GE
Lighting

PROGRAMMED START (PS) BALLASTS

FOR T8 FLUORESCENT LAMPS

A New Generation of Ultra-Efficient Programmed Start Ballasts

347v
Now available

Parallel Lamp Operation

60,000
Hours Lamp Life*

5 YEAR
Lamp & Ballast Limited Warranty*

ULTRASTART®
For Frequently Switched Applications

*with complete GE SXL lamp and ballast system

FEATURES & BENEFITS

- Long lamp life and warranty with programmed start
- Same energy savings as high-efficiency instant start ballasts.
- Simplify installation with multi-voltage technology.
- Lower maintenance costs with parallel mode operation.
- Fast starting time.
- Complies with (RoHS) restrictions of hazardous materials standards.
- Anti-striation reduction circuitry for better light quality with energy saving lamps.

UltraStart® Programmed Start Ballasts

GE UltraStart® is a new generation of T8 and Programmed Start (PS) ballasts that addresses the growing demand for energy-saving strategies incorporating occupancy sensors and other automated light controls to meet strict energy legislation. Switching lights off when an area is unoccupied or filled with daylight makes sense from an energy-savings viewpoint and it is also recommended or required now by several energy regulations.

On standard Instant Start (IS) ballasts, lamp life is significantly affected by frequent starting. Programmed Start (PS) ballasts provide a "soft start" and significantly reduce the cathode degradation occurring from each start.

PS ballasts have been available for some time but have suffered from several drawbacks:

- They are less efficient than IS ballasts.
- They operate lamps in series which means if one lamp goes out the other lamps on that ballast will also go out.
- There is typically a starting delay of 1 to 1.5 seconds between the time the ballast is powered and the time the lamp comes on.

GE UltraStart® PS ballasts overcome all these issues.

- These ballasts use a control circuit to apply very precise cathode heat to ensure that the cathodes have reached an optimum temperature during lamp starting - reducing the amount of cathode degradation associated with each start and increases lamp life.
- The benefit of PS with the energy savings, fast starting and parallel operation convenience of instant start ballasts.

Environmental Awareness

- GE UltraStart® is one of GE's ways to create products that help our customers improve their environmental and operating performance.
- GE UltraStart® are high-efficiency, energy-saving and RoHS-compliant ballasts.
- GE UltraStart® PS and UltraMax® Instant Start ballasts are among the highest energy-efficient ballasts available
- GE hopes to encourage customer awareness of the importance of reducing hazardous materials and complying with future environmental trends.
- Look for the RoHS compliant mark on all GE UltraStart® and other GE ballasts.

UltraStart® Saves Energy

Energy Savings by Turning the Lights Off

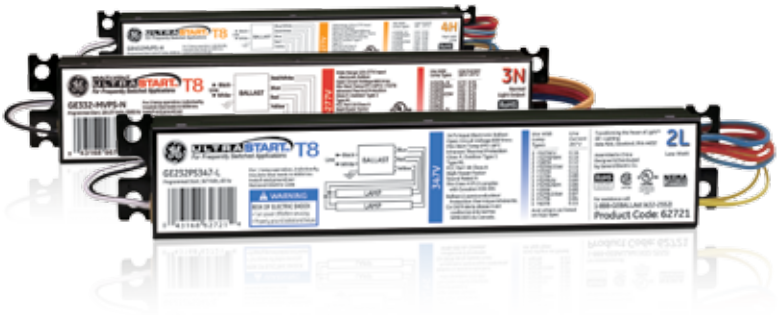
Using occupancy sensors in unoccupied spaces or using daylight harvesters in partial daylight areas is one of the most cost-effective, energy savings solutions today. A study performed by the Lighting Research Center and sponsored by the US EPA ENERGY STAR® Buildings Program shows the impact of energy consumption with and without occupancy sensors*. Occupancy sensors showed an average annual energy consumption savings of 12% to 42% depending on the application. GE UltraStart® provides the proper lamp starting and energy savings to take advantage of this technology without sacrificing lamp life or incurring high maintenance costs.

Lamp Replacement and Maintenance Costs

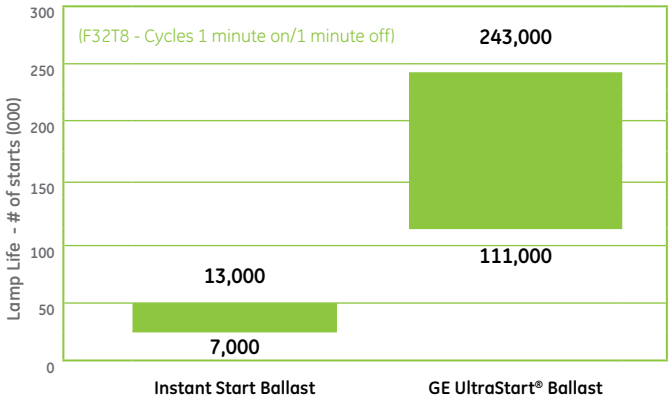
- Increased calendar lamp life and reduced maintenance costs; the less time that lamps are left on increases overall calendar lamp life.
- GE lamps on UltraStart® ballasts last over 100,000 switching cycles on occupancy sensor and other building control system applications before reaching rated lamp life resulting in significant lamp replacement and maintenance cost savings.
- UltraStart® parallel lamp operation also avoids unnecessary lamp replacement costs when only one lamp fails.

Energy Savings When the Lights Are On

- The UltraStart® ballasts saves as much energy as high-efficiency (>90%) T8 instant start ballasts like GE UltraMax® instant start.
- Systems combining UltraStart® electronic ballasts and GE T8 energy savings lamps can deliver over 40% energy savings over standard T12 electromagnetic ballast systems not including the incremental savings from the use of occupancy sensors or daylight harvesters.



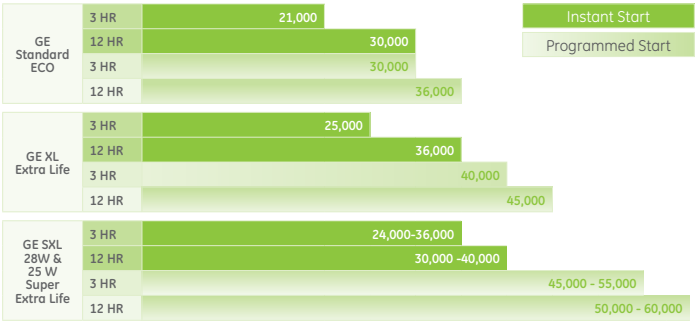
GE Lamp Life Range
Instant Start vs. Programmed Start**



GE lamp life studies have shown that lamp life is up to 20 times longer in rapid cycle testing. Lamp life tests have demonstrated 111,000 to 243,000 starts on F32T8 lamps to rated lamp life with GE UltraStart® ballasts as opposed to only 7,000 to 13,000 starts with standard instant start ballasts. GE lamp warranty may be void if lamp starts exceed 3,000 starts during the warranty time period with instant start ballasts.

UltraStart®™ maximizes lamp life in frequently switched applications and where lamp life is a primary concern. GE UltraStart® ballasts and lamps provide guaranteed performance with the GE Total system Limited Warranty. **GE 2004-2005 lamp testing at industry standard 850 rapid cycle testing

GE 4 ft LFL Life Ratings



Lamp and Ballast Combinations - Life Chart

Our UltraStart® and UltraMax® ballasts, in combination with our full line of GE T5, T8 and T12 lamps, provide new ways to meet your lighting goals. Whether your objective is to reduce energy consumption or extend lamp life, we recommend using the rated-life charts as a guide.

GE LFL System Limited Warranties

Lamp Limited Warranties & Ballast System Limited Warranties*

Lamp Type	3hrs	12hrs	Lumens	Warranty
F32T8	30,000	36,000	2,950	36 Months
F32T8/XL	40,000	45,000	2,950	48 Months
F32T8HL/XL	40,000	45,000	3,100	48 Months
F28T8/XL	45,000	50,000	2,725	60 Months
F32T8/25W/SXL	50,000	55,000	2,475	60 Months
F32T8/SXL	55,000	60,000	2,950	60 Months

Programmed start lamp life ratings and warranties

T8 UltraStart®
(120V-277V, 347V)

- F32T8 Fast startup (less than 700ms).
- Greater than 100,000 on/ off cycles before reaching rated lamp life.
- High Ballast Efficiency (>90%).
- Ballast factors:
  - Ultra-Low Watts (.60),
  - Low Watts (.71),
  - Normal (.88) and
  - High Light Output (1.15).
- Parallel lamp operation.
- GE Express Services System Warranty.

.60 (XL) Ultra Low Watt and .71 (L) Low Watt Ballast Factor
(120V-277V, 347V)

Best used for low light level areas-bathrooms and hallways, partial daylit areas. The Ultra Low XL ballast offers facilities the ability to maximize energy savings with 4' T8 lamps. Many facilities maintain one lamp in inventory with F32T8 high lumen lamp and change light levels throughout the facility with ballast factor.

.88 (N) Normal Ballast Factor
(120V-277V, 347V)

Best used in applications incorporating occupancy sensors, daylight harvesting strategies and other frequently switched applications (>5 on/offs per day).

• Application: General office lighting, retail, schools

1.15 (H) High Light Level Ballast Factor
(120V-277V, 347V)

Best used in high light output areas such as high bay fixtures.

• Application: Warehouses, retail, manufacturing.

GE 2004 – 2005 lamp testing at industry standard B50 rapid cycle testing
GE Edison Award of Merit and Award for Sustainable Design.

UltraStart® System Information

Ballast Description	Lamps		PC 10 PK	Input Volts	Line Current	Input Watts	Ballast Factor	Initial System Lumens	Lumens / Watt	Ballast Efficiency Factor (BEF)
	Type	# Lamps								
GE132-MVPS-L	F32T8/HL	1	75952	120/277	.22/.10	25	0.72	2232	89	2.88
	F32T8/WM				.20/.09	23	0.71	2024	88	3.09
	F28				.19/.09	22	0.71	1953	89	3.23
	F32T8/25W				.18/.08	21 / 20	0.71	1775	85	3.56
GE132-MVPS-N	F32T8/HL	1	75953	120/277	.26/.12	30	0.89	2759	92	2.97
	F32T8/WM				.24/.11	28	0.87	2480	89	3.11
	F28				.22/.10	26	0.87	2393	92	3.35
	F32T8/25W				.21/.1	24	0.86	2150	90	3.58
GE132-MVPS-H	F32T8/HL	1	75954	120/277	.35/.15	39	1.18	3658	94	3.03
	F32T8/WM				.31/.14	36	1.16	3306	92	3.22
	F28				.29/.13	33	1.16	3190	97	3.52
	F32T8/25W				.27/.12	31	1.15	2875	93	3.71
GE232-MVPS-XL	F32T8/HL	2	29671	120/277	.39/.19	45/44	0.60	3720	83	1.81
	F32T8/WM				.24/.12	42	0.59	3363	80	1.40
	F28				.15/.12	39	0.59	3245	83	1.51
	F32T8/25W					36	0.59	2950	82	1.64
GE232-MVPS-L	F32T8/HL	2	96720	120/277	.40/.18	47	0.71	4402	94	1.51
	F32T8/WM				.37/.17	44	0.71	4047	92	1.61
	F28				.34/.15	41	0.71	3905	95	1.73
	F32T8/25W					37/36	0.65	3250	88	1.81
GE232PS347L	F32T8/HL	2	62721	347	0.14	47	0.71	4402	94	1.51
	F32T8/WM				0.13	43	0.71	4047	94	1.65
	F28T8				0.12	40	0.71	3905	98	1.78
	F32T8/25W				0.11	37	0.71	3550	96	1.92
GE232-MVPS-N	F32T8/HL	2	96714	120/277	.49/.18	59/58	0.89	5518	94	1.53
	F32T8/WM				.45/.20	55/54	0.88	5016	91	1.63
	F28				.42/.19	51/50	0.88	4840	95	1.76
	F32T8/25W					45/44	0.86	4300	96	1.95
GE232PS347-N	F32T8/HL	2	62723	347	0.17	57	0.88	5456	96	1.54
	F32T8/WM				0.16	54	0.88	5016	93	1.63
	F28T8				0.15	50	0.88	4840	97	1.76
	F32T8/25W				0.14	46	0.88	4400	96	1.91
GE232-MVPS-H	F32T8/HL	2	29675	120/277	.64/.29	75/74	1.15	7130	95	1.55
	F32T8/WM				.60/.27	69	1.14	6498	94	1.65
	F28				.54/.25	63/62	1.11	6105	97	1.79
	F32T8/25W					58/57	1.10	5500	95	1.93
GE232PS347-H	F32T8/HL	2	62726	347	0.22	74	1.18	7316	99	1.59
	F32T8/WM				0.21	69	1.16	6612	96	1.68
	F28T8				0.19	62	1.13	6215	100	1.82
	F32T8/25W				0.17	58	1.09	5450	94	1.88
GE332-MVPS-XL	F32T8/HL	3	29672	120/277	.49/.22	67/66	0.60	5580	83	0.91
	F32T8/WM				.53/.24	61/60	0.59	5045	83	0.98
	F28				.49/.22	57/56	0.58	4785	84	1.04
	F32T8/25W					53/52	0.58	4350	82	1.12
GE332-MVPS-L	F32T8/HL	3	96721	120/277	.61/.27	69	0.71	6603	96	1.03
	F32T8/WM				.54/.24	63/62	0.69	5900	94	1.11
	F28				.49/.22	58	0.69	5693	98	1.19
	F32T8/25W					57/56	0.66	4950	87	1.18
GE332PS347-L	F32T8/HL	3	63041	347	0.21	70	0.71	6603	94	1.01
	F32T8/WM				0.20	66	0.71	6071	92	1.08
	F28T8				0.18	60	0.71	5858	98	1.18
	F32T8/25W				0.17	56	0.71	5325	95	1.27
GE332-MVPS-N	F32T8/HL	3	96715	120/277	.72/.31	86/84	0.89	8277	96	1.06
	F32T8/WM				.67/.29	80/79	0.89	7610	95	1.13
	F28				.61/.27	73/72	0.84	6930	95	1.17
	F32T8/25W					67/66	0.84	6300	94	1.27
GE332PS347-N	F32T8/HL	3	62724	347	0.25	83	0.88	8184	99	1.06
	F32T8/WM				0.23	77	0.88	7524	98	1.14
	F28T8				0.21	70	0.88	7260	104	1.26
	F32T8/25W				0.19	65	0.88	6600	102	1.35
GE332-MVPS-H	F32T8/HL	3	29676	120/277	.95/.41	110/108	1.15	10695	97	1.06
	F32T8/WM				.88/.39	102/100	1.14	9747	96	1.14
	F28				.79/.35	92/91	1.10	9075	99	1.21
	F32T8/25W					87/86	1.09	8175	94	1.27
GE332PS347-H	F32T8/HL	3	62727	347	0.33	110	1.18	10974	100	1.07
	F32T8/WM				0.30	102	1.16	9918	97	1.14
	F28T8				0.28	94	1.13	9323	99	1.20
	F32T8/25W				0.25	83	1.10	8250	99	1.33
GE432-MVPS-L	F32T8/HL	4	71832	120/277	.77/.32	90/88	0.71	8804	98	0.81
	F32T8/WM				.71/.30	85/83	0.69	7866	93	0.83
	F28				.64/.28	77/76	0.68	7480	97	0.89
	F32T8/25W					74/73	0.67	6700	91	0.92
GE432PS347-L	F32T8/HL	4	62722	347	0.27	88	0.71	8804	100	0.81
	F32T8/WM				0.25	83	0.71	8094	98	0.86
	F28T8				0.23	76	0.71	7810	103	0.94
	F32T8/25W				0.21	69	0.71	7100	103	1.03
GE432-MVPS-N	F32T8/HL	4	96716	120/277	.97/.41	114/112	0.89	11036	97	0.79
	F32T8/WM				.89/.36	105/103	0.86	9804	93	0.83
	F28				.82/.35	96/95	0.83	9130	95	0.87
	F32T8/25W					87/85	0.83	8300	95	0.98
GE432PS347-N	F32T8/HL	4	62725	347	0.33	109	0.88	10912	100	0.81
	F32T8/WM				0.31	103	0.88	10032	97	0.85
	F28T8				0.27	91	0.88	9680	106	0.97
	F32T8/25W				0.24	80	0.88	8800	110	1.10
GE432-MVPS-H	F32T8/HL	4	74476	120/277	1.27/.55	147/144	1.16	14384	98	0.81
	F32T8/WM				1.20/.52	139/136	1.15	13110	94	0.85
	F28				1.08/.47	125/123	1.12	12320	99	0.91
	F32T8/25W					112/111	1.12	11200	100	1.01

*Power Factor > .98, THD < 10%, (See application data sheet on GELighting.com for PF and THD with specific voltage and lamp applications) All UltraStart® T8 Ballasts have N-1 Lamp Rating
Electrical Testing completed to ANSI requirements in open fixture at 25°C. GE UltraStart® ballasts also operate F17T8, F17T8/WM, F25T8, F25T8/WM and F40T8 lamps

Transforming the POWER of Light™ GE National Customer Service Center 1-888-GEBALLAST (432-2552)

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