



ELECTRONIC FLUORESCENT

PRODUCT OVERVIEW :

Advance expands a new family of Smart Solutions for T8 lighting systems Optanium™.

Optanium is a high-efficiency electronic ballast family that combines maximized energy savings with the flexibility you need to create a T8 system matched to your requirements. High-efficiency Instant start Optanium ballasts are available to meet specific needs in two versions - a standard light output design (0.87 Ballast Factor) and a low-watt design (0.77 Ballast Factor). All have cold-start capability down to -20°F and a low-profile design optimized for today's fixture designs. The ballast also meets the new NEMA/CEE high performance T8 lighting system specifications.

Optanium 2.0®

High Efficiency IntelliVolt® Instant Start Ballasts for High Efficiency T8 Lamps



DESIGN HIGHLIGHTS:

- Hi-efficiency
 - Ballast consumes less input watts than a standard efficiency electronic ballast
- Instant-start lamp ignition
 - Consumes less energy than Rapid-start ballasts
- UL Type CC Rated
 - Meets UL criteria for arching protection
- IntelliVolt® technology (108-305V, 50/60Hz)
 - Ensures shipment of correct voltage ballast or fixture for all applications
- Low-profile, lightweight housing
 - Physically interchangeable with standard electromagnetic and electronic ballasts
 - Provides flexibility in new generation fixture designs
- Independent lamp operation (ILO)
 - Other lamps continue to operate when one or more lamps fail
- Anti-Striation circuitry
 - Reduces lamp striation typically seen in energy saving lamps.
- Operates between 40 kHz and 52 kHz
 - Eliminates interference with Infrared Control Systems or commonly used Electronic Article Surveillance (EAS) systems
- -20°F starting capability*
 - Suitable for cold temperature situations using standard lamps
- Centium® technology (<10 THD, >0.98 PF)
 - Meets most demanding power quality requirements
 - Perfect for applications where harmonics are a concern
- 20ft. remote mounting/tandem wiring capability
 - Provides maximum application flexibility
- Auto-restrike capability
 - Eliminates the need to reset power mains after failed lamps are replaced
- Operates standard F32T8 lamps and 4' energy saving lamps
 - Provides maximum versatility

* Consult lamp manufacturer for temperature versus lamp characteristics

Note: 1. All standard models may experience lamp striations when operating with 25W, 28W, or 30W energy saving T8 lamps. The use of the Optanium 2.0 (IOP) models is recommended to reduce lamp striation.

2. Only the Optanium 2.0 (IOP) models are suitable for tandem-wiring applications operating 25W, 28W or 30W energy saving T8 lamps.

APPLICATIONS:

- General Lighting**
- Retail Lighting**
- Decorative Lighting**
- Indirect Lighting**

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	Max THD % (Measured)	Min Power Factor (Measured)
Number	Watts								
F17T8 (17W)									
1	17	-20 F / -28 C	120	IOP-1P32-SC	0.14	16	0.90	10	0.99
			230		0.08	16			0.97
			277		0.07	16			0.97
		-20 F / -28 C	120	IOP-2P32-SC	0.17	19	1.06	15	0.99
			230		0.10	19			0.97
			277		0.08	19			0.97
2	17	-20 F / -28 C	120	IOP-2P32-SC	0.26	31	0.90	10	0.99
			230		0.13	31			0.97
			277		0.11	31			0.97
		-20 F / -28 C	120	IOP-3P32-SC	0.30	35	1.01	15	0.99
			230		0.17	35			0.97
			277		0.14	35			0.97
3	17	-20 F / -28 C	120	IOP-3P32-SC	0.38	45	0.90	10	0.99
			230		0.21	45			0.97
			277		0.17	45			0.97
		-20 F / -28 C	120	IOP-4P32-SC	0.41	49	1.00	15	0.99
			230		0.22	49			0.97
			277		0.18	49			0.97
4	17	-20 F / -28 C	120	IOP-4P32-SC	0.49	58	0.90	10	0.99
			230		0.27	58			0.97
			277		0.22	58			0.97
F25T8 (25W)									
1	25	-20 F / -28 C	120	IOP-1P32-SC	0.20	23	0.88	10	0.99
			230		0.11	23			0.98
			277		0.09	23			0.98
		-20 F / -28 C	120	IOP-2P32-SC	0.23	28	1.05	10	0.99
			230		0.12	28			0.97
			277		0.10	28			0.97
2	25	-20 F / -28 C	120	IOP-2P32-SC	0.37	43	0.88	10	0.99
			230		0.19	43			0.98
			277		0.16	43			0.98
		-20 F / -28 C	120	IOP-3P32-SC	0.42	49	1.00	10	0.99
			230		0.22	49			0.97
			277		0.18	49			0.97
3	25	-20 F / -28 C	120	IOP-3P32-SC	0.54	64	0.88	10	0.99
			230		0.29	63			0.98
			277		0.24	63			0.98
		-20 F / -28 C	120	IOP-4P32-SC	0.59	71	0.97	10	0.99
			230		0.31	70			0.97
			277		0.26	70			0.97
4	25	-20 F / -28 C	120	IOP-4P32-SC	0.72	85	0.88	10	0.99
			230		0.37	84			0.98
			277		0.31	83			0.98

Note: See back page for wiring diagram and can dimensions

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	Max THD % (Measured)	Min Power Factor (Measured)
Number	Watts								
F32T8, FBO32T8, F32T8/U6									
1	32	-20 F / -28 C	120	IOP-1P32-SC	0.25	28	0.87	10	0.99
			230		0.13	28			0.98
			277		0.11	28			0.98
		-20 F / -28 C	120	IOP-2P32-SC	0.30	35	1.05	10	0.99
			230		0.16	35			0.98
			277		0.13	35			0.98
2	32	-20 F / -28 C	120	IOP-2P32-SC	0.47	55	0.87	10	0.99
			230		0.24	54			0.98
			277		0.20	54			0.98
		-20 F / -28 C	120	IOP-3P32-SC	0.53	63	1.00	10	0.99
			230		0.28	62			0.98
			277		0.23	62			0.98
3	32	-20 F / -28 C	120	IOP-3P32-SC	0.70	82	0.87	10	0.99
			230		0.36	81			0.98
			277		0.30	80			0.98
		-20 F / -28 C	120	IOP-4P32-SC	0.75	90	0.97	10	0.99
			230		0.39	89			0.98
			277		0.32	88			0.98
4	32	-20 F / -28 C	120	IOP-4P32-SC	0.92	109	0.87	10	0.99
			230		0.47	107			0.98
			277		0.39	106			0.98
F32T8/ES (25W Philips Lamps)									
1	25	60 F / 15 C	120	IOP-1P32-SC	0.20	23	0.87	10	0.99
			230		0.11	23			0.98
			277		0.09	23			0.98
		60 F / 15 C	120	IOP-2P32-SC	0.23	27	1.05	10	0.99
			230		0.12	27			0.97
			277		0.10	27			0.97
2	25	60 F / 15 C	120	IOP-2P32-SC	0.37	44	0.87	10	0.99
			230		0.19	43			0.98
			277		0.16	43			0.98
		60 F / 15 C	120	IOP-3P32-SC	0.42	49	1.00	10	0.99
			230		0.22	49			0.97
			277		0.18	49			0.97
3	25	60 F / 15 C	120	IOP-3P32-SC	0.55	65	0.87	10	0.99
			230		0.29	64			0.98
			277		0.24	64			0.98
		60 F / 15 C	120	IOP-4P32-SC	0.59	70	0.97	10	0.99
			230		0.31	69			0.97
			277		0.26	69			0.97
4	25	60 F / 15 C	120	IOP-4P32-SC	0.73	87	0.87	10	0.99
			230		0.37	85			0.98
			277		0.31	85			0.98

Note: See back page for wiring diagram and can dimensions

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	Max THD % (Measured)	Min Power Factor (Measured)	
Number	Watts									
F32T8/ES (28W)										
1	28	60 F / 15 C	120	IOP-1P32-SC	0.22	25	0.87	10	0.99	
			230		0.11	25			0.98	
			277		0.10	25			0.98	
		60 F / 15 C	120	IOP-2P32-SC	0.26	31	1.05	10	0.99	
			230		0.14	31			0.98	
			277		0.11	31			0.98	
	2	28	60 F / 15 C	120	IOP-2P32-SC	0.41	48	0.87	10	0.99
				230		0.21	47			0.98
				277		0.18	47			0.98
60 F / 15 C		120	IOP-3P32-SC	0.46	55	1.00	10	0.99		
		230		0.25	54			0.98		
		277		0.20	54			0.98		
3	28	60 F / 15 C	120	IOP-3P32-SC	0.61	72	0.87	10	0.99	
			230		0.31	71			0.98	
			277		0.26	71			0.98	
	60 F / 15 C	120	IOP-4P32-SC	0.66	79	0.97	10	0.99		
		230		0.34	78			0.98		
		277		0.28	78			0.98		
4	28	60 F / 15 C	120	IOP-4P32-SC	0.81	96	0.87	10	0.99	
			230		0.41	94			0.98	
			277		0.35	94			0.98	
F32T8/ES (30W)										
1	30	60 F / 15 C	120	IOP-1P32-SC	0.23	27	0.87	10	0.99	
			230		0.12	27			0.98	
			277		0.10	27			0.98	
		60 F / 15 C	120	IOP-2P32-SC	0.28	33	1.05	10	0.99	
			230		0.15	33			0.98	
			277		0.12	33			0.98	
	2	30	60 F / 15 C	120	IOP-2P32-SC	0.44	52	0.87	10	0.99
				230		0.23	51			0.98
				277		0.19	51			0.98
60 F / 15 C		120	IOP-3P32-SC	0.50	59	1.00	10	0.99		
		230		0.25	58			0.98		
		277		0.21	58			0.98		
3	30	60 F / 15 C	120	IOP-3P32-SC	0.65	77	0.87	10	0.99	
			230		0.34	76			0.98	
			277		0.28	76			0.98	
	60 F / 15 C	120	IOP-4P32-SC	0.70	84	0.97	10	0.99		
		230		0.36	83			0.98		
		277		0.30	82			0.98		
4	30	60 F / 15 C	120	IOP-4P32-SC	0.86	102	0.87	10	0.99	
			230		0.45	101			0.98	
			277		0.37	100			0.98	
F40T8										
1	40	32 F / 0 C	120	IOP-2P32-SC	0.35	41	1.01	10	0.99	
			230		0.18	41			0.98	
			277		0.15	41			0.98	
2	40	32 F / 0 C	120	IOP-3P32-SC	0.64	74	0.97	10	0.99	
			230		0.33	73			0.98	
			277		0.27	72			0.98	
3	40	32 F / 0 C	120	IOP-4P32-SC	0.92	110	0.93	10	0.99	
			230		0.46	108			0.98	
			277		0.38	107			0.98	

Note: See back page for wiring diagram and can dimensions

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	Max THD % (Measured)	Min Power Factor (Measured)
Number	Watts								
F17T8 (17W)									
1	17	-20 F / -28 C	120	IOP-1P32LW-SC	0.13	15	0.80	10	0.99
			230		0.07	15			0.97
			277		0.06	15			0.97
		-20 F / -28 C	120	IOP-2P32LW-SC	0.15	18	0.90	20	0.98
			230		0.08	18			0.96
			277		0.07	18			0.94
2	17	-20 F / -28 C	120	IOP-2P32LW-SC	0.23	27	0.80	10	0.99
			230		0.12	27			0.97
			277		0.10	27			0.97
		-20 F / -28 C	120	IOP-3P32LW-SC	0.26	31	0.87	20	0.98
			230		0.14	31			0.96
			277		0.12	31			0.91
3	17	-20 F / -28 C	120	IOP-3P32LW-SC	0.34	40	0.81	10	0.99
			230		0.18	40			0.97
			277		0.15	40			0.96
		-20 F / -28 C	120	IOP-4P32LW-SC	0.36	43	0.85	20	0.98
			230		0.19	43			0.97
			277		0.17	43			0.93
4	17	-20 F / -28 C	120	IOP-4P32LW-SC	0.45	53	0.81	10	0.99
			230		0.23	53			0.97
			277		0.20	53			0.96
F25T8 (25W)									
1	25	-20 F / -28 C	120	IOP-1P32LW-SC	0.17	21	0.78	10	0.99
			230		0.09	21			0.98
			277		0.08	21			0.98
		-20 F / -28 C	120	IOP-2P32LW-SC	0.20	24	0.90	10	0.99
			230		0.11	24			0.97
			277		0.09	24			0.96
2	25	-20 F / -28 C	120	IOP-2P32LW-SC	0.32	39	0.78	10	0.99
			230		0.17	39			0.98
			277		0.14	39			0.98
		-20 F / -28 C	120	IOP-3P32LW-SC	0.36	43	0.86	10	0.99
			230		0.19	43			0.97
			277		0.16	43			0.96
3	25	-20 F / -28 C	120	IOP-3P32LW-SC	0.48	57	0.79	10	0.99
			230		0.25	56			0.98
			277		0.21	56			0.98
		-20 F / -28 C	120	IOP-4P32LW-SC	0.52	62	0.85	10	0.99
			230		0.27	61			0.97
			277		0.22	61			0.97
4	25	-20 F / -28 C	120	IOP-4P32LW-SC	0.64	76	0.79	10	0.99
			230		0.33	75			0.98
			277		0.27	75			0.98

Note: See back page for wiring diagram and can dimensions

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	Max THD % (Measured)	Min Power Factor (Measured)
Number	Watts								
F32T8, FBO32T8, F32T8/U6									
1	32	-20 F / -28 C	120	IOP-1P32LW-SC	0.22	25	0.77	10	0.99
			230		0.11	25			0.98
			277		0.10	25			0.98
		-20 F / -28 C	120	IOP-2P32LW-SC	0.26	31	0.90	10	0.99
			230		0.14	31			0.98
			277		0.11	31			0.98
2	32	-20 F / -28 C	120	IOP-2P32LW-SC	0.41	48	0.77	10	0.99
			230		0.20	48			0.98
			277		0.17	48			0.98
		-20 F / -28 C	120	IOP-3P32LW-SC	0.46	55	0.85	10	0.99
			230		0.24	54			0.98
			277		0.20	54			0.98
3	32	-20 F / -28 C	120	IOP-3P32LW-SC	0.62	73	0.77	10	0.99
			230		0.32	72			0.98
			277		0.27	71			0.98
		-20 F / -28 C	120	IOP-4P32LW-SC	0.67	80	0.84	10	0.99
			230		0.35	79			0.98
			277		0.29	79			0.98
4	32	-20 F / -28 C	120	IOP-4P32LW-SC	0.81	96	0.77	10	0.99
			230		0.43	95			0.98
			277		0.35	94			0.98
F32T8/ES (25W Philips Lamps)									
1	25	60 F / 15 C	120	IOP-1P32LW-SC	0.17	21	0.77	10	0.99
			230		0.09	21			0.98
			277		0.07	21			0.98
		60 F / 15 C	120	IOP-2P32LW-SC	0.20	24	0.90	10	0.99
			230		0.11	24			0.97
			277		0.09	24			0.96
2	25	60 F / 15 C	120	IOP-2P32LW-SC	0.32	38	0.77	10	0.99
			230		0.17	38			0.98
			277		0.14	38			0.98
		60 F / 15 C	120	IOP-3P32LW-SC	0.36	43	0.86	10	0.99
			230		0.19	43			0.97
			277		0.16	43			0.96
3	25	60 F / 15 C	120	IOP-3P32LW-SC	0.49	58	0.77	10	0.99
			230		0.25	57			0.98
			277		0.21	57			0.98
		60 F / 15 C	120	IOP-4P32LW-SC	0.52	62	0.85	10	0.99
			230		0.27	61			0.97
			277		0.22	61			0.97
4	25	60 F / 15 C	120	IOP-4P32LW-SC	0.65	77	0.77	10	0.99
			230		0.33	75			0.98
			277		0.28	75			0.98

Note: See back page for wiring diagram and can dimensions

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	Max THD % (Measured)	Min Power Factor (Measured)
Number	Watts								
F32T8/ES (28W)									
1	28	60 F / 15 C	120	IOP-1P32LW-SC	0.19	22	0.77	10	0.99
			230		0.10	22			0.98
			277		0.08	22			0.98
		60 F / 15 C	120	IOP-2P32LW-SC	0.22	26	0.90	10	0.99
			230		0.12	26			0.98
			277		0.10	26			0.97
2	28	60 F / 15 C	120	IOP-2P32LW-SC	0.35	42	0.77	10	0.99
			230		0.19	42			0.98
			277		0.15	42			0.98
		60 F / 15 C	120	IOP-3P32LW-SC	0.40	47	0.86	10	0.99
			230		0.21	47			0.98
			277		0.18	47			0.97
3	28	60 F / 15 C	120	IOP-3P32LW-SC	0.54	64	0.77	10	0.99
			230		0.28	63			0.98
			277		0.23	63			0.98
		60 F / 15 C	120	IOP-4P32LW-SC	0.58	69	0.85	10	0.99
			230		0.30	68			0.98
			277		0.25	68			0.97
4	28	60 F / 15 C	120	IOP-4P32LW-SC	0.71	84	0.77	10	0.99
			230		0.36	82			0.98
			277		0.30	82			0.98
F32T8/ES (30W)									
1	30	60 F / 15 C	120	IOP-1P32LW-SC	0.20	24	0.77	10	0.99
			230		0.11	24			0.98
			277		0.09	24			0.98
		60 F / 15 C	120	IOP-2P32LW-SC	0.24	28	0.90	10	0.99
			230		0.12	28			0.98
			277		0.10	28			0.98
2	30	60 F / 15 C	120	IOP-2P32LW-SC	0.38	45	0.77	10	0.99
			230		0.20	45			0.98
			277		0.17	45			0.98
		60 F / 15 C	120	IOP-3P32LW-SC	0.43	51	0.85	10	0.99
			230		0.23	51			0.98
			277		0.19	51			0.98
3	30	60 F / 15 C	120	IOP-3P32LW-SC	0.57	68	0.77	10	0.99
			230		0.30	67			0.98
			277		0.25	67			0.98
		60 F / 15 C	120	IOP-4P32LW-SC	0.63	75	0.84	10	0.99
			230		0.32	74			0.98
			277		0.27	74			0.98
4	30	60 F / 15 C	120	IOP-4P32LW-SC	0.76	90	0.77	10	0.99
			230		0.40	88			0.98
			277		0.33	88			0.98
F40T8									
1	40	32 F / 0 C	120	IOP-2P32LW-SC	0.29	35	0.87	10	0.99
			230		0.16	35			0.98
			277		0.13	35			0.98
2	40	32 F / 0 C	120	IOP-3P32LW-SC	0.58	67	0.85	10	0.99
			230		0.30	66			0.98
			277		0.25	66			0.98
3	40	32 F / 0 C	120	IOP-4P32LW-SC	0.82	98	0.84	10	0.99
			230		0.43	96			0.98
			277		0.35	96			0.98

Note: See back page for wiring diagram and can dimensions

Section I - Physical Characteristics

- 1.1 The electronic ballast shall be physically interchangeable with standard electromagnetic and standard electronic ballasts.
- 1.2 The electronic ballast shall be furnished with integral leads, color-coded to ANSI C82.11.

Section II - Performance Requirements

- 2.1 Ballast shall be Instant Start or Programmed Start.
- 2.2 Instant Start ballast shall provide Independent Lamp Operation (ILO) for allowing remaining lamp(s) to maintain full light output when one or more lamp fails. Programmed Start ballast shall provide semi-independent lamp operation.
- 2.3 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 at a frequency above 42 kHz through 52 kHz to minimize interference with infrared control systems and eliminate visible flicker.
- 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 -20°F (-29°C) or 0°F (-18°C) for standard T8 lamps and 60°F (16°C) for energy-savings 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 ballast shall provide lamp EOL Protection Circuitry

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 specification.

Section IV - Other

- 4.1 The electronic ballast shall be produced in a factory certified to ISO 9002 Quality System Standards.
- 4.2 The electronic ballast shall carry a five-year warranty from the date of manufacture against defects in material or workmanship, including replacement for operation at a maximum case temperature of 70°C. 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 The manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

