



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.

2. Only the Optanium 2.0 (IOP) models are suitable for tandem-wiring applications operating 25W, 28W or 30W energy saving T8 lamps. The use of the Optanium 2.0 (IOP) models is recommended to reduce lamp striation.

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

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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.

