTING OPTION (HW-13-P)

This series offers a Photocell (-P) option for daylight harvesting in spaces with abundant natural light. This option is ideal for public spaces with windows like vestibules, corridors, or bathrooms. As the daylight levels change in the room, the -P option insures that an adequate light level is maintained according to a programmable threshold value called a set-point. The Photocell option provides two modes of operation; one simply inhibits the lights from turning on, while the other has full On/Off control of the lights. For more detailed information on the operation of Photocell control, see the CM-PC Technical Data Sheet.

INTERNAL LOW VOLTAGE RELAY OPTION (HW-13-R)

To enable a sensor to interface with a building management system, the -R option provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay. The relay coil is energized and changes state when ALL connected sensors register "Unoccupied". When using multiple sensors, only one sensor per zone needs to have a relay.

Note: Sensor must have power at all times for the relay to function .

WIRING INSTRUCTIONS

Wire lead connections are Class II, 18 to 22 AWG.

STANDARD HW-13

RED - 12 to 24 VAC/VDC

BLACK - Common

WHITE - Output (HI DC for Occupancy)

RELAY OPTION (-R)

GRAY / BROWN - Connected during Occupied state

VIOLET / BROWN - Connected during Unoccupied state.

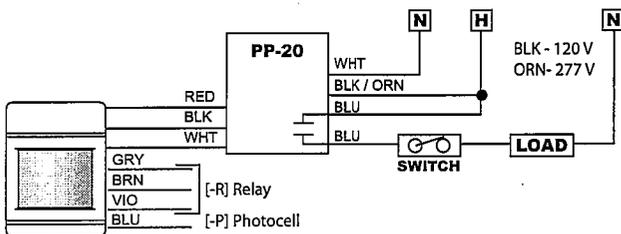
Note: Relay is energized during Unoccupied state

PHOTOCELL OPTION (-P)

BLUE - Photocell output (High: Occupied & Low Light)

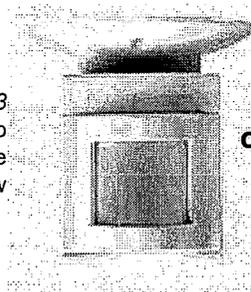
Use Blue wire from sensor in place of White wire. For multi-level control, use 2 Power Packs and connect White to primary load and Blue to daylight load.

TYPICAL WIRING DIAGRAM - DO NOT WIRE HOT

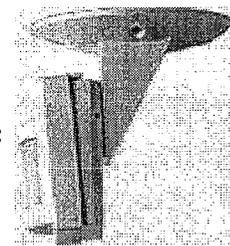


CEILING MOUNT BRACKET (WV-BR)

The WV-BR Ceiling Mount Bracket allows the HW-13 to be ceiling mounted for conditions where mounting to the wall is not possible. **Note:** View shown is when the sensor is installed fully vertically. Tilting will aim view pattern down.



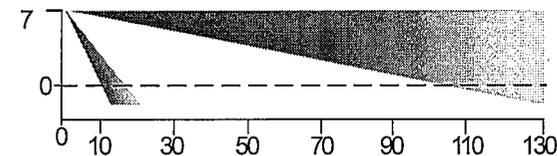
WV-BR
Ceiling Bracket



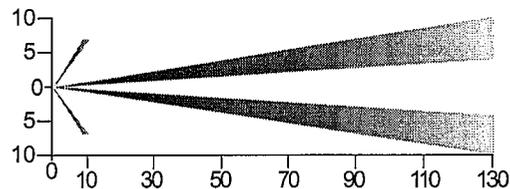
FIELD OF VIEW vs. TILT ADJUSTMENT

The HW-13 has three tilt adjustments. At 7 feet mounting, the sensor should be installed fully vertical. At higher mounting heights, the sensor may be tilted forward.

SIDE VIEW



TOP VIEW



WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and a replacement product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.

sensorswitch

SENSOR SWITCH, INC.
900 Northrop Rd., Wallingford, CT 06492
(203) 265-2842 info@sensorswitch.com
www.sensorswitch.com

revised 1/26/2006
copyright Sensor Switch, Inc. 2006

TECHNICAL DATA

TYPICAL APPLICATIONS

- Used with Low Voltage Sensors
- Multiple Sensors
- Multiple Loads

POWER PACK HIGHLIGHTS

- Dual Voltage Transformer
- Self-Contained Relay
- Powers up to 14 sensors

SPECIFICATIONS

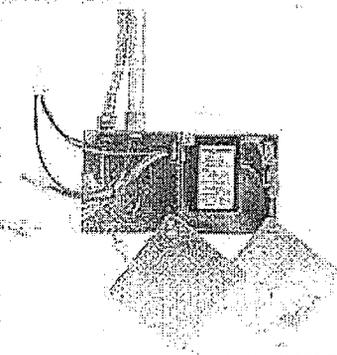
- Size: (1/2" inch chase nipple not inc.)
- MP-20 & MSP-20: 4 1/8" x 3" x 1 7/8"
- Mounting: 1/2" inch chase nipple
- Operating Voltage: 120, 240, or 277 VAC
- Each Relay: 20 Amps
- 1 HP Motor Load
- Output Voltage: 15 VDC, 150 mA
- Class II: 18 AWG, up to 2,000 ft
- Plenum Rated
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 160° F
- Storage Temp: -14° to 160° F
- UL and CUL Listed
- 5 Year Warranty
- Made in U.S.A.

LOW TEMP/HI HUMIDITY (-LT)

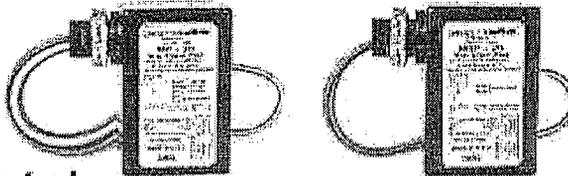
- Conformally Coated PCB
- Operates down to -40° F
- Corrosion resistant from moisture

PLENUM CONSIDERATIONS

Most local codes allow for small plastic controls in Return Air Plenums; Some Do Not! To meet local code, the Power Pack can be mounted inside an adjacent (Deep) junction box as shown below.



MP-20 MSP-20



Plenum Rated

Mini Power Packs are the heart of the Low Voltage Sensor System. The MP-20 transforms 120, 240 or 277 Volts to class II 15 VDC to power the remote sensors. Although Plenum Rated, the elongated mounting nipple allows for the MP-20 to be mounted either directly thru a 1/2" inch knockout in a junction box, or to be located inside an adjacent box for specific local code requirements. Up to 14 sensors may be connected to one MP-20. Multi-circuit control can be handled by multiple MP-20's and Slave Packs (MSP-20) may be configured. MP-20's can be wired continuously hot (line side), or on the switch leg (load side) without nuisance delays upon turn "On".

MINI POWER PACK OPERATION

The Mini Power Pack consists of a transformer and a relay. The transformer has a dual primary-high voltage input, accepting 120, 240, or 277 VAC. The secondary voltage provides power to Sensor Switch low voltage heads. When the sensor head detects motion, they electronically signal the power pack to close the relay(s) connected to the lighting system.

LOW VOLTAGE OPERATION AND TEST

The Low Voltage Wires are color coded Red (15 VDC), Black (Common), and White (Occupancy Signal). With no sensors connected, touch the Red wire to the White. The lights should turn "On". Remove the connection and the lights should turn "Off". With the sensors connected, the Red and Black wires provide DC power to the remote sensors, and when there is occupancy detected, the White wire produces a 15 VDC signal from the sensor to the power pack initiating the lights to "On". Upon initial power up, the Sensors automatically send an "On" signal until the sensors have stabilized and "Timed Out".

SIZING OF THE SYSTEM - VARIOUS COMBINATIONS

Combining Power Packs provides for additional power to drive remote devices. Maximum numbers of remote sensors are shown below based on the Power Pack/Slave Pack being used. *Maximum number of "Relays" is 30.*

	Sensors	Sensors with Relay
1 MP-20	14	8
1 MP-20 w/MSP-20	7	8
2 MP-20	28	16

Note 1: Only three relays may be controlled with one Mini Power Pack. If more than three circuits are required, multiple MiniPower Packs must be used.

Note 2: Only one "Sensor with Relay" is required in most cases. See Technical Data on Low Voltage Sensors and SPDT EMS Interface Option.

SYSTEMS CONSIDERATIONS

The local override switch may be upstream or downstream of an MP-20. However, if an MSP-20 Auxiliary Relay controller is being used, the switch(es) should be downstream on the load side of the relay. If power is disconnected to the Power Pack all subsequent relays will open, turning off all of the loads. If wiring the local switches before the Power Pack and Slave Pack, use multiple MP-20's, one for each circuit. This will allow for one circuit to remain powered, keeping the system operational when the other is turned off. When controlling a dimming circuit, MP-20 must be wired before dimmer, or MSP-20 may be wired after dimmer.

CATALOG INFORMATION

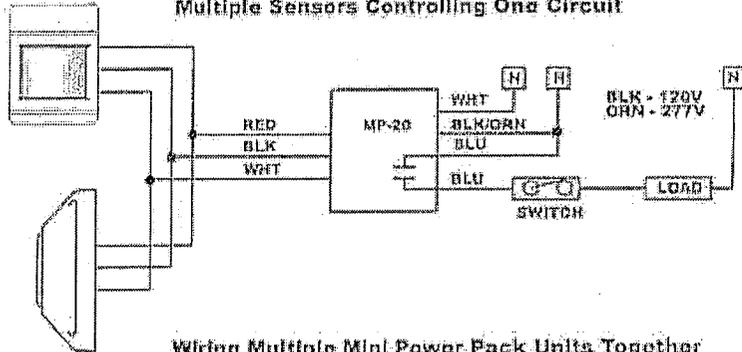
MODEL#	DESCRIPTION	OUTPUT VOLTAGE	OUTPUT CURRENT
MP-20	Power Pack with 20 Amp Relays	15 to 24 VDC	70 to 110 mA
MSP-20	Slave Pack with 20 Amp Relays	N/A	40 mA (consumption)

*Add suffix -LT for Low Temp/HI Humidity

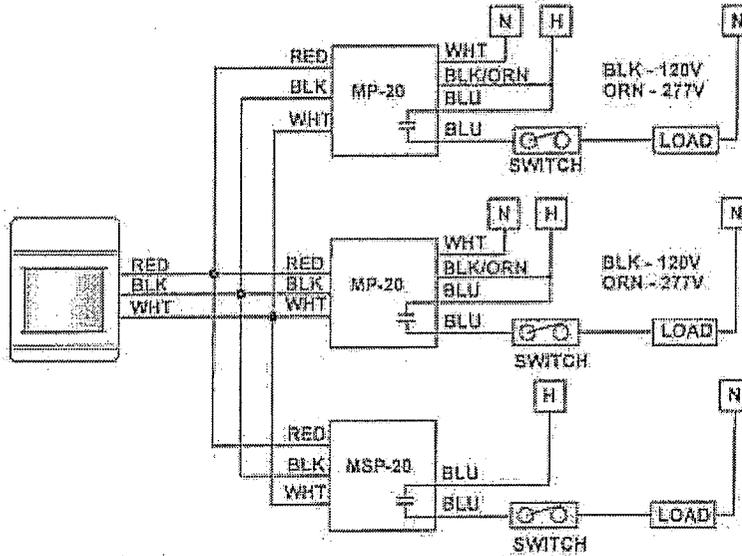
TYPICAL WIRING DIAGRAMS - DO NOT WIRE HOT

NOTE: The Power Pack must be connected to a single phase Hot and Neutral System. For 120 VAC, connect the Black wire to Hot, White wire to Neutral, and Cap off the Orange wire. For 240-277 VAC, connect the Orange to Hot, White to Neutral, and Cap off the Black wire. Never connect both the Black and Orange wires! Low Voltage wire can be 18 to 22 AWG; shielding is not necessary.

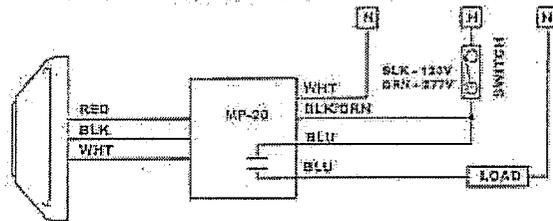
Multiple Sensors Controlling One Circuit



Wiring Multiple Mini Power Pack Units Together



One Sensor Controlling One Circuit



WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc. upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and a replacement product.
LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties including the tripled warranties of merchantability and fitness for use and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damage or losses.

sensorswitch

SENSOR SWITCH, INC.
 990 Northrop Rd., Wallingford, CT 06492
 (203) 264-2842 info@sensorswitch.com
 www.sensorswitch.com

revision 12/12/04
 copyright Sensor Switch, Inc. 2004

VendingMISER

Reduce energy costs

The Miser family is a line of occupancy-based energy control products. The VendingMiser® patented technology represents a breakthrough in the power control of cold beverage vending machines. It reduces energy consumption by an average of 46% and decreases per machine maintenance by \$40-\$80 per year. All while maintaining the temperature of the vended product. VendingMiser® typically has a short average payback of between one and two years.*

How the VendingMiser reduces energy consumption

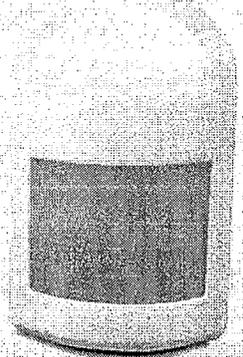
Utilizing a Passive Infrared (PIR) Sensor, VendingMiser® powers down a vending machine when the area surrounding it is vacant. VendingMiser® also monitors the room's temperature, and automatically re-powers the vending machine at one to three hour intervals, independent of occupancy, to ensure that the vended product stays cold.

VendingMiser's® electrical current sensor will never power down a vending machine while the compressor is running, eliminating compressor short cycling. In addition, when the vending machine is powered up, the cooling cycle is allowed to run to completion before again powering down. For a series of up to 4 machines, VendingMiser® can utilize its unique embedded Sensor Repeater, which allows it to be controlled from the PIR sensor of any other Miser in the bank.

Beyond cold drink vending

Other cooled product vending machines, such as refrigerated candy machines, can also be controlled by VendingMiser®. Non-cooled product machines can be controlled to reduce energy costs by our companion product, SnackMiser™. VendingMiser® is made in the USA.

* Based on electric rate and occupancy.



VENDINGMISERS® BENEFIT THE ENVIRONMENT AND REDUCE ENERGY COSTS

One VendingMiser® reduces greenhouse gas emissions by 2200 lbs. of CO₂ and 3600 grams of NO_x each year.**

The average annual energy costs for a cold drink vending machine is \$300 per year. With the VendingMiser® you can save an average of \$150 per year, per machine.***



** Based on occupancy and the Energy Information Administration's national average of greenhouse gas emissions and electricity generation.

*** Based on our current customers.

**For more information about the VendingMiser® by USA Technologies
800-770-8539 • www.usatech.com**

© 2004 USA Technologies, VMS001 (01/04)

Frequently Asked Questions

Will VendingMiser® keep my drinks cold?

Absolutely - VendingMiser® has been tested and accepted for use by both major bottlers.

Is the VendingMiser® easy to install?

Yes! VendingMiser® is a simple external plug-and-play product. The VendingMiser® can be installed on the wall with simple hand tools or it can be attached to the vending machine without tools using the new Easy-Install system. The Easy-Install System allows quick installation in 5 minutes.

Is VendingMiser® safe for all machines?

Yes! VendingMiser® is compatible with all types of cold drink vending machines. In fact, by reducing run time of the machines, VendingMiser® reduces maintenance costs.

Has VendingMiser® been field tested?

Tens of thousands of VendingMisers® are operational in the field. Typical energy savings have been independently documented to be between 35% and 45%. Measurement and verification test results as well as testimonials are available on the website.

Are there any locations not appropriate for VendingMiser®?

VendingMiser's® savings are generated as a result of location vacancy. Therefore, a machine in a location that is occupied 24-hours, 7 days a week will likely generate little savings.

Technical Specifications

ELECTRICAL SPECIFICATIONS

Input Voltage: 115 Volts (230 Volts available)
 Input Frequency: 50/60 Hz
 Maximum Load: 12 Amps (Steady-State)
 Power Consumption: Less than 1 Watt (Standby)

ENVIRONMENTAL SPECIFICATIONS

Operating Temp: -15°C to 75°C
 Storage Temp: -40°C to 85°C
 Relative Humidity: 95% Maximum (Non-Condensing)

COMPATIBILITY

Vending Machines: Any machine, except those containing perishable goods such as dairy products.

INACTIVITY TIMEOUTS

Occupancy Timeout: 15 minutes
 Auto Repower: One to three hours, dynamically adjusted, based on ambient temperature

DIMENSIONS

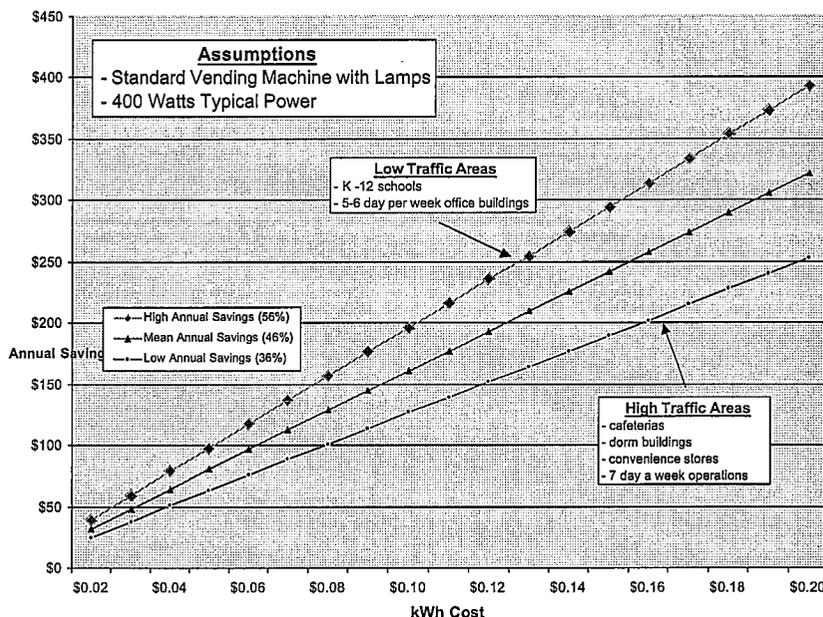
Size: 4.5"W x 1.75"H x 3.25"D
 Weight: 2.2 lb. (incl. power cable)

REGULATORY APPROVALS

Safety: UL/C-UL Listed
 Information Technology Equipment (ITE) 9179



Typical Saving Generated with VendingMiser®



VendingMiser® Products

VM150	VendingMiser® with PIR Sensor
VM151	VendingMiser® only
VM160	Weatherproof VendingMiser® with PIR Sensor
VM161	Weatherproof VendingMiser® only
VM170	Easy-Install VendingMiser® with PIR Sensor
VM171	Easy-Install VendingMiser® only
VM180	Weatherproof Easy-Install VendingMiser w/PIR sensor
VM181	Weatherproof Easy-Install VendingMiser only

For more information about the VendingMiser® by USA Technologies

800-770-8539 • www.usatech.com

TYPICAL APPLICATIONS

- Private Offices
- Conference Rooms
- Individual Bathrooms w/o stalls
- Janitor Closets
- Hallways & Stairwells

FEATURES

- PIR Occupancy Detection
- Self Contained Relay, no Power Pack needed
- Patented Bi-Polar Wiring; Interchangeable Hot & Load wires
- Small Motion Detection up to 20 ft.
- Intrinsically Grounded
- No Minimum Load
- Push-Button Programmable
- Time Delay: 30 sec. to 20 minutes
- Three-Way & Multi-Level Switching
- Green LED Status Indicator

AVAILABLE OPTIONS

- Vandal-Resistant Lens (-V)
- Photocell Daylight Override (-P)
- Low Temp/Hi Humidity (-LT)

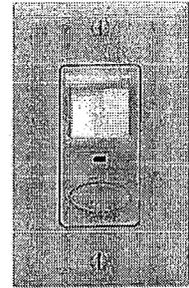
SPECIFICATIONS

- Size: 4.2"H x 1.8"W x 1.5"D (10.67cm x 4.57cm x 3.81cm)
- Sensor Weight: 5 Ounces
- Colors: Ivory, White, Gray, Almond
- Mounting Height: 30 to 48 inches
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 85° F (-10° to 29° C)
- Storage Temp: -14° to 160° F (-26° to 71° C)
- Load Rating (1 phase only):
120 VAC @ 800 W
277 VAC @ 1200 W
347 VAC @ 1500 W
- Frequency: 50/60 Hz (Timers are 1.2 x for 50 Hz)
- UL, CUL, & CSA Listed
- CA Title 24 Compliant
- 5 Year Warranty
- Made in U.S.A

LOW TEMP/HI HUMIDITY (-LT)

- Conformally coated Circuit Board is corrosion resistant from moisture
- Operates down to -40° F (-40° C)

WSD SERIES Programmable Edition!



The WSD Series is a stylish, easy to install, and simple to use Wall Switch Decorator style Passive Infrared (PIR) sensor. It is ideal for private offices, copy rooms, closets, or any small enclosed space without obstructions. A user programmable time delay ensures that once the room is vacated the sensor will time out and turn off the lights. Additionally, the WSD Series sensors have several On Modes and Switch Modes that can be programmed using the front push-button. For rooms with obstructions the WSD-PDT should be considered.

SENSOR OPERATIONS

The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a self-contained relay switches the lighting "On". The sensor is line powered and can switch line voltage (see specifications). An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art sensor requires no manual sensitivity adjustments.

OPERATIONAL MODES

On Modes (*Default)

Automatic On* - The sensor automatically turns the lights on when the sensor detects occupancy.

Reduced Turn-On - The sensor is set to initially only detect large motions, effectively ignoring any reflected PIR signals while still sensing occupants when they enter the room. Once on, the sensor returns to maximum sensitivity.

Switch Modes (*Default)

Predictive Off* - Pressing the switch overrides the lights off and temporarily disables the occupancy detection. After an exit time delay (default 10 seconds) the occupancy detection reactivates and monitors for an additional grace period time (default 5 seconds). If no occupancy is detected during this period, the sensor will revert to Automatic On operation. If occupancy is detected, the sensor will remain in Permanent Off mode requiring the switch to be pressed again in order to restore the sensor to Automatic On.

Permanent Off - Pressing the push-button switch will turn the lights off. The lights will remain off regardless of occupancy until the switch is pressed again, restoring the sensor to Automatic On mode.

Switch Disable - Prevents user from manually turning off the lights via the push-button.

PHOTOCELL DAYLIGHT OVERRIDE OPTION (WSD-P)

The WSD offers a Photocell Daylight Override option (-P) for spaces with abundant natural light. Ideal for public places with windows like vestibules, corridors, or bathrooms; this option inhibits the lights from turning on if there is sufficient daylight available. Once the lights turn on, however, the photocell function is disabled until the sensor's occupancy timer expires and turns the lights off. For more information on daylighting control, see the CM-PC-ADC technical datasheet.

Model Numbering System: WSD-[LENS]-[PHOTOCELL]-[VOLTAGE]-[COLOR*]-[TEMP/HUMIDITY]

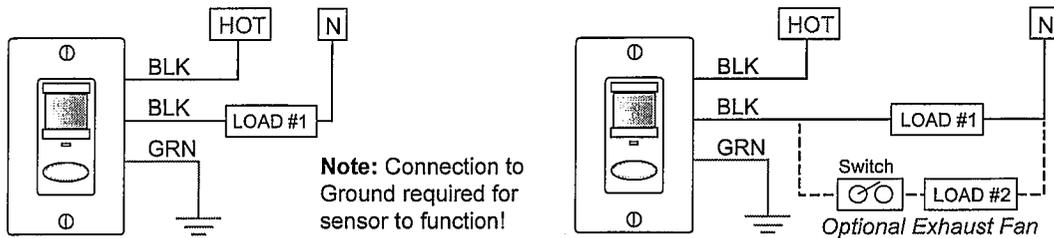
SERIES #	LENS	PHOTOCELL	VOLTAGE	COLOR	TEMP/HUMIDITY
WSD	Blank = Standard -V = Vandal Resistant	Blank = No Photocell -P = w/Photocell	Blank = 120-277 VAC -3 = 347 VAC**	-I = Ivory -W = White -G = Gray -A = Almond	Blank = 14° to 85° F -LT = -40° to 85° F

**347 VAC: Plate not provided

*Must specify color

T059-003-P

TYPICAL WIRING DIAGRAM (DO NOT WIRE HOT)

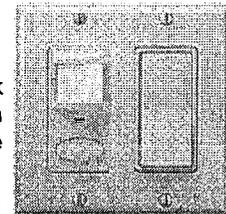


Note: Black wires are replaced with Red wires for 347 VAC.

WIRING TO A LIGHT AND A FAN

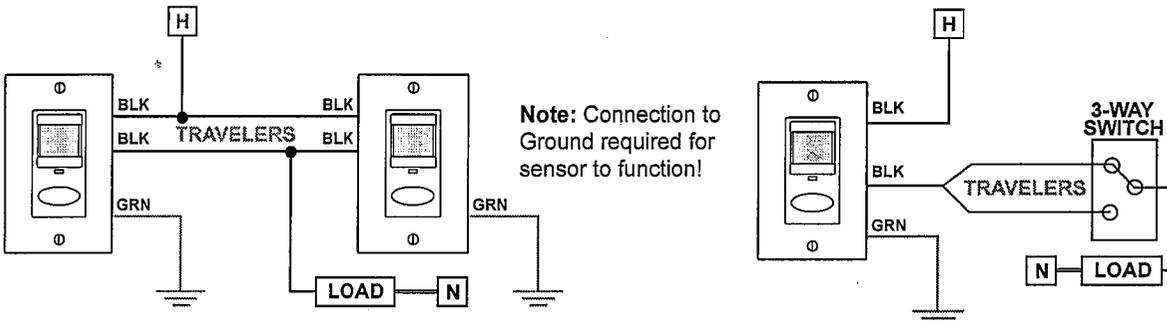
One of the sensor's Black wires connects to the Hot (Line) power feed. The sensor's other Black wire connects to the Light and the Toggle Switch controlling the Exhaust Fan. The sensor's Green wire connects to Ground. When the sensor is in the Occupied Mode, the Exhaust Fan may be overridden "Off" by the Toggle Switch.

Note: Standard 2-gang plate not included



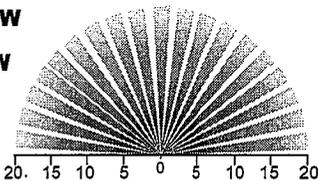
WIRING FOR 3-WAY SWITCHING

Travelers are used to wire sensors in parallel. If only one sensor is needed to view space, 3-way switch is non-functional.

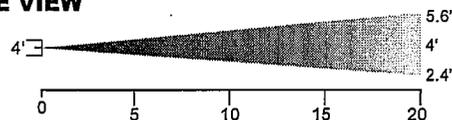


FIELD OF VIEW

TOP VIEW



SIDE VIEW



STANDARD vs. VANDAL RESISTANT LENS

The Standard lens provides maximum PIR detection sensing small movements up to 20 feet, and large motions up to 50 feet. This lens should be used in typical offices or rooms where occupants work for extended periods of time. The Vandal Resistant lens should be used in high abuse or public areas (copy rooms, small public restrooms, storage closets), where occupants simply come and go and make larger types of motions. A sensor with a Vandal Resistant lens will have its PIR detection range reduced by 50%.

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.

Attention: Risque d'incendie : Puissance Maximales Des Lampes 1500 Watts, Type 347 VAC.

Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and repair or replace returned product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the Implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.



SENSOR SWITCH, INC.
 900 Northrop Rd., Wallingford, CT 06492
 (203) 265-2842 info@sensorswitch.com
 www.sensorswitch.com

revised 02/26/2007
 copyright Sensor Switch, Inc. 2007

TYPICAL APPLICATIONS

- Private Offices where occupant turns back to sensor
- Restroom with Stalls
- Storage rooms with shelving

FEATURES

- Patented Dual Technology with PIR/Microphonics™ Detection
- Self Contained Relay, no Power Pack needed
- Patented Bi-Polar Wiring: Interchangeable hot & load wires
- Intrinsically Grounded
- No Minimum Load
- Time Delay: 30 sec. to 20 minutes
- Push-Button Programmable
- Three-Way & Multi-Level Switching
- Green LED Activity Indicator

AVAILABLE OPTIONS

- Vandal-Resistant Lens (-V)
- Photocell Daylight Override (-P)
- Low Temp/Hi Humidity (-LT)

SPECIFICATIONS

- Size: 4.2" H x 1.8" W x 1.5" D (10.67cm x 4.57cm x 3.81cm)
- Sensor Weight: 5 Ounces
- Colors: Ivory, White, Gray, Almond
- Mounting Height: 30 to 48 inches
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 85° F (-10° to 29° C)
- Storage Temp: -14° to 160° F (-26° to 71° C)
- Load Rating (1 phase only):
120 VAC @ 800 W
277 VAC @ 1200 W
347 VAC @ 1500 W
- Frequency: 50/60 Hz (Timers are 1.2 x for 50 Hz)
- UL, CUL, & CSA Listed
- CA Title 24 Compliant
- 5 Year Warranty
- Made in U.S.A.

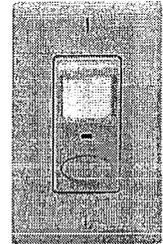
LOW TEMP/HI HUMIDITY(-LT)

- Conformally coated Circuit Board is corrosion resistant from moisture
- Operates down to -4° F (-20°C)

WSD-PDT Series

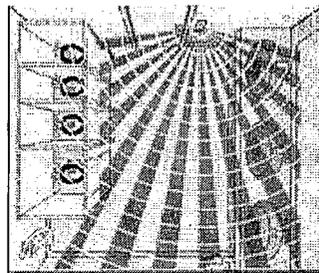
Programmable Edition!

Dual Technology in a Wall Switch Sensor! The *WSD-PDT Series* is by far the most powerful Decorator occupancy sensor ever invented. The combination of Passive Infrared and patented Microphonics™ detection, allows this sensor to literally "See & Hear" its occupants. The *WSD-PDT* is the ideal solution for restrooms with stalls, private offices where the occupant turns his back to the sensor, or storage rooms with obstructions. Additionally, the *WSD Series* sensors have several On Modes and Switch Modes that can be programmed using the front push-button.



SENSOR OPERATIONS

Sensors with Passive Dual Technology (PDT) first "See" motion using Passive Infrared (PIR) and then engage Microphonics™ to "Hear" sounds that indicate continued occupancy. This patented technology uses Automatic Gain Control (AGC) to dynamically self adapt a sensor to its environment by filtering out constant background noise and detecting only noises typical of human activity. When occupancy is detected, a self-contained relay switches the lighting "On". The sensor is line powered and can switch line voltage (see specifications). An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. If needed, a 10 second grace period also allows the lights to be voice reactivated after shutting off.



Bathrooms (WSD-PDT-V)

- Senses partitioned spaces
- Most inexpensive sensor approach
- Voice sound activation prevents lights out condition

OPERATIONAL MODES

On Modes (*Default)

Automatic On* - The sensor automatically turns the lights on when the sensor detects occupancy.

Reduced Turn-On - The sensor is set to initially only detect large motions, effectively ignoring any reflected PIR signals while still sensing occupants when they enter the room. Once on, the sensor returns to maximum sensitivity.

Switch Modes (*Default)

Predictive Off* - Pressing the switch overrides the lights off and temporarily disables the occupancy detection. After an exit time delay (default 10 seconds) the occupancy detection reactivates and monitors for an additional grace period time (default 5 seconds). If no occupancy is detected during this period, the sensor will revert to Automatic On operation. If occupancy is detected, the sensor will remain in Permanent Off mode requiring the switch to be pressed again in order to restore the sensor to Automatic On.

Permanent Off - Pressing the push-button switch will turn the lights off. The lights will remain off regardless of occupancy until the switch is pressed again, restoring the sensor to Automatic On mode.

Switch Disable - Prevents user from manually turning off the lights via the push-button.

Model Numbering System: WSD-PDT-[LENS]-[PHOTOCELL]-[VOLTAGE]-[COLOR*]-[TEMP/HUMIDITY]

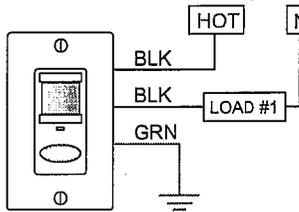
SERIES #	LENS	PHOTOCELL	VOLTAGE	COLOR	TEMP/HUMIDITY
WSD-PDT	Blank = Standard -V = Vandal Resistant	Blank = No Photocell -P = w/Photocell	Blank = 120-277 VAC -3 = 347 VAC**	-I = Ivory -W = White -G = Gray -A = Almond	Blank = 14° to 85° F -LT = -4° to 85° F

**347 VAC: Plate not provided

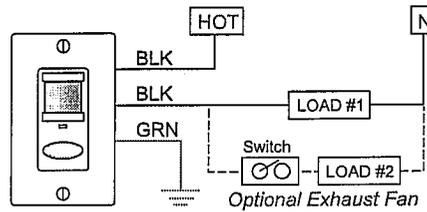
*Must specify color

T065-003-P

TYPICAL WIRING DIAGRAM (DO NOT WIRE HOT)



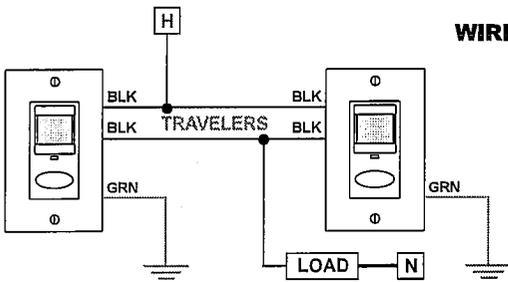
Note: Connection to Ground required for sensor to function!



Note: Black wires are replaced with Red wires for 347 VAC.

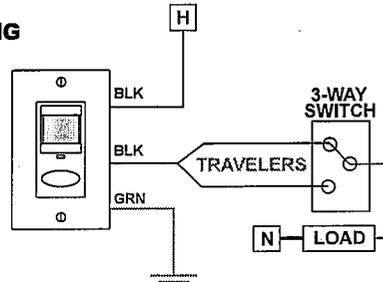
WIRING TO A LIGHT AND A FAN

One of the sensor's Black wires connects to the Hot (Line) power feed. The sensor's other Black wire connects to the Light and the Toggle Switch controlling the Exhaust Fan. The sensor's Green wire connects to Ground. When the sensor is in the Occupied Mode, the Exhaust Fan may be overridden Off by the Toggle Switch.



WIRING FOR 3-WAY SWITCHING

Travelers are used to wire sensors in parallel. If only one sensor is needed to view space, 3-way switch is non-functional.

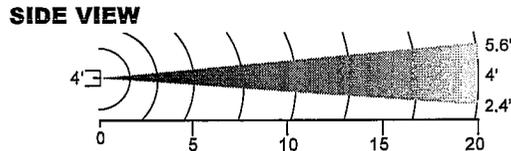
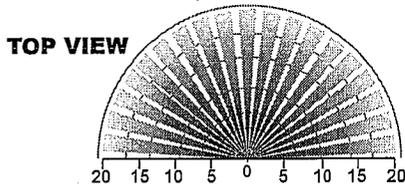


PHOTOCELL DAYLIGHT OVERRIDE OPTION (WSD-PDT-P)

The WSD-PDT offers a Photocell Daylight Override option (-P) for spaces with abundant natural light. Ideal for public places with windows like vestibules, corridors, or bathrooms; this option inhibits the lights from turning on if there is sufficient daylight available. Once the lights turn on, however, the photocell function is disabled until the sensor's occupancy timer expires and turns the lights off.

AREA OF COVERAGE

The PIR collector beams view out horizontally in a wall-to-wall pattern. The beams will see out to 50 feet, however, their effectiveness in the Standard product is 20 feet for small hand or body motions and 10 feet for the Vandal Resistant products. The Microphonics™ will detect normal human activity up to 20 feet, but will detect greater distances in spaces with hard floors or very quiet rooms with little or no background noise.



STANDARD vs. VANDAL RESISTANT LENS

The Standard lens provides maximum PIR detection sensing small movements up to 20 feet, and large motions up to 50 feet. This lens should be used in typical offices or rooms where occupants work for extended periods of time. The Vandal Resistant lens should be used in high abuse or public areas, where occupants simply come and go and make larger types of motions. Copy rooms, small public restrooms, storage or janitor's closets are ideal applications. A sensor with a Vandal Resistant lens will have its PIR detection range reduced by 50%, however the Microphonics™ range is not affected.

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.

Attention: Risque d'incendie : Puissance Maximales Des Lampes 1500 Watts, Type 347 VAC.

Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and repair or replace returned product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.



SENSOR SWITCH, INC.
 900 Northrop Rd., Wallingford, CT 06492
 (203) 265-2842 info@sensorswitch.com
 www.sensorswitch.com

revised 02/26/2007
 copyright Sensor Switch, Inc. 2007

TECHNICAL DATA

TYPICAL APPLICATIONS

- Classrooms w/o Obstructions
- Large Conference Rooms
- Large Open Spaces
- Hallways

SENSOR HIGHLIGHTS

- Corner Mount PIR Sensor
- 120° by 40ft. Coverage for Small Motion
- Optional Photocell Daylight Override
- Optional Photocell On/Off
- Optional Isolated SPDT Relay
- Programable w/o removing cover

FEATURES

- Time Delay: 30 sec. to 20 minutes selectable in 2.5 min. increments
- Green LED Indicator

SPECIFICATIONS

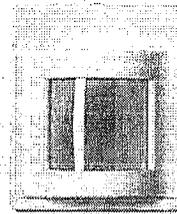
- Size: Rectangular, 3.0" x 3.6" x 1.75"
- Sensor Weight: 5 Ounces
- Sensor Color: White
- Mounting Height: 8 to 10 Feet
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 85° F
- Storage Temp: -14° to 160° F
- UL and CUL Listed
- 5 Year Warranty
- Made in U.S.A.

LOW TEMP/HI HUMIDITY(-LT)

- Conformally Coated PCB
- Operates down to -40° F
- Corrosion resistant from moisture

WV-16 SERIES

WV-BR (Bracket)



Programmable Edition!

able to fit in the palm of your hand, the WV-16 Wide View Sensor unobtrusively amounts in a corner near the ceiling detecting small motions up to 40 feet away, and large motions up to 70 feet away. The unique "Tilting feature" allows this sensor to be mounted anywhere from 8 to 10 feet with excellent long-range coverage. In 30 by 30 ft. classrooms with no obstructions, this is all the sensor you will need. In corridors, the WV-16 is mounted flat against the wall and volumetrically views up to 70 feet. (For specific long narrow hallway applications, see HW-13 Technical Data Sheet). When corner or wall mounting is not possible, use ceiling bracket WV-BR accessory to locate the WV-16 on the ceiling where desired. By using multiple Wide Views in combination with the CM-9 PIR ceiling sensor, odd shaped rooms or corridors are also easily covered. For rooms with obstructions, the WV-PDT or CM-PDT-10 Dual Technology sensors should be used.

SENSOR OPERATIONS

The WV-16 detects changes in the Infrared energy given off by occupants as they move within the sensors field-of-view. This unique sensor is powered with 12 to 24 VAC/VDC (Red & Black wire inputs), and has one DC output (White wire). When occupancy is detected, this output goes high and can drive up to 200 mA of connected load. The WV-16 typically operates with a PP-20 or MP-20 Power Pack enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is selectable at 2.5 minute increments from 30 seconds to 20 minutes, and is reset every time occupancy is detected. This state-of-the-art design requires no manual field adjustments.

PHOTOCELL OPTIONS (WV-16-P and WV-16-PF)

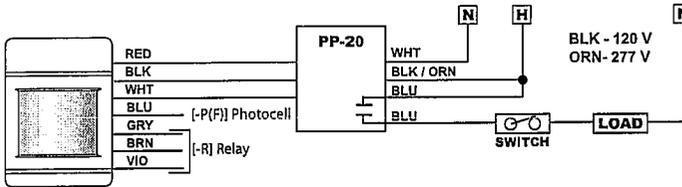
The WV-16 offers two Photocell options for spaces with abundant natural light. It is ideal for public spaces with windows like vestibules, corridors, or bathrooms; however it is not recommended for work spaces where occupants set light levels manually. Each photocell option utilizes a set-point value that is programable by the user via a digital push button sequence. The **Photocell Daylight Override (-P)** option simply inhibits the lights from turning on, however once the lights are on, the photocell function is disabled until the sensor times out. The **Photocell On/Off (-PF)** option has full control of the lights; turning them on when the level is below the set-point and off when adequate ambient light is present. For more specific information on the operation of Photocell On/Off control and/or dimming, see the CM-PC-ADC Technical Data Sheet information.

CATALOG INFORMATION

MODEL #	DESCRIPTION	TEMPERATURE	OP. VOLTAGE	CURRENT
WV-16	Passive Infrared Wide View Sensor	14° to 160° F	12 to 24 VAC/VDC	3 mA
Add suffix				
-R	SPDT Relay, 1 Amp		12 to 24 VAC/VDC	13 mA
-P(F)	Photocell - Daylight Override (On/Off)		12 to 24 VAC/VDC	3 mA
-RP(F)	Relay & Override Photocell (On/Off)		12 to 24 VAC/VDC	13 mA
-LT	Low Temp/High Humidity	-40° to 160° F		
Accessory				
WV-BR	Ceiling Mount Bracket			

INPUT/OUTPUT

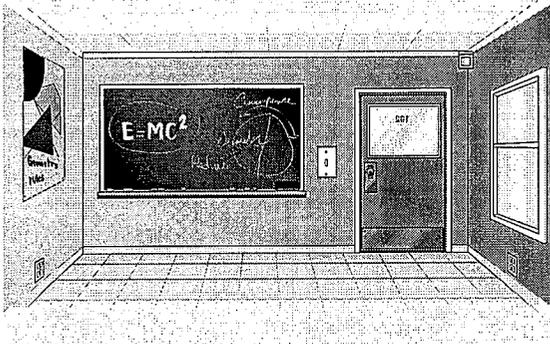
Wire lead connections are Class II, 18 to 22 AWG. The WV-16 uses 3 leads (Red, Black, and White); the PhotoCell options add a Blue lead, and the Relay Option adds 3 leads (Brown, Gray, and Violet). The connections are as follows:



Do Not Wire Hot

INSTALLATION CONSIDERATION

The WV-16's rear enclosure is beveled so as to be corner mounted at 8 to 10 feet (see tilt settings). Always mount sensor in a corner above the entrance door or in a corner along the same wall as the entrance. If the room is large and multiple sensors are needed, mount the second sensor in the opposite corner, however tilt sensor forward to ensure that the PIR collector beams are not viewing out the door. For mounting heights above 10 feet, use the WV-BR and mount sensor to angled side to provide an initial 30° look down.



STANDARD WV-16

RED - 12 to 24 VAC/VDC
 BLACK - Common
 WHITE - Output (HI DC for Occupancy)

RELAY OPTION WV-16-R

BROWN - Center tap of relay (SPDT)
 GRAY - High when Occupancy Contacts Closed
 VIOLET - High when Occupancy Contacts Open

PHOTOCELL OPTION WV-16-P(F)

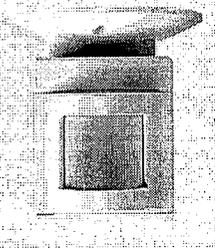
BLUE - PhotoCell Output (High: Occ/Low Light)
 Use Blue wire from sensor in place of White Wire. For multi-level control, use 2 Power Packs and connect White to primary, and Blue to Daylight Load.

INTERNAL LOW VOLTAGE RELAY OPTION

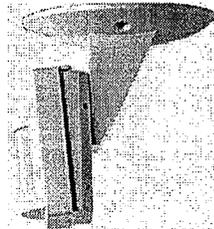
Dry Contact Closure (-R) is provided through a SPDT, 1 Amp, 40 volt relay. The relay coil is energized and changes state when ALL sensors connected register "Unoccupied". Only one sensor per zone (if multiple sensors) needs to have this relay. Sensor must be powered from either a Power Pack, or Class 2 transformer.

CEILING MOUNT BRACKET (WV-BR)

The WV-BR Ceiling Mount Bracket allows the WV-16 to be mounted in the corner of the area from the ceiling for conditions where mounting to the wall is not possible.

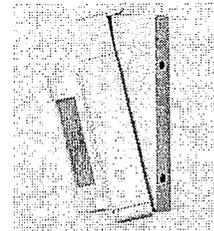


WV-BR

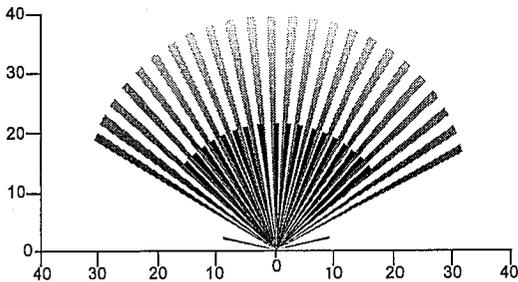


TILT ADJUSTMENT

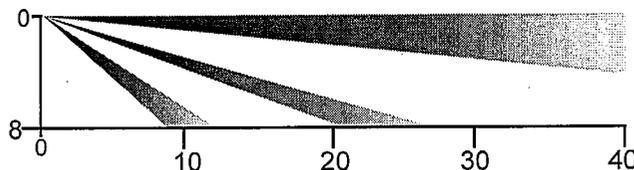
Mt. Ht.	Position
7' - 8'	Vertical
8' - 9'	Center
9' - 10'	Forward
Above 10'	Use WV-BR



TOP VIEW



SIDE VIEW



WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and a replacement product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.



SENSOR SWITCH, INC.
 900 Northrop Rd., Wallingford, CT 06492
 (203) 265-2842 info@sensorswitch.com
 www.sensorswitch.com

revised 11/29/2005
 copyright Sensor Switch, Inc. 2005

TECHNICAL DATA

TYPICAL APPLICATIONS

- Classrooms
- Large Storage Rooms
- Large Conference Rooms
- Hallways

SENSOR HIGHLIGHTS

- Corner Mount Dual Technology
- 120° by 40ft. PIR Coverage for Small Motions
- Patented PIR/Microphonics™
- Optional Photocell Daylight Override
- Optional Photocell On/Off
- Optional Isolated SPDT Relay

FEATURES

- Time Delay: 30 sec. to 20 minutes selectable in 2.5 min. increments
- Green LED Indicator
- Programable w/o removing cover

SPECIFICATIONS

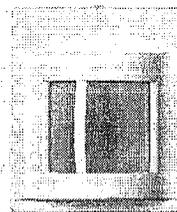
- Size: Rectangular, 3.0" x 3.6" x 1.75"
- Sensor Weight: 6 Ounces
- Sensor Color: White
- Mounting Height: 8 to 10 Feet
- Relative Humidity: 20 to 90% non-condensing
- Operating Temp: 14° to 85° F
- Storage Temp: -14° to 160° F
- UL and CUL Listed
- 5 Year Warranty
- Made in U.S.A.

LOW TEMP/HI HUMIDITY(-LT)

- Conformally Coated PCB
- Operates down to -4° F
- Corrosion resistant from moisture

WV-PDT SERIES

WV-BR (Bracket)



Programmable Edition!

Classrooms are the ideal application for the *WV-PDT* Dual Technology Wide View Sensor. Installed in the corner of the room along the entrance wall, this inconspicuous sensor provides line of sight PIR detection of small movements up to 40 feet away, and combines overlapping Microphonic™ detection around obstructions. Many classrooms are filled with shelving, projects, or lab benches. Total coverage of the room is always maintained no matter how cluttered the space becomes! The *WV-PDT* is also used in corridors due to its ability to view up to 70 feet for walking motions, or large open storage areas where obstructions may block the PIR's ability to view. For large lecture halls, multiple *WV-PDT*s may be wired together, or along with any other low voltage sensors.

SENSOR OPERATIONS

The *WV-PDT* combines PIR (Passive Infrared) with Microphonics™ technology to literally "See & Hear" the occupant. The PIR first detects motion, initiating the lights to an "On" condition. The Microphonics™ then engages, detecting occupant "noise". Automatic Gain Control (AGC) allows the sensor to self adapt by ignoring constant background noise, and then detect only noise changes typical of human activity. An internal timer, factory set at 10 minutes, keeps the lights "On" during brief periods of no activity. This timer is selectable at 2.5 minute increments from 30 seconds to 20 minutes, and is reset every time occupancy is detected. Once the lights turn "Off", a 10 second grace period allows for the occupant to voice re-activate the lights back "On" if needed. This state-of-the-art design allows the sensor to adapt to its environment, eliminating the need for manual field adjustments. The *WV-PDT* is powered with 12 to 24 volts AC or DC (Red & Black wire inputs), and has one DC output (White wire). When occupancy is detected, this output goes high and can drive up to 200 mA of connected load. The *WV-PDT* typically operates with a PP-20 or MP-20 Power Pack enabling complete 20 Amp circuits to be controlled.

PHOTOCELL OPTIONS (WV-16-P and WV-16-PF)

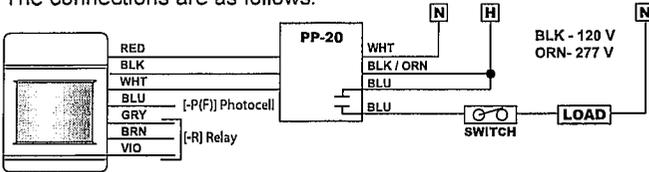
The *WV-PDT* offers two Photocell options for spaces with abundant natural light. It is ideal for public spaces with windows like vestibules, corridors, or bathrooms; however it is not recommended for work spaces where occupants set light levels manually. Each photocell option utilizes a set-point value that is programable by the user via a digital push button sequence. The **Photocell Daylight Override** (-P) option simply inhibits the lights from turning on, however once the lights are on, the photocell function is disabled until the sensor times out. The **Photocell On/Off** (-PF) option has full control of the lights; turning them on when the level is below the set-point and off when adequate ambient light is present. For more specific information on the operation of Photocell On/Off control and/or dimming, see the CM-PC-ADC Technical Data Sheet information.

CATALOG INFORMATION

MODEL #	DESCRIPTION	TEMPERATURE	OP. VOLTAGE	CURRENT
WV-PDT	Passive Dual Technology Wide View	14° to 160° F	12 to 24 VAC/VDC	3 mA
Add suffix				
-R	SPDT Relay, 1 Amp		12 to 24 VAC/VDC	13 mA
-P(F)	Photocell - Daylight Override (On/Off)		12 to 24 VAC/VDC	3 mA
-RP(F)	Relay & Override Photocell (On/Off)		12 to 24 VAC/VDC	13 mA
-LT	Low Temp/High Humidity	-4° to 160° F		
Accessory				
WV-BR	Ceiling Mount Bracket			

INPUT/OUTPUT

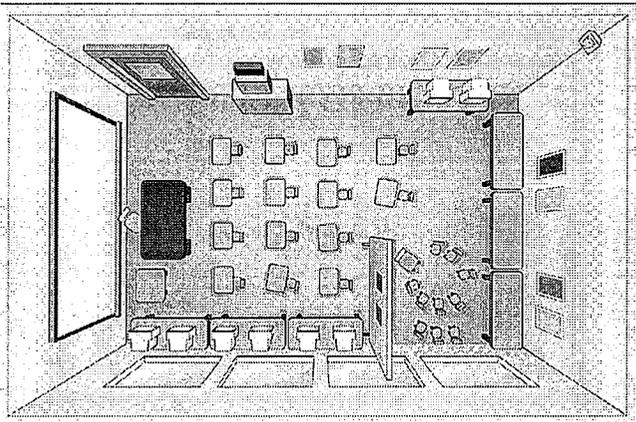
Wire lead connections are Class II, 18 to 22 AWG. The WV-PDT uses 3 leads (Red, Black, and White); the Photocell option adds a Blue lead, and the Relay Option adds 3 leads (Brown, Gray, and Violet). The connections are as follows:



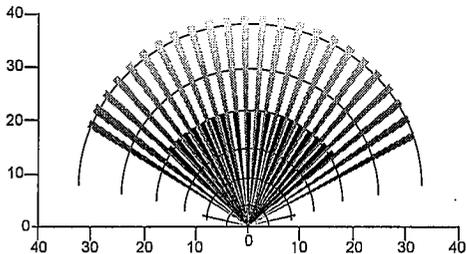
Do Not Wire Hot

INSTALLATION CONSIDERATION

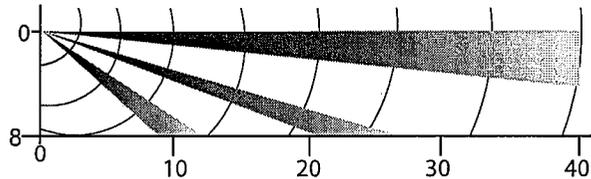
The WV-PDT's rear enclosure is beveled so as to be corner mounted at 8 to 10 feet (see tilt settings). Ideally, the sensor should mount, as shown below, in the corner above the entrance door or in the corner along the same wall as the entrance. If the room is large and multiple sensors are needed, mount the second sensor in the opposite corner, however tilt sensor forward to ensure that the PIR collector beams are not viewing out the door. For mounting heights above 10 feet, use the WV-BR and mount sensor to angled side to provide an initial 30° lookdown. The PDT line of sensors, unlike any other occupancy sensor, self adjusts to its environment. The Automatic Gain Control (AGC) feature allows the sensor to tune out constant background noise. However, changing noise signals like talking, shuffling of papers, and general human activities are readily detected. Avoid locating the sensor near Wall Clocks that make "Clicking Noises" every minute.



TOP VIEW



SIDE VIEW



STANDARD WV-PDT

- RED - 12 to 24 VAC/VDC
- BLACK - Common
- WHITE - Output (HI DC for Occupancy)

RELAY OPTION WV-PDT-R

- BROWN - Center tap of relay (SPDT)
- GRAY - Contacts Closed during Occupancy
- VIOLET - Contacts Open during Occupancy

PHOTOCELL OPTION WV-PDT-P(F)

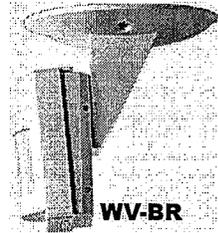
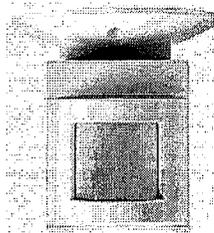
- BLUE - Photocell Output (High: Occ/Low Light)
- Use Blue wire from sensor in place of White Wire. For multi-level control, use 2 Power Packs and connect White to primary, and Blue to Daylight Load.

INTERNAL LOW VOLTAGE RELAY OPTION

Dry Contact Closure (-R) is provided through a SPDT, 1 Amp, 40 volt relay. The relay coil is energized and changes state when ALL connected sensors register "Unoccupied". Only one sensor per zone (if multiple sensors) needs to have this relay. Sensor must be powered from either a Power Pack, or Class 2 transformer.

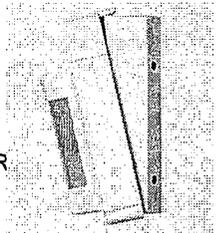
CEILING MOUNT BRACKET (WV-BR)

The WV-BR Ceiling Mount Bracket allows the WV-PDT to be mounted from the ceiling in rooms where mounting to the wall is not possible.



TILT ADJUSTMENT

Mt. Ht.	Position
7' - 8'	Vertical
8' - 9'	Center
9' - 10'	Forward
Above 10'	Use WV-BR



WARRANTY: Sensor Switch, Inc. warrants these products to be free of defects in manufacture and workmanship for a period of sixty months. Sensor Switch, Inc., upon prompt notice of such defect will, at its option, provide a Returned Material Authorization number and a replacement product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch, Inc. be liable for any incidental or consequential property damages or losses.



SENSOR SWITCH, INC.
 900 Northrop Rd., Wallingford, CT 06492
 (203) 265-2842 info@sensorswitch.com
 www.sensorswitch.com

revised 12/07/2005
 copyright Sensor Switch, Inc. 2005