



**Statewide Deferred Maintenance Energy Stimulus Project
Lighting Retrofit Evaluation for SCDMV**

21 August 2009

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General

This evaluation was commissioned by South Carolina Department of Motor Vehicles (SCDMV) in response to the *South Carolina Energy Office American Recovery and Reinvestment Act Solicitation SCEO-01* and is intended to address the technical component required in the funding application.

Based on discussion with SCDMV staff, it was determined the most prudent path towards energy savings would be to replace outdated lighting in thirty-seven SCDMV facilities currently utilizing T12 lamping and ballasts. Associated with these facilities include eleven Highway Patrol offices which are part of South Carolina Department of Public Safety. The facilities were evaluated together and as separate entities as part of this analysis.

Two solutions for achieving energy savings by replacing lighting were evaluated:

1. Replace existing fixtures currently utilizing T12 lamping with new fixtures utilizing T8 lamping.
2. Reuse existing fixtures, but replace T12 lamps and ballasts with T8 type.

Eligibility for Funding

Lighting retrofits are listed as acceptable in the *Eligible Energy Measures* section of *Solicitation SCEO-01* referenced above. The proposed retrofits are intended to reduce energy consumption and utility costs utilizing proven, reliable methods commonly used in commercial environments.

Assumptions

The following assumptions were used in our analysis:

1. The existing fixtures are all four lamp fixtures utilizing 34 watt T12 lamping and ballasts consuming an average of 136 watts per fixture.
2. The fixture quantities are as provided to us by SCDMV staff.
3. The operating hours are in accordance with SCDMV furnished data with the addition of two hours per day for housekeeping and minus thirteen State of SC holidays.
4. The 2008 utility rates as calculated from the UtilityDirect2.0 report are applicable to the each of the facilities.
5. Existing prevailing costs for labor and materials remains status quo.

Discussion and Recommendations

Our analysis began with establishing a baseline of existing energy usage and annual operating cost. This was performed using data provided by SCDMV in the form of fixture descriptions and quantities along with data on historical energy costs for each of the facilities. This data was compiled into spreadsheet form and used for comparison with the proposed improvements.

For purposes of this project, we elected to look at two different methods for saving energy with new lighting technologies: Complete fixture replacement and retrofitting existing fixtures with new lamps and ballasts. These two options are discussed below.

Option A – Lighting Fixture Replacement

This option consists of complete removal of the existing 4 lamp, T12 fixtures and replacement with new 3 lamp, T8 fixtures.

The primary benefit of this option is that the fixtures will be new, and many of the existing facilities are over 20 years old (some are approaching 40) and as such many of the existing fixtures are in need of repair. The new fixtures are also more efficient as they were specifically designed to work with the smaller diameter T8 lamps. Another benefit is that the fixtures only require 3 lamps, which helps reduce future maintenance costs.

The main downside of this option is cost. Due to the fact that the existing ceiling tiles have to be removed and electrical wiring above the ceiling reworked, the

labor cost is a bit higher. The material cost is also higher than the other option as you are purchasing an entire fixture instead of a few components.

This option offers a simple payback period of 5.77 years and a simple return on investment of 3.47.

Option B – Lighting Fixture Retrofit

This option consists of retrofitting of the existing 4 lamp, T12 fixtures with new electronic ballasts and 4 T8 lamps.

The benefit of this option is cost savings. Because the retrofits can be performed by opening the door on the fixtures, no ceilings have to be disturbed and labor time is reduced. You are also only buying ballasts and lamps, so material cost is lower.

There are two obvious downsides of this option. The first is that you are relying on the existing fixtures (many already over 20 years old) and not all are in good condition. The second downside is that you will be utilizing 4 lamps, one more per fixture than in Option A.

This option offers a simple payback period of 4.26 years and a simple return on investment of 4.69.

Our recommendation would be utilize Option A due to the fact that these fixtures will be utilized for many more years (with a 20-30 year lifespan) and the some of the existing fixtures, even with retrofit, may require replacement during that same timeframe due to existing age and condition.

Opinion of Probable Cost

Our opinions of probable cost for the two options are as follows:

Option A – Lighting Fixture Replacement.....	\$150,400.00
Option B – Lighting Fixture Retrofit.....	\$ 90,240.00

Reference attached spreadsheets for further breakdowns.

Attachments

Option A - Lighting Replacement Spreadsheet

Option B - Lighting Retrofit Spreadsheet

T8 Lamp Data

T8 Electronic Ballast Data

Proposed Replacement Fixture (Recessed Troffer)

Proposed Replacement Fixture (Modular Troffer)

Existing T12 Fixture Counts

Utility/Energy Cost Data

**STATEWIDE DEFERRED MAINTENANCE ENERGY STIMULUS PROJECT
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	Location	Fixture Count			Energy Cost per KWH (cents)	Annual Operating Hours	Existing Lighting		Proposed Lighting			Annual Energy Savings
		DMV	DPS	Combined			Annual Energy Used for T12 Lighting (KWH)	Annual Lighting Cost T12	Annual Energy Used for T8 Lighting (KWH)	Annual Lighting Cost T8	Total Installed Cost	
1	Rock Hill	46	14	60	7.853	2931.5	23921	\$1,878.52	12664	\$994.51	\$6,000.00	\$884.01
2	Lancaster	40		40	7.873	2593.5	14109	\$1,110.77	7469	\$588.06	\$4,000.00	\$522.72
3	Winnsboro	36	12	48	11.335	2593.5	16930	\$1,919.06	8963	\$1,015.97	\$4,800.00	\$903.09
4	Union	22	12	34	12.418	2593.5	11992	\$1,489.21	6349	\$788.40	\$3,400.00	\$700.80
5	Shop Road	80		80	11.343	2593.5	28217	\$3,200.69	14939	\$1,694.48	\$8,000.00	\$1,506.21
6	Gaffney	43		43	9.635	2593.5	15167	\$1,461.32	8029	\$773.64	\$4,300.00	\$687.68
7	Chester	42		42	6.947	2593.5	14814	\$1,029.13	7843	\$544.84	\$4,200.00	\$484.30
8	Irmo	86		86	10.276	2593.5	30334	\$3,117.08	16059	\$1,650.22	\$8,600.00	\$1,466.86
9	Spartanburg Fairforest	8		8	7.543	2593.5	2822	\$212.84	1494	\$112.68	\$800.00	\$100.16
10	Spartanburg Southport	40		40	8.668	2593.5	14109	\$1,222.94	7469	\$647.44	\$4,000.00	\$575.50
11	Lake City	28		28	10.803	2593.5	9876	\$1,066.91	5228	\$564.83	\$2,800.00	\$502.08
12	Darlington	41		41	10.125	2593.5	14461	\$1,464.21	7656	\$775.17	\$4,100.00	\$689.04
13	Marion	35	15	50	11.084	2593.5	17636	\$1,954.75	9337	\$1,034.87	\$5,000.00	\$919.88
14	Bennettsville	36		36	13.390	2593.5	12698	\$1,700.23	6722	\$900.12	\$3,600.00	\$800.11
15	Florence	37		37	9.207	2931.5	14751	\$1,358.15	7810	\$719.02	\$3,700.00	\$639.13
16	Bishopville	23		23	11.565	2593.5	8112	\$938.21	4295	\$496.70	\$2,300.00	\$441.51
17	Conway	60		60	8.385	2593.5	21163	\$1,774.51	11204	\$939.45	\$6,000.00	\$835.07
18	Dillon	30	10	40	9.479	2593.5	14109	\$1,337.36	7469	\$708.01	\$4,000.00	\$629.34
19	Chesterfield	54		54	10.851	2593.5	19047	\$2,066.75	10084	\$1,094.16	\$5,400.00	\$972.59
20	St. Matthews	12	4	16	9.875	2593.5	5643	\$557.29	2988	\$295.04	\$1,600.00	\$262.25
21	Sumter	16		16	10.429	2593.5	5643	\$588.56	2988	\$311.59	\$1,600.00	\$276.97
22	Kingstree	30		30	11.495	2593.5	10581	\$1,216.34	5602	\$643.95	\$3,000.00	\$572.40
23	Georgetown	36		36	8.348	2593.5	12698	\$1,060.01	6722	\$561.18	\$3,600.00	\$498.83
24	Charleston Leeds	78		78	11.834	2931.5	31097	\$3,680.06	16463	\$1,948.27	\$7,800.00	\$1,731.79
25	Manning	30	12	42	11.179	2593.5	14814	\$1,656.07	7843	\$876.74	\$4,200.00	\$779.32
26	Ladson	58		58	11.004	2593.5	20458	\$2,251.15	10830	\$1,191.78	\$5,800.00	\$1,059.36
27	Allendale	44	10	54	11.696	2593.5	19047	\$2,227.70	10084	\$1,179.37	\$5,400.00	\$1,048.33
28	Bluffton	32		32	9.605	2593.5	11287	\$1,084.11	5975	\$573.94	\$3,200.00	\$510.17
29	Walterboro	32		32	10.554	2593.5	11287	\$1,191.22	5975	\$630.65	\$3,200.00	\$560.57
30	Orangeburg	30		30	7.730	2593.5	10581	\$817.95	5602	\$433.03	\$3,000.00	\$384.92
31	Lexington	60		60	9.875	2931.5	23921	\$2,362.20	12664	\$1,250.58	\$6,000.00	\$1,111.62
32	Edgefield	22	5	27	12.449	2593.5	9523	\$1,185.56	5042	\$627.65	\$2,700.00	\$557.91
33	Saluda	22	5	27	11.655	2593.5	9523	\$1,109.94	5042	\$587.62	\$2,700.00	\$522.33
34	McCormick	22	5	27	10.313	2593.5	9523	\$982.14	5042	\$519.96	\$2,700.00	\$462.18
35	Pickens	8		8	8.177	2593.5	2822	\$230.73	1494	\$122.15	\$800.00	\$108.58
36	Fountain Inn	31		31	8.951	2593.5	10934	\$978.72	5789	\$518.15	\$3,100.00	\$460.57
37	Laurens	50		50	10.730	2593.5	17636	\$1,892.32	9337	\$1,001.82	\$5,000.00	\$890.50
	Total	1400	104	1504							\$150,400.00	\$26,058.69
	Simple Payback (Years)	5.77					Installed Cost Per New Fixture	\$100		T12 Wattage	136	
	Simple Return on Investment	3.47					Fixture/Material	\$60		T8 Wattage	72	
							Labor	\$40				

OPTION A - LIGHTING FIXTURE REPLACEMENT

**STATEWIDE DEFERRED MAINTENANCE ENERGY STIMULUS PROJECT
LIGHTING RETROFIT EVALUATION FOR SCDMV
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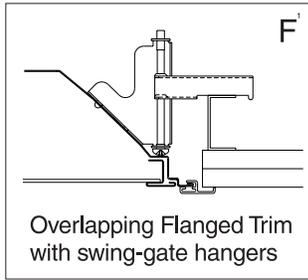
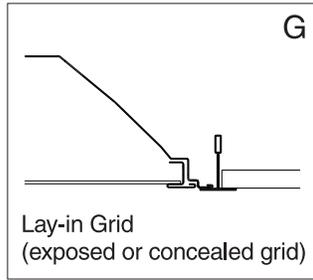
	Location	Fixture Count			Energy Cost per KWH (cents)	Annual Operating Hours	Existing Lighting		Proposed Lighting			Annual Energy Savings
		DMV	DPS	Combined			Annual Energy Used for T12 Lighting (KWH)	Annual Lighting Cost T12	Annual Energy Used for T8 Lighting (KWH)	Annual Lighting Cost T8	Total Retrofit Cost	
1	Rock Hill	46	14	60	7.853	2931.5	23921	\$1,878.52	14775	\$1,160.26	\$3,600.00	\$718.26
2	Lancaster	40		40	7.873	2593.5	14109	\$1,110.77	8714	\$686.07	\$2,400.00	\$424.71
3	Winnsboro	36	12	48	11.335	2593.5	16930	\$1,919.06	10457	\$1,185.30	\$2,880.00	\$733.76
4	Union	22	12	34	12.418	2593.5	11992	\$1,489.21	7407	\$919.81	\$2,040.00	\$569.40
5	Shop Road	80		80	11.343	2593.5	28217	\$3,200.69	17428	\$1,976.89	\$4,800.00	\$1,223.79
6	Gaffney	43		43	9.635	2593.5	15167	\$1,461.32	9368	\$902.58	\$2,580.00	\$558.74
7	Chester	42		42	6.947	2593.5	14814	\$1,029.13	9150	\$635.64	\$2,520.00	\$393.49
8	Irmo	86		86	10.276	2593.5	30334	\$3,117.08	18735	\$1,925.25	\$5,160.00	\$1,191.82
9	Spartanburg Fairforest	8		8	7.543	2593.5	2822	\$212.84	1743	\$131.46	\$480.00	\$81.38
10	Spartanburg Southport	40		40	8.668	2593.5	14109	\$1,222.94	8714	\$755.34	\$2,400.00	\$467.59
11	Lake City	28		28	10.803	2593.5	9876	\$1,066.91	6100	\$658.97	\$1,680.00	\$407.94
12	Darlington	41		41	10.125	2593.5	14461	\$1,464.21	8932	\$904.37	\$2,460.00	\$559.85
13	Marion	35	15	50	11.084	2593.5	17636	\$1,954.75	10893	\$1,207.35	\$3,000.00	\$747.41
14	Bennettsville	36		36	13.390	2593.5	12698	\$1,700.23	7843	\$1,050.14	\$2,160.00	\$650.09
15	Florence	37		37	9.207	2931.5	14751	\$1,358.15	9111	\$838.86	\$2,220.00	\$519.29
16	Bishopville	23		23	11.565	2593.5	8112	\$938.21	5011	\$579.48	\$1,380.00	\$358.73
17	Conway	60		60	8.385	2593.5	21163	\$1,774.51	13071	\$1,096.02	\$3,600.00	\$678.49
18	Dillon	30	10	40	9.479	2593.5	14109	\$1,337.36	8714	\$826.02	\$2,400.00	\$511.34
19	Chesterfield	54		54	10.851	2593.5	19047	\$2,066.75	11764	\$1,276.52	\$3,240.00	\$790.23
20	St. Matthews	12	4	16	9.875	2593.5	5643	\$557.29	3486	\$344.21	\$960.00	\$213.08
21	Sumter	16		16	10.429	2593.5	5643	\$588.56	3486	\$363.52	\$960.00	\$225.04
22	Kingstree	30		30	11.495	2593.5	10581	\$1,216.34	6536	\$751.27	\$1,800.00	\$465.07
23	Georgetown	36		36	8.348	2593.5	12698	\$1,060.01	7843	\$654.71	\$2,160.00	\$405.30
24	Charleston Leeds	78		78	11.834	2931.5	31097	\$3,680.06	19207	\$2,272.98	\$4,680.00	\$1,407.08
25	Manning	30	12	42	11.179	2593.5	14814	\$1,656.07	9150	\$1,022.86	\$2,520.00	\$633.20
26	Ladson	58		58	11.004	2593.5	20458	\$2,251.15	12636	\$1,390.41	\$3,480.00	\$860.73
27	Allendale	44	10	54	11.696	2593.5	19047	\$2,227.70	11764	\$1,375.93	\$3,240.00	\$851.77
28	Bluffton	32		32	9.605	2593.5	11287	\$1,084.11	6971	\$669.60	\$1,920.00	\$414.51
29	Walterboro	32		32	10.554	2593.5	11287	\$1,191.22	6971	\$735.75	\$1,920.00	\$455.47
30	Orangeburg	30		30	7.730	2593.5	10581	\$817.95	6536	\$505.20	\$1,800.00	\$312.74
31	Lexington	60		60	9.875	2931.5	23921	\$2,362.20	14775	\$1,459.01	\$3,600.00	\$903.20
32	Edgefield	22	5	27	12.449	2593.5	9523	\$1,185.56	5882	\$732.26	\$1,620.00	\$453.30
33	Saluda	22	5	27	11.655	2593.5	9523	\$1,109.94	5882	\$685.55	\$1,620.00	\$424.39
34	McCormick	22	5	27	10.313	2593.5	9523	\$982.14	5882	\$606.62	\$1,620.00	\$375.52
35	Pickens	8		8	8.177	2593.5	2822	\$230.73	1743	\$142.51	\$480.00	\$88.22
36	Fountain Inn	31		31	8.951	2593.5	10934	\$978.72	6753	\$604.50	\$1,860.00	\$374.22
37	Laurens	50		50	10.730	2593.5	17636	\$1,892.32	10893	\$1,168.79	\$3,000.00	\$723.53
	Total	1400	104	1504							\$90,240.00	\$21,172.69
	Simple Payback (Years)	4.26					Retrofit Cost Per Fixture	\$60		T12 Wattage	136	
	Simple Return on Investment	4.69					Lamps	\$12		T8 Wattage	84	
							Ballast	\$20				
							Labor	\$28				

OPTION B - LIGHTING FIXTURE RETROFIT

GT8 2'x4' Static T8 Troffer

MOUNTING DATA

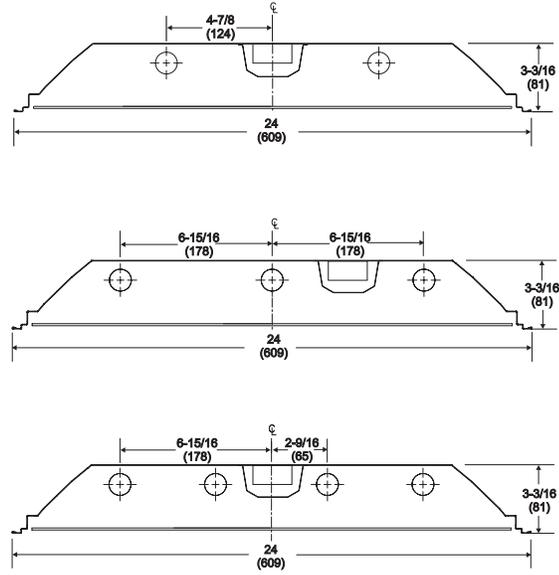
Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).



NOTE:

1 Recommended rough-in dimensions for F-trim fixtures 24"x48" (Tolerance is +1/4"-0"). Swing-gate range 1-3/16" to 3-15/16". Swing-gate span 23-3/8" to 26-11/16". Fixture swing-gate points require additional 1-1/16" over nominal fixture height.

DIMENSIONS



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2GT8 2 32 A12

Report LTL 7424

Lumens per lamp - 2850 - Lum. eff. - 81.7%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	97	97	97	95	95	95	91	91	91
1	89	86	82	87	84	81	80	78	76
2	82	75	70	80	74	69	71	67	63
3	75	67	60	73	65	59	63	58	54
4	69	59	52	67	58	52	56	51	46
5	63	53	46	62	52	46	51	45	40
6	59	48	41	47	47	40	46	40	35
7	54	44	37	53	43	36	42	36	31
8	51	40	33	49	39	33	38	32	28
9	47	37	30	46	36	30	35	29	25
10	44	34	27	43	33	27	32	27	23

2GT8 3 32 A12 1/3

Report LTL 7421

Lumens per lamp - 2850 - Lum. eff. - 80.1%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	95	95	95	93	93	93	89	89	89
1	88	84	81	85	82	79	79	76	74
2	80	74	69	78	72	68	70	66	62
3	74	66	59	72	64	58	62	57	53
4	68	58	52	66	57	51	55	50	46
5	62	52	45	61	52	45	50	44	40
6	58	47	40	56	47	40	45	39	35
7	54	43	36	52	42	36	41	35	31
8	50	39	33	49	39	32	38	32	28
9	47	36	30	45	36	29	35	29	25
10	44	33	27	43	33	27	32	27	23

2GT8 4 32 A12 1/4

Report LTL 7425

Lumens per lamp - 2850 - Lum. eff. - 78.6%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	94	94	94	91	91	91	87	87	87
1	86	82	79	84	81	78	77	75	73
2	79	73	68	77	71	67	68	64	61
3	72	64	58	70	63	57	61	56	52
4	66	57	51	65	56	50	54	49	45
5	61	51	45	60	51	44	49	43	39
6	57	47	40	55	46	39	44	39	34
7	53	42	36	51	42	35	40	35	31
8	49	39	32	48	38	32	37	31	27
9	46	35	29	45	35	29	34	29	25
10	43	33	27	42	32	27	32	26	22

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1372	24.1	29.4
0-40	2277	39.9	48.9
0-60	3907	68.5	83.9
0-90	4658	81.7	100.0
90-180	0	0	0
0-180	4658	81.7	100.0

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2066	24.2	30.2
0-40	3412	39.9	49.8
0-60	5768	67.5	84.2
0-90	6851	80.1	100.0
90-180	0	0	0
0-180	6851	80.1	100.0

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2718	23.8	30.3
0-40	4481	39.3	50.0
0-60	7553	66.3	84.2
0-90	8965	78.6	100.0
90-180	0	0	0
0-180	8965	78.6	100.0

Energy (Calculated in accordance with NEMA standard LE-5)

LER.FL	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
73	\$3.29	(2) 32WT8	2850	.90	58
70	\$3.43	(3) 32WT8	2850	.87	85
73	\$3.29	(4) 32WT8	2850	.88	109

* Comparative yearly lighting energy cost per 1000 lumens



An AcuityBrands Company

FEATURES & SPECIFICATIONS

INTENDED USE

Surface or stem-mounted lensed fixture for general illumination in commercial offices and retail applications.

CONSTRUCTION

Metal parts are die-formed from code gauge steel. No asbestos is used in this product. Standard door is fully gasketed flush steel with sturdy tee hinges and opposing, rotary-action cam latches. Optional flush or regressed aluminum doors available. Smooth side panels and square corners for modular appearance.

FINISH

Five-stage iron-phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

OPTICAL SYSTEM

Diffuser is 100% virgin acrylic.

ELECTRICAL SYSTEM

Thermally protected, resetting, Class P, HPF, non-PCB, UL listed, CSA Certified ballast is standard. Sound rated A. Standard combinations are CBM approved and conform to UL 935.

Fixture is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

Listed ballast disconnect with strain relief and leads provided standard for non-emergency fixtures.

INSTALLATION

For surface or stem mounting, unit or row installation. Minimum four stems required for unit mounting. For row mounting, minimum number of hangers required equal two times the number of fixtures plus two additional hangers.

LISTING

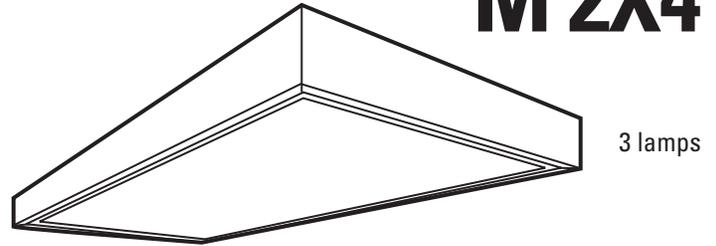
120V, 277V and MVOLT are UL Listed and CSA Certified (standard). 347V is CSA Certified (see Options).

WARRANTY

Guaranteed for one year against mechanical defects in manufacture.

Catalog Number	
Notes	Type

Modular Commercial M 2X4



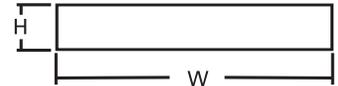
3 lamps

Specifications

Length: 48 (1220)

Width: 24 (610)

Height: 3-3/4 (95)



All dimensions are inches (millimeters). Specifications subject to change without notice.

ORDERING INFORMATION

For shortest lead times, configure product using **standard options (shown in bold)**.

Example: 2M 3 32 A12125 MVOLT 1/3 GEB10IS

Series	Lamps	Lamp type	Diffuser	Voltage	Options
2M	3 Not included.	32 32W T8 (48")	A12 #12 pattern acrylic	120	Shipped installed in fixture
		Frame type	A12125 #12 pattern acrylic, .125" thick	277	1/3 One 3-lamp ballast
		(blank) White (flush steel)	A19 #19 pattern acrylic, .156" thick	347	GEB10IS T8 electronic ballast, <10% THD, instant start
		FN Natural (flush aluminum)	K20 #20 pattern acrylic, .140" thick	MVOLT¹ Others available.	GEB10RS T8 electronic ballast, <10% THD, rapid start
		FM Matte black (flush aluminum)	PC1S Parabolic plastic cube louver, specular silver		EL Emergency battery pack (nominal 300 lumens)
		FW White (flush aluminum)			EL14 Emergency battery pack (nominal 1400 lumens)
		RN Natural (regressed aluminum)			GLR Internal fast-blow fusing ²
		RM Matte black (regressed aluminum)			GMF Internal slow-blow fusing ²
		RW White (regressed aluminum)			RIF1 Radio interference filter (1 per fixture) ²
					LP__ Lamped; specify lamp type and color
					LP735 Lamped; 700 Series; 3500K
					SLL Spring-loaded latch
					CSA Listed and labeled to comply with Canadian Standards (347V only)
					NOM NOM Certified

NOTES:

- MVOLT standard for 120V and 277V applications. Some options require voltage specified.
- Must specify voltage.

Accessories:

Order as separate catalog number.

- 1B** Ceiling spacer (1-1/2" to 2-1/2" from ceiling).

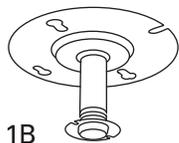
M 2x4 3 Lamps, Modular Commercial

MOUNTING DATA

For unit or row installation. Surface or stem mounting.

UNIT INSTALLATION — Minimum of two hangers required.

ROW INSTALLATION — Two hanger per fixture plus two per row required.



1B

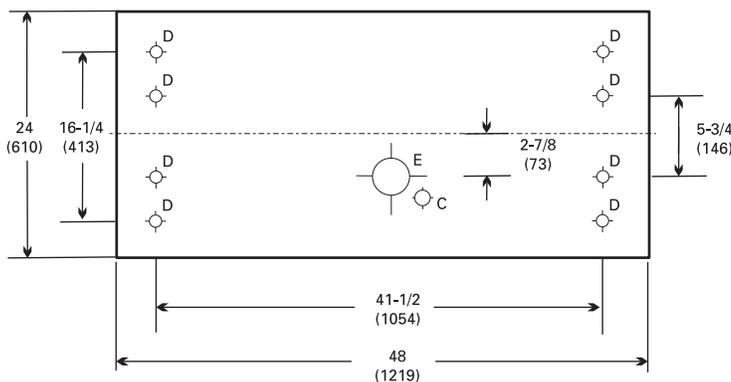
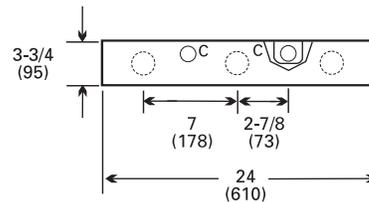
DIMENSIONS

All dimensions are inches (millimeters). Specifications subject to change without notice.

C = 7/8 (2.22) Dia. K.O.

D = 11/16 (1.74) Dia. K.O.

E = 2 (5.08) Dia. K.O.



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. All data based on 25°C. Full photometric data on these and other configurations available upon request.

2M 3 32 A12

Report LTL 5577 – Lumens per lamp = 2900

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling Wall	80%			70%			50%			0%	
	70%	50%	30%	70%	50%	30%	50%	30%	10%	0%	
0	83	83	83	81	81	81	77	77	77	69	
1	76	73	71	75	72	70	69	67	65	60	
2	70	65	61	69	64	60	62	58	56	52	
3	65	58	53	63	57	53	55	51	48	45	
4	60	52	47	58	51	46	50	45	42	39	
5	55	46	41	53	46	40	44	39	36	34	
6	51	42	36	49	41	36	40	35	31	29	
7	47	38	32	45	37	31	36	31	27	26	
8	43	34	28	42	33	28	32	27	24	22	
9	39	30	24	38	30	24	29	24	20	19	
10	37	27	22	36	27	22	26	21	18	17	

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1798	20.7	29.8
0-40	2981	34.3	49.3
0-60	5091	58.5	84.3
0-90	6042	69.4	100.0
90-180	0	0	0
0-180	6042	69.4	100.0

Energy (Calculated in accordance with NEMA standard LE-5)

LER.FW	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
61	\$3.95	(3) 32W T8	2850	.89	87

*Calculated in accordance with NEMA Standards LE-5.

OCTRON® F028 800XP® SUPERSAVER® ECOLOGIC®3 EXtended Performance Fluorescent Lamps



SYLVANIA 28 Watt OCTRON F028 XP SUPERSAVER ECOLOGIC3 lamps operate on standard T8 instant start systems and provide 12.5% energy savings over standard 32 Watt OCTRON lamps. At \$.10/kWh and 4000 hours of operation per year, the 12.5% savings translates to a savings of \$5.70 per fixture per year for a 4-lamp fixture with a normal ballast factor, instant start ballast. The 95% lumen maintenance of the OCTRON F028/800XP/SS/EC03 lamp assures that light levels are maintained while energy is saved. These lamps pass the Federal TCLP test, classifying them as non-hazardous waste in most states. Group re-lamp to realize the benefits of these OCTRON lamps in your facility.

Key Features & Benefits

- 28 Watt, 4-foot, SUPERSAVER energy saving, T8 lamp
- 12.5% energy savings compared to standard 32W T8 lamp
- A member of the SYLVANIA ECOLOGIC3 family of lamps
- Initial lumens – 2725 (850 is 2600)
- 95% lumen maintenance at 8000 hours
- 3000K, 3500K, 4100K & 5000K
- 85 CRI (850 is 80 CRI)
- Retrofit lamp for existing T8 instant start systems
- 24,000 hours average rated life @ 3 hrs per start
- 36,000 hours average rated life @ 12 hrs per start
- Approved on OSRAM SYLVANIA QUICK-TRONIC® PSX and PSN ballasts
- 36,000 hours average rated life @ 3 hrs per start
- 42,000 hours average rated life @ 12 hrs per start
- Minimum operating temperature: 60°F
- Not dimmable
- Not for use in air handling fixtures

SYLVANIA OCTRON T8 ECOLOGIC3 fluorescent lamps are designed to satisfy the Federal Toxicity Characteristic Leaching Procedure (TCLP¹) criteria for classification as non-hazardous waste in most states.²

ECOLOGIC3 represents a more comprehensive approach to sustainability encompassing high efficiency, long life and RoHS/TCLP compliance.

1. TCLP test results are based on NEMA LL Series standards and are available on request.
2. Lamp disposal regulations may vary; check your local & state regulations.



Product Offering

Lamp Type	Wattage	Color Temperature	CR
F028/830XP/SS/EC03	28	3000K	85
F028/835XP/SS/EC03	28	3500K	85
F028/841XP/SS/EC03	28	4100K	85
F028/850XP/SS/EC03	28	5000K	80

Application Information

Applications

Retail
Office
Schools
Hospitals
Industrial
Many applications with T8 instant start ballasts currently using 32W T8 lamps

Fixtures

Contact your local fixture agent for available fixtures.

Ballast Information

Contact your OSRAM SYLVANIA representative for a list of compatible electronic operating systems.



Specification Data

Catalog #	Type
Project	
Comments	
Prepared by	Date

Ordering Information

Item Number	Ordering Abbreviation	Watts	Bulb	Base	Initial Lumens	Mean Lumens ¹	Avg. Rated Life (hrs.) ²	CCT	CRI
22177	F028/830XP/SS/EC03	28	T8	Medium bi-pin	2725	2590	24,000	3000K	85
22178	F028/835XP/SS/EC03	28	T8	Medium bi-pin	2725	2590	24,000	3500K	85
22179	F028/841XP/SS/EC03	28	T8	Medium bi-pin	2725	2590	24,000	4100K	85
22184	F028/850XP/SS/EC03	28	T8	Medium bi-pin	2600	2470	24,000	5000K	80

1. Measured @ 8000 hours, 94% of initial lumens at 9600 hours, and 93% of initial lumens at 14,400 hours.
 2. Based on 3 hours/start on instant start ballasts. At 12 hours/start, average rated life = 36,000 hours on instant start ballasts.

Ordering Guide

FO	28	/	8	35	XP	/	SS	/	EC03
Fluorescent OCTRON	Wattage = 28		CRI ≥ 80	Color Temperature 30 = 3000K 35 = 3500K 41 = 4100K 50 = 5000K	EXtended Performance		SUPERSAVER		ECOLOGIC3

System Comparison

4-Lamp Systems: F028/800XP/SS/EC03 vs F032/700/ECO

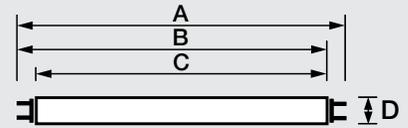
Lamp Type	Initial Lumens	Average Rated Life (hrs.)	Ballast	Ballast Factor	System Watts	System Lumens @ 8000 hrs.	Relative Lumens	Relative Lamp Life	% Energy Savings
F032/741/ECO	2800	15,000	4-lamp IS	.88	114	8870	100%	100%	–
F028/841XP/SS/EC03	2725	24,000	4-lamp IS	.88	100	9112	103%	160%	12.5
F032/741/ECO	2800	15,000	4-lamp IS-L	.77	98	7761	100%	100%	–
F028/841XP/SS/EC03	2725	24,000	4-lamp IS-L	.77	86	7973	103%	160%	12.5
F028/841XP/SS/EC03	2725	36,000	4-lamp PSX	.71	82/80 ¹	7352	95%	240%	17/19

1. Ballast is universal input, data is presented 120V/277V

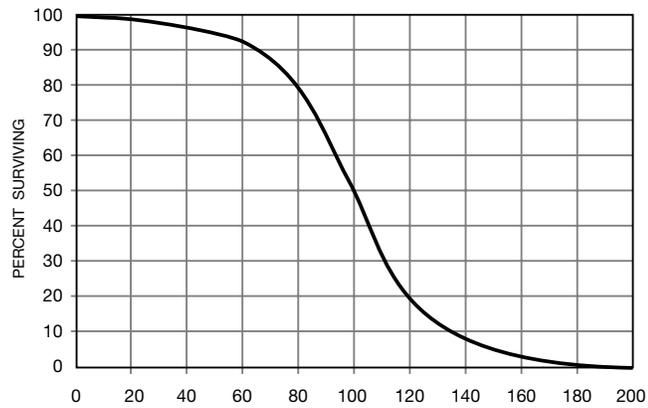
Technical Information

Dimensions

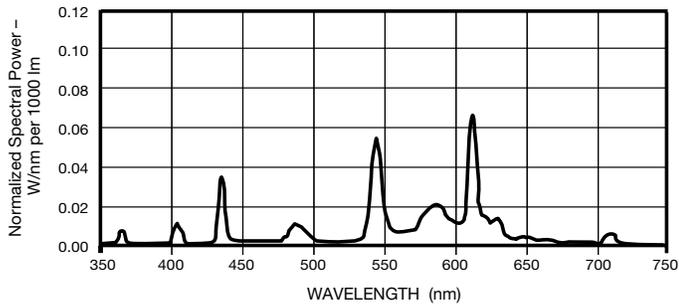
Lamp Type	(A) Max. Overall Length (in.)	(B) Base Face to Opposite Pin (in.)	(C) Max. Base Face to Base Face (in.)	(D) Max. Outside Diameter (in.)
F028	47.78"	Min. 47.41" Max. 47.50"	47.22"	1.1"



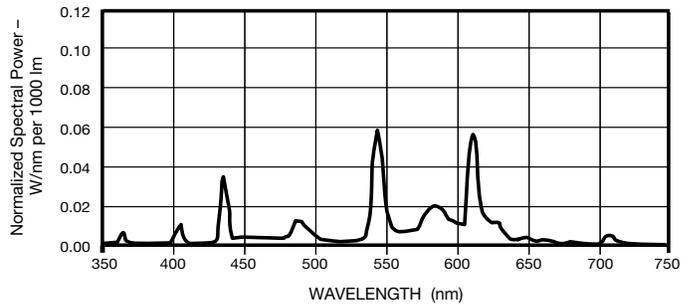
Typical Fluorescent Lamp Mortality



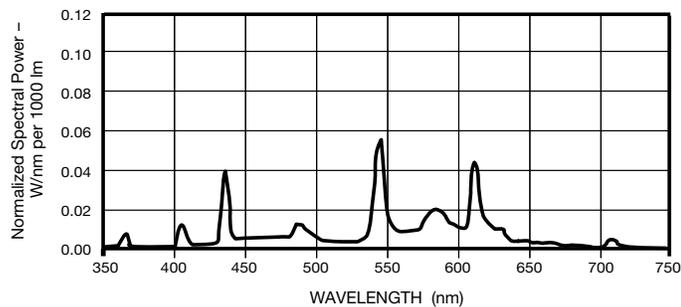
OCTRON 830



OCTRON 835



OCTRON 841



Application Information (continued)

Application Notes

1. Recommended to be used on T8 F32 Instant or Programmed Start ballasts with minimum open circuit voltage of 550V RMS at the lamp.
 - a. Electronically ballasted fixture configurations which operate lamps remotely, such as Master/Satellite applications, can cause reduction of lamp open circuit voltage, in the remote fixture, below the minimum required for reliable lamp starting. For more information, please call 1-800-LIGHTBULB and ask for Ballast Technical Assistance or call your fixture manufacturer.
 - b. Not recommended to be used: (1) in remotely ballasted fixtures with lamp open circuit voltages below 550V, (2) with Rapid Start ballasts unless the lamp open circuit voltage is greater than 570V, (3) at lamp ambient temperatures below 60°F or in drafty locations, (4) in air handling fixtures, (5) on low power factor ballasts, (6) dimming ballasts, or (7) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for 28 watt lamps. Any of the above situations could result in lamp starting and stabilization problems or system compatibility issues.
2. If an operating lamp is exposed to drafts and/or the ambient temperature falls below 60°F, striation (a rhythmic pulsing pattern of light running down the tube) and/or reduction in lamp brightness may occur. While visually disconcerting, neither behavior is damaging to the lamp and removing the cause (draft or temperature) will return the lamp to normal operation.
3. Fixture must conform to ANSI C78.81 – 2005 requirements for luminaire design.

Sample Specification

Lamp(s) shall be OCTRON® F028 XP® SUPER-SAVER® ECOLOGIC®3 4-foot lamp(s) having medium bi-pin bases. Lamp(s) shall be designed to pass the Federal TCLP test in force at the time of manufacture. Lamp(s) shall have an average rated life of 24,000 hours at 3 hours per start when operated on T8 instant start ballasts, 2725 initial lumens (2600 for 5000K), 95% lumen maintenance at 8000 hours, a correlated color temperature of (3000K, 3500K, 4100K or 5000K) and a CRI of (80, 85). The OCTRON SUPERSAVER ECOLOGIC3 lamp(s) shall be operated on QUICKTRONIC electronic, high frequency ballasts with complete system warranty from the manufacturer covering lamps and ballast.

Warranty

QUICK 60+® warranty for OSRAM SYLVANIA lamp and ballast combination

Limited 36 month lamp warranty and a five year ballast warranty is possible if both lamps and ballast are provided by OSRAM SYLVANIA. See the QUICK 60+ warranty for details and restrictions.

OSRAM SYLVANIA
National Customer
Service and Sales Center
18725 N. Union Street
Westfield, IN 46074 USA

Industrial Commercial
Phone: 1-800-255-5042
Fax: 1-800-255-5043

National Accounts
Phone: 1-800-562-4671
Fax: 1-800-562-4674

OEM/Special Markets
Phone: 1-800-762-7191
Fax: 1-800-762-7192

Display/Optic
Phone: 1-888-677-2627
Fax: 1-800-762-7192

In Canada
OSRAM SYLVANIA LTD
Headquarters
2001 Drew Road
Mississauga, ON L5S 1S4

Industrial Commercial
Phone: 1-800-263-2852
Fax: 1-800-667-6772

Special Markets
Phone: 1-800-265-2852
Fax: 1-800-667-6772

Visit our website: www.sylvania.com

QUICKTRONIC® T8 Instant Start UNIVERSAL VOLTAGE

High Efficiency Series

Normal Ballast Factor

Lamp/Ballast Guide

32W T8 - OCTRON®

QHE ISN SC Models

- 1-lamp QHE1x32T8/UNV
- 2-lamp QHE2x32T8/UNV
- 3-lamp QHE3x32T8/UNV
- 4-lamp QHE4x32T8/UNV

Also operates:

- FBO32, FBO31, FO25, FBO24, FO17, FBO16, FO30/SS (30W), FBO30/SS (30W), FBO29/SS (29W), FO28/SS (28W) & FO25/SS (25W)

FO40T8 operation:

- 1 lamp on 2L ballast
- 2 lamps on 3L ballast
- 3 lamps on 4L ballast

Note: FO40T8 0°F Starting Temp.

Key System Features

- High Efficiency Systems over 90% efficient
- Over 100 LPW (lumens/watt) with OCTRON SUPERSAVER® lamps
- Lowest power T8 I.S. Systems
- Universal voltage (120-277)
- Small Can enclosure size
- 30-50% Energy savings
- -20°F (-29°C) min. starting temp. for OCTRON lamps
- 60°F (16°C) min. starting temperature with OCTRON SUPERSAVER lamps
- <10% THD
- Virtually eliminates lamp flicker

Application Information

SYLVANIA QUICKTRONIC High Efficiency

is ideally suited for:

- Any applications where the lowest power T8 systems are needed for maximum energy savings
- Energy Retrofits
- Commercial & Retail
- Hospitality & Institutional
- New Construction

SYLVANIA QUICKTRONIC

High Efficiency (QHE) energy-saving electronic T8 ballasts save up to 6% over standard electronic ballasts without compromising light output or lamp life. The added energy savings also provides for a quicker payback. QHE ballasts also meet the most demanding utility rebate standards.

SYLVANIA QUICKTRONIC High Efficiency (QHE)

operates OCTRON T8 lamps with maximum efficacy and high lumen output, and provides **30-44% energy savings** when compared to F40T12 magnetic systems.

Small can enclosure allows for low profile fixture design. Small size also provides transportation, inventory and ergonomic benefits.

This product is also offered in new banded packaging and pallet packs.



SYLVANIA QUICKTRONIC High Efficiency (QHE) is also covered by our QUICK 60+® warranty, the first and most comprehensive lamp & ballast system warranty in the industry.

Parallel circuitry is utilized to keep the remaining lamps lit if one or more should go out.

System Information

SYLVANIA QUICKTRONIC

High Efficiency (QHE) operates from 120V through 277V, eliminating “wrong voltage” wiring errors and reducing the number of models in inventory by half.

SYLVANIA QUICKTRONIC

High Efficiency (QHE) uses instant start operation to provide the highest system efficacy and to assure low temperature starting capability. Instant start also provides for maximum remote wiring distances.

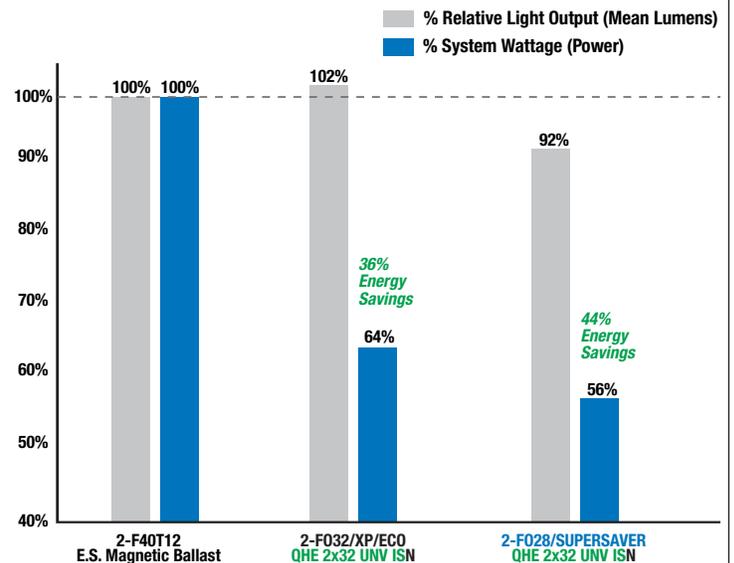
SYLVANIA QUICKTRONIC High Efficiency (QHE)

electronic ballasts have very low harmonic distortion (<10% THD) for high system performance.

Ballast operates at >42kHz to reduce potential interference with infrared control systems.

A complete OSRAM SYLVANIA System Performance Guide showing performance characteristics for all combinations of lamps and ballasts is available upon request.

System Type (2-lamp)	Input Wattage	Initial Lumens	System LPW	Mean Lumens	Energy Savings
F40T12 - E.S. Magnetic Ballast	86	5795	67	4930	Baseline
F34T12 - E.S. Magnetic Ballast	72	4660	65	3960	16%
FO32/XP - QHE2x32T8/UNV ISN-SC	55	5280	96	5015	36%
FO28/SS - QHE2x32T8/UNV ISN-SC	48	4800	100	4560	44%



ECS066R1

SEE THE WORLD IN A NEW LIGHT



Normal Ballast Factor T8 Instant Start UNV VOLTAGE High Efficiency Systems

<10% THD High Efficiency Electronic T8 Fluorescent Systems (Normal Ballast Factor)

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Input Wattage (W)	System Efficacy (lm/W)
49851	QHE 1X32T8/UNV ISN-SC	120-277	0.25/0.11	F032/XP	3000	1	0.88	2640	28	94
			0.22/0.09	F030/SS	2850	1	0.88	2510	26	97
			0.21/0.09	F028/SS	2725	1	0.88	2400	25	96
49853	QHE 2X32T8/UNV ISN-SC	120-277	0.19/0.09	F025/SS	2475	1	0.88	2175	22	99
			0.47/0.20	F032/XP	3000	2	0.88	5280	55	96
			0.44/0.19	F030/SS	2850	2	0.88	5015	52	96
49855	QHE 3X32T8/UNV ISN-SC	120-277	0.36/0.16	F025/SS	2475	2	0.88	4355	43	101
			0.69/0.30	F032/XP	3000	3	0.88	7920	83/82	95/97
			0.66/0.28	F030/SS	2850	3	0.88	7525	78/77	96/98
49857	QHE 4X32T8/UNV ISN-SC	120-277	0.61/0.26	F028/SS	2725	3	0.88	7195	72	100
			0.55/0.23	F025/SS	2475	3	0.88	6530	65/64	101/102
			0.91/0.39	F032/XP	3000	4	0.88	10560	108/107	98/99
49852	QHE 1X32T8/UNV ISN-SC-PAL	120-277	0.86/0.37	F030/SS	2850	4	0.88	10030	102/101	98/99
			0.80/0.35	F028/SS	2725	4	0.88	9590	95	101
			0.71/0.30	F025/SS	2475	4	0.88	8710	84/83	104/105

Performance Guide

Data based upon SYLVANIA OCTRON® XP™ lamps shown. QUICKTRONIC QHE Instant Start ballasts are also compatible with other lamp manufacturers equivalent lamp types that meet ANSI specifications.

QHE Instant Start ballasts will operate F17, F25 and F32 (and the U-Bend equivalent) T8 lamps. Complete performance data is available in the QUICKSYSTEMS section of the SYLVANIA Electronic Ballast Catalog.

Products listed above are 10 packs.

840 PC Pallet Packs

49852 QHE1x32T8/UNV-ISN-SC-PAL 49854 QHE2x32T8/UNV-ISN-SC-PAL
49856 QHE3x32T8/UNV-ISN-SC-PAL 49858 QHE4x32T8/UNV-ISN-SC-PAL

10 PC Banded Packs

49968 QHE1x32T8/UNV-ISN-SC-B 49969 QHE2x32T8/UNV-ISN-SC-B
49970 QHE3x32T8/UNV-ISN-SC-B 49971 QHE4x32T8/UNV-ISN-SC-B

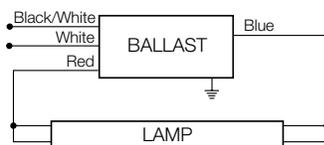
Specifications¹

Starting Method: Instant Start
Ballast Factor: 0.88
Circuit Type: Parallel
Lamp Frequency: > 40KHz
Lamp CCF: Less than 1.7
Starting Temp:¹
-20°F for OCTRON T8 lamps;
60°F for SUPERSAVER® T8 lamps
0°F for F040T8

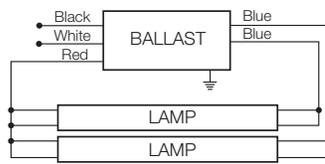
Input Frequency: 50/60 Hz
Low THD: < 10%
Power Factor: > 98%
Voltage Range: 108-305V

UL Listed Class P, Type 1 Outdoor
CSA Certified (where applicable)
70°C Max Case Temperature
FCC 47CFR Part 18 Non-Consumer
Class A Sound Rating
ANSI C62.41 Cat. A Transient Protection
Remote Mounting up to 20 feet¹

¹ Operation below 50°F may affect light output or lamp operation – see "Low Temp. Starting" definition.

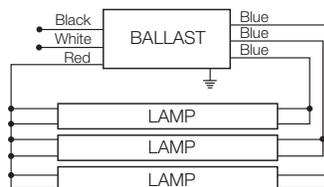


QUICKTRONIC 1x32



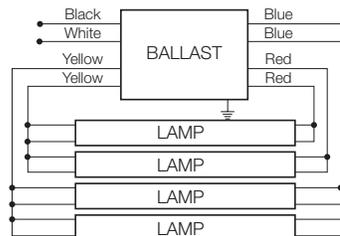
QUICKTRONIC 2x32

Note: For one lamp application, cap any blue lead. Insulate to 600 volts.



QUICKTRONIC 3x32

Note: For two lamp application, cap any blue lead. Insulate to 600 volts.



QUICKTRONIC 4x32

Note: For three lamp application, cap any unused blue lead. Insulate to 600 volts.

Dimensions:

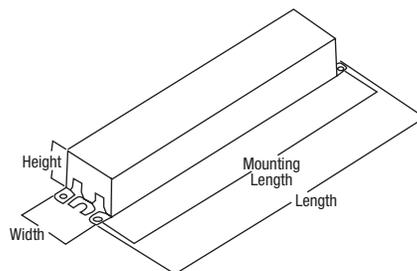
Overall: 9.5" L x 1.68" W x 1.18" H
Mounting: 8.90"

Packaging:

Quantity: 10 pieces/840 pieces
Weight: 1.6 lbs each (approx)

Wiring:

Leads only (no connectors provided)



System Life / Warranty

QUICKTRONIC products are covered by our QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to our QUICK 60+ warranty bulletin.

Ordering Guide

Specifications subject to change without notice.

Item Number ———— **49855 QHE 3 x 32T8 / UNV ISN-SC** ———— Case Size
QUICKTRONIC High Efficiency ———— Starting/Ballast Factor
Number of Lamps ———— Line Voltage (120-277V)
Primary Lamp Wattage

South Carolina Department of Motor Vehicles

Global Building Use and Cost by Utility Type [GR06]

Months: All
 Years: 2008, 2007, 2006
 All Building Types
 All Utility Types

Building	Utility Type	2006	2007	2008			
Abbeville DMV	Electric (KWH)	44,102 KWH	\$4,048.49	45,526 KWH	\$4,263.81	46,603 KWH	\$4,497.16
	Water (CCF)	29 CCF	\$622.67	24 CCF	\$633.72	30 CCF	\$736.46
	Abbeville DMV Subtotal		\$4,671.16		\$4,897.53		\$5,233.62
Aiken DMV	Electric (KWH)	100,080 KWH	\$10,404.46	100,960 KWH	\$10,765.45	100,640 KWH	\$11,137.68
	Water (CCF)	196 CCF	\$3,093.06	269 CCF	\$3,493.14	296 CCF	\$3,805.32
	Aiken DMV Subtotal		\$13,497.52		\$14,258.59		\$14,943.00
Allendale DMV	Electric (KWH)	39,312 KWH	\$4,385.86	36,670 KWH	\$4,234.45	40,404 KWH	\$4,725.80
	Trash / Waste (Nominated Use)	0 Nominated Use	\$434.00	0 Nominated Use	\$381.50	0 Nominated Use	\$266.00
	Water (Gal.)	0 Gal.	\$282.38	3,794 Gal.	\$221.74	20,008 Gal.	\$206.80
	Allendale DMV Subtotal		\$5,102.24		\$4,837.69		\$5,198.60
Anderson DMV	Electric (KWH)	81,272 KWH	\$6,320.44	82,168 KWH	\$6,206.17	81,228 KWH	\$6,835.98
	Water (CF)	11,340 CF	\$589.57	12,390 CF	\$627.76	9,520 CF	\$496.97
	Anderson DMV Subtotal		\$6,910.01		\$6,833.93		\$7,332.95
Ashley Oaks Plaza DMV	Electric (KWH)	46,518 KWH	\$4,706.76	41,647 KWH	\$4,423.03	52,928 KWH	\$5,728.54
	Water (CCF)	29 CCF	\$459.21	26 CCF	\$488.95	31 CCF	\$525.86
	Ashley Oaks Plaza DMV Subtotal		\$5,165.97		\$4,911.98		\$6,254.40
Ballentine DMV	Electric (KWH)	164,680 KWH	\$15,917.15	166,480 KWH	\$16,519.62	169,080 KWH	\$17,374.86
	Water (CF)	12,400 CF	\$845.94	16,100 CF	\$908.30	16,400 CF	\$900.09
	Water (Gal.)	0 Gal.	\$715.20	0 Gal.	\$715.20	0 Gal.	\$1,008.48
	Ballentine DMV Subtotal		\$17,478.29		\$18,143.12		\$19,283.43
Bamberg DMV	Electric (KWH)	26,691 KWH	\$2,744.65	27,893 KWH	\$2,893.95	28,789 KWH	\$2,932.19
	Natural Gas (Therms)	241 Therms	\$568.52	199 Therms	\$466.71	166 Therms	\$360.48
	Trash / Waste (Unmetered Charge)	0 Unmetered Charge	\$1,368.00	0 Unmetered Charge	\$1,368.00	0 Unmetered Charge	\$1,368.00
	Water (CCF)	30 CCF	\$458.05	14 CCF	\$337.47	20 CCF	\$375.16
	Bamberg DMV Subtotal		\$5,139.22		\$5,066.13		\$5,035.83
Barnwell DMV	Electric (KWH)	33,147 KWH	\$4,036.89	27,712 KWH	\$3,605.91	29,181 KWH	\$3,893.52
	Trash / Waste (Unmetered Charge)	0 Unmetered Charge	\$58.80	0 Unmetered Charge	\$58.80	0 Unmetered Charge	\$58.80
	Water (Gal.)	36,120 Gal.	\$170.06	54,040 Gal.	\$231.53	15,610 Gal.	\$139.84
	Barnwell DMV Subtotal		\$4,265.75		\$3,896.24		\$4,092.16
Batesburg DMV	Electric (KWH)	27,031 KWH	\$3,489.19	23,946 KWH	\$3,275.26	27,209 KWH	\$3,784.50
	Natural Gas (Therms)	198 Therms	\$506.62	309 Therms	\$729.20	203 Therms	\$576.50
	Water (Gal.)	37,000 Gal.	\$435.80	43,000 Gal.	\$491.00	32,000 Gal.	\$381.85
	Batesburg DMV Subtotal		\$4,431.61		\$4,495.46		\$4,742.85
Beaufort DMV	Electric (KWH)	46,088 KWH	\$4,979.78	52,304 KWH	\$5,712.50	42,504 KWH	\$4,917.94
	Water (Gal.)	31,710 Gal.	\$378.67	39,200 Gal.	\$419.47	28,420 Gal.	\$318.10
	Beaufort DMV Subtotal		\$5,358.45		\$6,131.97		\$5,236.04
Bennettsville DMV	Electric (KWH)	50,190 KWH	\$5,880.42	43,320 KWH	\$6,036.69	48,810 KWH	\$6,535.82
	Natural Gas (Therms)	676 Therms	\$1,198.65	440 Therms	\$648.00	305 Therms	\$482.74
	Trash / Waste (Unmetered Charge)	0 Unmetered Charge	\$624.00	0 Unmetered Charge	\$864.00	0 Unmetered Charge	\$963.00
	Water (Kgal)	42 Kgal	\$1,737.54	78 Kgal	\$1,883.13	40 Kgal	\$1,766.20
	Bennettsville DMV Subtotal		\$9,440.61		\$9,431.82		\$9,747.76
Bishopville DMV	Electric (KWH)	44,017 KWH	\$4,857.71	44,601 KWH	\$5,104.18	47,370 KWH	\$5,478.45
	Natural Gas (Therms)	474 Therms	\$839.18	334 Therms	\$746.60	307 Therms	\$729.15
	Water (Gal.)	60,940 Gal.	\$415.36	84,890 Gal.	\$510.31	87,480 Gal.	\$584.77
	Bishopville DMV Subtotal		\$6,112.25		\$6,361.09		\$6,792.37
Bluffton DMV	Electric (KWH)	57,440 KWH	\$4,896.83	58,920 KWH	\$5,550.50	64,480 KWH	\$6,193.13
	Water (Gal.)	64,200 Gal.	\$660.24	59,700 Gal.	\$634.63	57,800 Gal.	\$618.22
	Bluffton DMV Subtotal		\$5,557.07		\$6,185.13		\$6,811.35
Camden DMV	Electric (KWH)	76,011 KWH	\$6,235.47	82,620 KWH	\$6,967.52	83,093 KWH	\$7,155.09
	Trash / Waste (Unmetered Charge)	0 Unmetered Charge	\$374.40	0 Unmetered Charge	\$418.70	0 Unmetered Charge	\$502.40
	Water (CF)	12,000 CF	\$1,067.16	16,674 CF	\$1,315.49	9,822 CF	\$980.91
	Camden DMV Subtotal		\$7,677.03		\$8,701.71		\$8,638.40
Charleston DMV Leeds	Electric (KWH)	130,840 KWH	\$14,251.85	109,000 KWH	\$12,520.00	118,880 KWH	\$14,068.11
	Water (CCF)	246 CCF	\$1,662.80	241 CCF	\$1,656.41	214 CCF	\$1,524.57
	Water (Other)	0 Other	\$0.00	0 Other	\$1,009.92	0 Other	\$0.00
	Charleston DMV Leeds Subtotal		\$15,914.65		\$15,186.33		\$15,592.68
Chester DMV	Electric (KWH)	72,856 KWH	\$4,995.22	89,904 KWH	\$5,871.97	93,374 KWH	\$6,486.28

	Natural Gas (Therms)	247 Therms	\$523.87	182 Therms	\$375.81	121 Therms	\$305.44
	Water (Gal.)	525,000 Gal.	\$4,041.46	173,000 Gal.	\$1,546.55	99,000 Gal.	\$1,090.20
	Chester DMV Subtotal		\$9,560.55		\$7,794.33		\$7,881.92
Chesterfield DMV	Electric (KWH)	51,968 KWH	\$5,700.58	58,800 KWH	\$6,013.02	70,644 KWH	\$7,665.90
	Chesterfield DMV Subtotal		\$5,700.58		\$6,013.02		\$7,665.90
Columbia DMV Rental Decker	Electric (KWH)	78,024 KWH	\$7,693.21	83,636 KWH	\$8,460.56	85,253 KWH	\$8,920.38
	Sewer (CF)	8,700 CF	\$265.95	18,200 CF	\$460.70	22,500 CF	\$575.50
	Water (CF)	8,700 CF	\$335.16	18,200 CF	\$565.64	22,100 CF	\$653.00
	Columbia DMV Rental Decker Subtotal		\$8,294.32		\$9,486.90		\$10,148.88
Columbia DMV Shop Rd	Electric (KWH)	191,630 KWH	\$17,307.41	185,616 KWH	\$17,273.05	125,424 KWH	\$14,226.78
	Columbia DMV Shop Rd Subtotal		\$17,307.41		\$17,273.05		\$14,226.78
Conway DMV	Electric (KWH)	72,797 KWH	\$6,331.75	81,803 KWH	\$7,086.79	91,405 KWH	\$7,664.08
	Natural Gas (Therms)	709 Therms	\$1,408.01	560 Therms	\$1,142.86	255 Therms	\$668.06
	Water (Kgal)	207 Kgal	\$2,072.22	195 Kgal	\$1,929.90	142 Kgal	\$1,661.80
	Conway DMV Subtotal		\$9,811.98		\$10,159.55		\$9,993.94
Darlington DMV	Electric (KWH)	56,728 KWH	\$5,616.78	61,908 KWH	\$6,098.22	62,244 KWH	\$6,302.17
	Water (Gal.)	298,270 Gal.	\$476.54	35,497 Gal.	\$166.57	135,720 Gal.	\$466.47
	Darlington DMV Subtotal		\$6,093.32		\$6,264.79		\$6,768.64
Dillon DMV	Electric (KWH)	41,100 KWH	\$4,061.54	47,068 KWH	\$4,741.11	45,164 KWH	\$4,281.05
	Water (Gal.)	38,122 Gal.	\$217.57	46,620 Gal.	\$250.89	49,168 Gal.	\$264.59
	Dillon DMV Subtotal		\$4,279.11		\$4,992.00		\$4,545.64
Edgefield DMV	Electric (KWH)	21,825 KWH	\$2,583.20	29,133 KWH	\$3,582.91	39,764 KWH	\$4,950.11
	Natural Gas (Therms)	46 Therms	\$172.85	45 Therms	\$236.56	32 Therms	\$264.87
	Water (Gal.)	19,600 Gal.	\$124.40	19,500 Gal.	\$156.83	18,000 Gal.	\$160.80
	Edgefield DMV Subtotal		\$2,880.45		\$3,976.30		\$5,375.78
Florence DMV	Electric (KWH)	106,400 KWH	\$9,244.99	106,000 KWH	\$9,492.78	117,680 KWH	\$10,835.02
	Florence DMV Subtotal		\$9,244.99		\$9,492.78		\$10,835.02
Fountain Inn DMV	Electric (KWH)	65,180 KWH	\$5,413.45	75,860 KWH	\$6,307.12	75,700 KWH	\$6,775.98
	Natural Gas (Therms)	175 Therms	\$354.21	743 Therms	\$1,087.96	250 Therms	\$428.61
	Water (Gal.)	155,800 Gal.	\$1,562.25	93,800 Gal.	\$1,233.53	107,600 Gal.	\$1,566.34
	Fountain Inn DMV Subtotal		\$7,329.91		\$8,628.61		\$8,770.93
Gaffney DMV	Electric (KWH)	77,080 KWH	\$7,353.27	87,160 KWH	\$8,267.47	83,320 KWH	\$8,028.26
	Natural Gas (Therms)	360 Therms	\$888.19	206 Therms	\$575.69	336 Therms	\$811.55
	Water (CF)	19,720 CF	\$1,074.84	12,070 CF	\$780.56	10,990 CF	\$758.88
	Gaffney DMV Subtotal		\$9,316.30		\$9,623.72		\$9,598.69
Georgetown DMV	Electric (KWH)	70,517 KWH	\$5,532.34	68,148 KWH	\$5,801.66	60,371 KWH	\$5,039.77
	Natural Gas (Therms)	142 Therms	\$404.56	124 Therms	\$381.35	67 Therms	\$320.70
	Trash / Waste (Unmetered Charge) 0 Unmetered Charge		\$436.68	0 Unmetered Charge	\$436.68	0 Unmetered Charge	\$436.68
	Water (Kgal)	160 Kgal	\$1,319.84	148 Kgal	\$1,438.72	107 Kgal	\$1,222.46
	Georgetown DMV Subtotal		\$7,693.42		\$8,058.41		\$7,019.61
Greenville DMV Laurens Rd	Electric (KWH)	95,220 KWH	\$7,229.54	85,761 KWH	\$6,816.88	108,535 KWH	\$8,845.43
	Natural Gas (Therms)	1,241 Therms	\$2,440.86	624 Therms	\$1,225.14	880 Therms	\$1,654.73
	Water (Gal.)	139,400 Gal.	\$1,718.00	113,200 Gal.	\$1,644.02	148,900 Gal.	\$2,165.14
	Greenville DMV Laurens Rd Subtotal		\$11,388.40		\$9,686.04		\$12,665.30
Greenville DMV Saluda Dam	Electric (KWH)	129,780 KWH	\$8,836.46	154,480 KWH	\$10,770.63	179,940 KWH	\$13,012.05
	Water (Gal.)	205,800 Gal.	\$1,889.70	343,700 Gal.	\$2,710.11	242,200 Gal.	\$2,194.09
	Greenville DMV Saluda Dam Subtotal		\$10,726.16		\$13,480.74		\$15,206.14
Greenwood DMV	Electric (KWH)	65,600 KWH	\$5,279.22	67,360 KWH	\$5,683.55	69,600 KWH	\$6,060.01
	Trash / Waste (Other)	0 Other	\$1,835.76	0 Other	\$1,835.76	0 Other	\$1,835.76
	Water (CF)	12,100 CF	\$785.78	18,800 CF	\$1,118.09	18,700 CF	\$1,317.94
	Greenwood DMV Subtotal		\$7,900.76		\$8,637.40		\$9,213.71
Greenwood DMV District	Electric (KWH)	14,276 KWH	\$1,191.00	13,390 KWH	\$1,174.11	15,135 KWH	\$1,354.48
	Natural Gas (Therms)	619 Therms	\$1,168.37	697 Therms	\$1,104.25	638 Therms	\$1,026.68
	Trash / Waste (Other)	0 Other	\$88.32	0 Other	\$109.17	0 Other	\$132.48
	Water (CF)	4,900 CF	\$454.06	200 CF	\$429.64	200 CF	\$465.56
	Greenwood DMV District Subtotal		\$2,901.75		\$2,817.17		\$2,979.20
Greer DMV (new)	Electric (KWH)	117,120 KWH	\$9,683.73	108,080 KWH	\$8,998.47	116,880 KWH	\$9,980.24
	Natural Gas (Therms)	209 Therms	\$498.50	90 Therms	\$292.54	177 Therms	\$485.15
	Water (Gal.)	149,000 Gal.	\$826.32	128,300 Gal.	\$752.79	190,100 Gal.	\$1,137.44
	Greer DMV (new) Subtotal		\$11,008.55		\$10,043.80		\$11,602.83
Hampton DMV	Electric (KWH)	37,732 KWH	\$4,430.94	40,894 KWH	\$4,848.84	40,730 KWH	\$5,076.92
	Trash / Waste (Unmetered Charge) 0 Unmetered Charge		\$981.60	0 Unmetered Charge	\$981.60	0 Unmetered Charge	\$981.60
	Water (Gal.)	23,800 Gal.	\$429.51	21,700 Gal.	\$396.96	23,800 Gal.	\$438.40
	Hampton DMV Subtotal		\$5,842.05		\$6,227.40		\$6,496.92
Kingstree DMV	Electric (KWH)	59,735 KWH	\$6,238.73	62,232 KWH	\$6,829.27	59,774 KWH	\$6,871.12
	Water (Gal.)	46,500 Gal.	\$854.81	5,000 Gal.	\$746.46	4,000 Gal.	\$732.52
	Kingstree DMV Subtotal		\$7,093.54		\$7,575.73		\$7,603.64
Ladson DMV	Electric (KWH)	96,142 KWH	\$9,497.19	110,995 KWH	\$11,538.14	113,549 KWH	\$12,494.80
	Natural Gas (Therms)	246 Therms	\$580.75	63 Therms	\$281.70	1 Therms	\$199.20
	Sewer (Gal.)	118,385 Gal.	\$751.36	19,340 Gal.	\$774.08	23,170 Gal.	\$915.20
	Water (CCF)	188 CCF	\$802.02	212 CCF	\$872.88	221 CCF	\$900.76
	Ladson DMV Subtotal		\$11,631.32		\$13,466.80		\$14,509.96

Lake City DMV	Electric (KWH)	49,728 KWH	\$4,810.32	49,049 KWH	\$5,029.47	54,658 KWH	\$5,905.23
	Natural Gas (Therms)	423 Therms	\$878.47	432 Therms	\$891.83	299 Therms	\$718.99
	Water (Gal.)	70,200 Gal.	\$412.31	44,700 Gal.	\$300.33	42,000 Gal.	\$280.05
	Lake City DMV Subtotal		\$6,101.10		\$6,221.63		\$6,904.27
Lancaster DMV	Electric (KWH)	92,332 KWH	\$6,866.76	81,572 KWH	\$6,625.10	101,526 KWH	\$7,992.68
	Water (Gal.)	357,000 Gal.	\$1,271.16	224,000 Gal.	\$923.99	133,000 Gal.	\$709.22
	Lancaster DMV Subtotal		\$8,137.92		\$7,549.09		\$8,701.90
Laurens DMV	Electric (KWH)	40,805 KWH	\$4,502.55	40,740 KWH	\$4,332.81	44,912 KWH	\$4,819.02
	Water (Gal.)	97,076 Gal.	\$455.90	57,708 Gal.	\$331.83	57,353 Gal.	\$339.25
	Laurens DMV Subtotal		\$4,958.45		\$4,664.64		\$5,158.27
Lexington DMV	Water (Gal.)	192,500 Gal.	\$1,789.08	176,900 Gal.	\$1,673.49	163,900 Gal.	\$1,702.01
	Lexington DMV Subtotal		\$1,789.08		\$1,673.49		\$1,702.01
Manning DMV	Electric (KWH)	35,912 KWH	\$3,784.72	33,516 KWH	\$3,704.38	35,658 KWH	\$3,986.24
	Water (Gal.)	30,422 Gal.	\$220.66	65,415 Gal.	\$265.21	21,669 Gal.	\$251.52
	Manning DMV Subtotal		\$4,005.38		\$3,969.59		\$4,237.76
Marion DMV	Electric (KWH)	43,680 KWH	\$4,484.72	38,640 KWH	\$4,320.01	41,440 KWH	\$4,593.39
	Sewer (Gal.)	42,630 Gal.	\$235.03	47,320 Gal.	\$249.99	35,000 Gal.	\$225.82
	Water (CF)	42,392 CF	\$254.53	80,227 CF	\$310.69	35,000 CF	\$315.44
	Marion DMV Subtotal		\$4,974.28		\$4,880.69		\$5,134.65
McCormick DMV	Electric (KWH)	16,993 KWH	\$1,635.71	25,166 KWH	\$2,507.17	31,884 KWH	\$3,288.09
	Water (CCF)	83 CCF	\$147.00	145 CCF	\$202.06	314 CCF	\$250.64
	McCormick DMV Subtotal		\$1,782.71		\$2,709.23		\$3,538.73
Moncks Corner DMV	Electric (KWH)	45,360 KWH	\$4,362.29	33,124 KWH	\$3,416.19	51,672 KWH	\$5,540.01
	Water (Gal.)	288,820 Gal.	\$1,029.20	98,280 Gal.	\$564.62	148,220 Gal.	\$724.48
	Moncks Corner DMV Subtotal		\$5,391.49		\$3,980.81		\$6,264.49
Myrtle Beach DMV	Electric (KWH)	78,760 KWH	\$6,804.87	105,160 KWH	\$10,490.74	109,360 KWH	\$10,639.06
	Water (Gal.)	69,000 Gal.	\$1,575.19	60,000 Gal.	\$1,467.17	95,000 Gal.	\$1,596.55
	Myrtle Beach DMV Subtotal		\$8,380.06		\$11,957.91		\$12,235.61
Myrtle Beach DMV Modular Unit	Electric (KWH)	9,246 KWH	\$858.94	13,076 KWH	\$1,215.43	19,746 KWH	\$1,755.54
	Water (Gal.)	462,000 Gal.	\$2,399.59	1,000 Gal.	\$194.52	391,000 Gal.	\$1,636.85
	Myrtle Beach DMV Modular Unit Subtotal		\$3,258.53		\$1,409.95		\$3,392.39
Newberry DMV	Electric (KWH)	57,904 KWH	\$5,469.13	54,534 KWH	\$5,472.05	60,816 KWH	\$6,159.59
	Natural Gas (Therms)	517 Therms	\$935.59	184 Therms	\$299.69	712 Therms	\$1,120.82
	Water (CF)	5,278 CF	\$938.73	4,424 CF	\$1,063.68	5,110 CF	\$1,092.12
	Newberry DMV Subtotal		\$7,343.45		\$6,835.42		\$8,372.53
North Augusta DMV	Electric (KWH)	77,171 KWH	\$9,249.06	98,229 KWH	\$11,655.01	101,935 KWH	\$12,479.12
	Natural Gas (Therms)	102 Therms	\$334.64	164 Therms	\$409.84	185 Therms	\$541.90
	Trash / Waste (Other)	0 Other	\$1,249.14	0 Other	\$1,328.58	0 Other	\$1,333.08
	Water (Gal.)	101,900 Gal.	\$264.81	118,800 Gal.	\$387.21	71,000 Gal.	\$353.35
	Water (Unmetered Charge)	0 Unmetered Charge	\$752.88	0 Unmetered Charge	\$752.88	0 Unmetered Charge	\$752.88
	North Augusta DMV Subtotal		\$11,850.53		\$14,533.52		\$15,460.33
Orangeburg DMV	Electric (KWH)	80,679 KWH	\$5,298.58	86,809 KWH	\$6,393.41	71,776 KWH	\$5,548.19
	Natural Gas (Therms)	83 Therms	\$242.80	5 Therms	\$132.65	19 Therms	\$149.91
	Orangeburg DMV Subtotal		\$5,541.38		\$6,526.06		\$5,698.10
Pickens DMV	Electric (KWH)	84,160 KWH	\$6,414.22	96,960 KWH	\$7,377.51	90,740 KWH	\$7,420.02
	Natural Gas (Therms)	206 Therms	\$425.27	87 Therms	\$224.38	188 Therms	\$382.20
	Water (Gal.)	166,400 Gal.	\$791.60	129,800 Gal.	\$681.20	169,800 Gal.	\$868.20
Pickens DMV Subtotal		\$7,631.09		\$8,283.09		\$8,670.42	
Ridgeland DMV	Electric (KWH)	57,092 KWH	\$6,789.22	53,424 KWH	\$6,527.69	56,040 KWH	\$7,116.19
	Water (Gal.)	69,580 Gal.	\$797.78	38,640 Gal.	\$507.85	49,500 Gal.	\$620.47
Ridgeland DMV Subtotal		\$7,587.00		\$7,035.54		\$7,736.66	
Rock Hill DMV	Electric (KWH)	103,255 KWH	\$7,351.15	99,952 KWH	\$7,241.99	104,683 KWH	\$8,220.62
	Rock Hill DMV Subtotal		\$7,351.15		\$7,241.99		\$8,220.62
Saluda DMV	Electric (KWH)	29,702 KWH	\$3,297.53	39,150 KWH	\$4,443.83	46,857 KWH	\$5,461.33
	Water (Gal.)	12,600 Gal.	\$223.05	22,100 Gal.	\$332.68	54,000 Gal.	\$646.40
	Saluda DMV Subtotal		\$3,520.58		\$4,776.51		\$6,107.73
Salvage Facility,DMV	Electric (KWH)	0 KWH	\$0.00	2,120 KWH	\$376.00	3,036 KWH	\$490.02
	Salvage Facility,DMV Subtotal		\$0.00		\$376.00		\$490.02
Santee,DMV	Electric (KWH)	0 KWH	\$0.00	0 KWH	\$0.00	6,283 KWH	\$801.18
	Water (Gal.)	0 Gal.	\$0.00	610 Gal.	\$15.21	3,970 Gal.	\$131.87
	Santee,DMV Subtotal		\$0.00		\$15.21		\$933.05
Seneca DMV	Electric (KWH)	42,996 KWH	\$4,326.78	87,878 KWH	\$7,695.99	90,693 KWH	\$8,252.68
	Trash / Waste (Other)	0 Other	\$0.00	0 Other	\$0.00	0 Other	\$189.00
	Water (Gal.)	76,760 Gal.	\$642.97	88,800 Gal.	\$941.95	92,600 Gal.	\$843.08
	Seneca DMV Subtotal		\$4,969.75		\$8,637.94		\$9,284.76
Spartanburg DMV Southport	Electric (KWH)	117,480 KWH	\$8,690.59	94,060 KWH	\$7,857.63	91,900 KWH	\$7,966.19
	Water (CCF)	258 CCF	\$1,564.54	232 CCF	\$1,632.28	1,430 CCF	\$1,291.56
	Spartanburg DMV Southport Subtotal		\$10,255.13		\$9,489.91		\$9,257.75
Spartanburg Fairforest DMV	Electric (KWH)	83,284 KWH	\$5,918.98	85,804 KWH	\$6,246.06	94,904 KWH	\$7,158.69
	Water (Gal.)	304,531 Gal.	\$855.14	272,985 Gal.	\$807.09	243,678 Gal.	\$706.16
	Spartanburg Fairforest DMV Subtotal		\$6,774.12		\$7,053.15		\$7,864.85
St George DMV	Electric (KWH)	46,816 KWH	\$4,623.62	47,824 KWH	\$4,873.98	42,308 KWH	\$4,493.62

	Water (Gal.)	127,260 Gal.	\$1,032.81	118,300 Gal.	\$1,014.20	59,080 Gal.	\$606.74
	St George DMV Subtotal		\$5,656.43		\$5,888.18		\$5,100.36
Sumter DMV	Electric (KWH)	78,880 KWH	\$8,071.45	82,520 KWH	\$8,635.52	92,880 KWH	\$9,686.15
	Water (Kgal)	142 Kgal	\$594.54	81 Kgal	\$454.41	0 Kgal	\$241.20
	Sumter DMV Subtotal		\$8,665.99		\$9,089.93		\$9,927.35
Union DMV	Electric (KWH)	32,312 KWH	\$3,982.32	30,996 KWH	\$3,857.16	32,312 KWH	\$4,012.59
	Natural Gas (Therms)	569 Therms	\$1,085.35	516 Therms	\$819.47	444 Therms	\$728.93
	Water (Gal.)	27,160 Gal.	\$239.42	23,870 Gal.	\$227.47	20,230 Gal.	\$220.38
	Union DMV Subtotal		\$5,307.09		\$4,904.10		\$4,961.90
Walterboro DMV	Electric (KWH)	37,101 KWH	\$3,809.15	61,281 KWH	\$6,553.77	43,721 KWH	\$4,614.24
	Natural Gas (Therms)	635 Therms	\$1,313.50	437 Therms	\$967.54	418 Therms	\$964.06
	Trash / Waste (Other)	0 Other	\$0.00	0 Other	\$533.60	0 Other	\$762.32
	Water (Gal.)	22,095 Gal.	\$822.38	53,460 Gal.	\$331.27	123,730 Gal.	\$660.03
	Walterboro DMV Subtotal		\$5,945.03		\$8,386.18		\$7,000.65
Winnsboro DMV	Electric (KWH)	90,358 KWH	\$10,222.52	96,768 KWH	\$11,101.42	106,484 KWH	\$12,070.12
	Water (CCF)	119 CCF	\$1,038.11	50 CCF	\$557.48	23 CCF	\$367.00
	Winnsboro DMV Subtotal		\$11,260.63		\$11,658.90		\$12,437.12
Woodruff DMV	Electric (KWH)	28,938 KWH	\$3,116.04	28,034 KWH	\$3,101.51	32,058 KWH	\$3,630.38
	Natural Gas (Therms)	495 Therms	\$1,122.49	456 Therms	\$927.36	596 Therms	\$1,259.97
	Water (CCF)	226 CCF	\$150.00	240 CCF	\$161.28	4,834 CCF	\$191.27
	Water (Gal.)	22,600 Gal.	\$182.50	24,000 Gal.	\$186.00	28,000 Gal.	\$223.70
	Woodruff DMV Subtotal		\$4,571.03		\$4,376.15		\$5,305.32
Group Subtotal			\$445,736.08		\$467,162.07		\$498,144.47
Total Electric (KWH) All Buildings							
		3,950,073	\$366,117.72	4,128,381	\$394,787.42	4,295,967	\$424,229.78
Total Water (CCF) All Buildings							
		1,403	\$9,997.46	1,453	\$10,035.67	7,413	\$9,968.60
Total Trash / Waste (Nominated Use) All Buildings							
		0	\$434.00	0	\$381.50	0	\$266.00
Total Water (Gal.) All Buildings							
		4,329,166	\$30,203.82	2,884,309	\$23,981.88	3,227,536	\$26,594.36
Total Water (CF) All Buildings							
		128,830	\$6,345.77	179,085	\$7,119.85	127,842	\$6,980.91
Total Natural Gas (Therms) All Buildings							
		8,613	\$17,891.25	6,897	\$13,967.13	6,599	\$14,180.64
Total Trash / Waste (Unmetered Charge) All Buildings							
		0	\$3,843.48	0	\$4,127.78	0	\$4,310.48
Total Water (Kgal) All Buildings							
		551	\$5,724.14	502	\$5,706.16	289	\$4,891.66
Total Water (Other) All Buildings							
		0	\$0.00	0	\$1,009.92	0	\$0.00
Total Sewer (CF) All Buildings							
		8,700	\$265.95	18,200	\$460.70	22,500	\$575.50
Total Trash / Waste (Other) All Buildings							
		0	\$3,173.22	0	\$3,807.11	0	\$4,252.64
Total Sewer (Gal.) All Buildings							
		161,015	\$986.39	66,660	\$1,024.07	58,170	\$1,141.02
Total Water (Unmetered Charge) All Buildings							
		0	\$752.88	0	\$752.88	0	\$752.88
Total Cost All Buildings							
			\$445,736.08		\$467,162.07		\$498,144.47