Centium®

Optanium®

AmbiStar™

SmartMate®

Standard

T5HO

PureVOLT™

ELECTRONIC FLUORESCENT BALLASTS

Fluorescent Ballasts - Electronic - Optanium®

High-efficiency electronic ballasts for a broad range of T5 and T8 lamps

Optanium ballasts for T5 and T8 lamps are part of our effort to promote environmental responsibility through Smart Solutions™ - energy efficient products, lighting systems, services and expertise through Philips Advance branded products. They are also one of the charter products of the NEMA Premium® Ballast Program. All of this makes these ballasts part of an overall high-efficiency lighting system that may help you achieve LEED certification, meet ASHRAE standards, become compliant with California Title 24 Energy Efficiency Standards, or any other local energy code you or your customers need to be in compliance.

Optanium ballasts will help you and your customers meet a variety of application challenges including luminaire design, installation, maintenance, and evolving lamp technology. Optanium ballasts are available in a standard light output, low-watt, and a high light output design. Also these ballasts come in options with cold-starting capability down to -20°F (with standard fluorescent lamps). These two features combined make it ideal for just about any T5 or T8 fixture design and application. These ballasts are available in either instant start or programmed start ignition for extended lamp life in frequent switching applications such as those where occupancy sensors or motion detectors are being used. Optanium ballasts are also available in program start with parallel wiring.

Setting Industry Standards for Ballast Efficiency

As a charter product in the NEMA Premium® Ballast Program, Optanium ballasts are recognized as supporting energy-efficient lighting objectives. The National Electrical Manufacturers Association (NEMA) has created this program to help lighting professionals and end users recognize the market's highest-performing ballast products. For more information on the NEMA Premium Ballast Program, visit www.philips.com/advance and click on the "Sustainability" tab.

Striation-reduction technology

Reduces the likelihood of striation often associated with energy-saving lamps, for consistent light output

Cold temperature lamp ignition down to -20°F for instant or program start ballasts

Brings energy-efficient T5 and T8 performance to a variety of new applications such as parking garages, warehouses, and cold storage areas

Arc-reduction technology — UL Type CC

UL Type CC* (on certain ballasts)

Program start parallel (PSP)

Program start ballasts with parallel wiring delivers independent lamp operation preventing premature lamp shut down ultimately reducing maintenance

High efficiency design

Maximize energy savings with improved ballast efficiency

NEMA Premium®

The following ballasts are NEMA Premium®:

IOP-1P32-SC
IOP-1P32-LW-SC
IOP-2P32-SC
IOP-2P32-LW-SC
IOP-2P32-HL-SC
IOP-3P32-SC
IOP-3P32-LW-SC
IOP-3P32-HL-90C-SC
IOP-4P32-SC
IOP-4P32-LW-SC
IOP-4P32-HL-90C-G
IOPA-1P32-SC
IOPA-1P32-LW-SC
IOPA-2P32-SC
IOPA-2P32-LW-SC
IOPA-2P32-HL-SC
IOPA-3P32-SC
IOPA-3P32-LW-SC
IOPA-3P32-HL-SC
IOPA-4P32-SC
IOPA-4P32-LW-SC
IOPA-4P32-HL

As a licensee in the NEMA Premium Ballast Program, Philips Lighting Electronics has determined that these products meet the NEMA Premium specification for premium energy efficiency.

Electronic Ballast Fundamentals

The job of a ballast

In all fluorescent lighting systems, the ballast's basic tasks include:

- Providing the proper voltage to establish an arc between the two electrodes.
- Regulating the electric current flowing through the lamp to stabilize light output.

In some fluorescent lighting systems, the ballast also provides a controlled amount of electrical energy to preheat or maintain the temperature of the lamp electrodes at levels specified by the manufacturer. This is required to prevent electrode filaments deteriorating prematurely and shortening the lamp life.

Starting Methods

For many years there were only three types of lighting systems: preheat, rapid start and slimline instant start. With the introduction of electronic ballasts, two additional types of lighting system circuits have been added: instant start for T8 lamps and programmed start. Each requires a special ballast design to operate the lamps in the circuit properly.

Instant start electronic ballasts start lamps without delay (<0.1 seconds) or flicker by providing a starting voltage that is sufficiently high to start a discharge through the lamps without the need for heating lamp electrodes. For F32T8 systems, the starting voltage is about 600V. The elimination of electrode heating maximizes energy savings — typically saving 2W per lamp compared to rapid start ballasts. Instant start ballasts are best suited for applications with limited switches each day. Lamps operated by instant start ballasts typically operate 10,000 to 15,000 switch cycles before failure.

Rapid start electronic ballasts start lamps quickly (0.5 — 1.0 seconds) without flicker by heating the lamp electrodes and simultaneously applying a starting voltage. The starting voltage of about 500V for F32T8 systems is sufficient to start a discharge through the lamps when the electrodes have reached an adequate temperature. Electrode heating continues during operation and typically consumes 2W per lamp. Lamps operated by rapid start ballasts typically operate 15,000 to 20,000 switch cycles before failure.

Programmed start electronic ballasts also start lamps quickly (1.0 -1.5 seconds) without flicker. Programmed start ballasts are designed to maximize lamp life in frequent lamp starting applications such as in areas where occupancy sensor controls are used. Programmed start electronic ballasts precisely heat the lamp electrodes, tightly controlling the preheat duration before applying the starting voltage. This enhancement over rapid start ballasts minimizes electrode stress and depletion of emitter material, thereby maximizing lamp life. Lamps operated by programmed start ballasts typically operate up to 50,000 switch cycles before failure.

Circuits

Series vs. Parallel. Lighting systems are typically wired in a series or parallel circuit. When a ballast is operating multiple lamps in a series circuit, if one lamp fails, the circuit is opened and all the lamps will extinguish. When a ballast operates multiple lamps in a parallel circuit, the lamps operate independently of each other so, if one lamp fails, the others can keep operating as the circuit between them and the ballast remains unbroken.

As a general rule, rapid start ballasts are wired with the lamps in series. Programmed start ballasts are also typically wired with lamps in series. However, some three- and four-lamp ballasts feature series-parallel operation; so that when a single lamp in one branch fails, the lamp(s) in the parallel branch will continue to operate. Instant start ballasts are typically wired with the lamps in parallel.

The Language of Ballasts

Input Voltage (dedicated vs. multi). Most ballasts are designed to operate at specific voltages. Newer electronic ballasts, including Philips Advance models that use IntelliVolt® technology, offer much greater flexibility and other advantages such as inventory reduction. Today's increasing demands on electrical utilities can cause wide voltage variations during load demand changes which in turn cause light output from lamps operated on dedicated electronic and electromagnetic ballasts to vary with the input voltage changes. With IntelliVolt technology, many Philips Advance ballasts maintain constant light output through nominal input voltage ranges of 120 to 277 volts, thereby compensating for any change in input voltage. Some ballasts operate from 277 to 480 volts or 347 to 480 volts.

Input Watts/ANSI Watts. Input watts published by ballast manufacturers are the total watts consumed by both the ballast and the lamps it operates. ANSI watts are the rating given for a ballast measured under the strict testing procedures specified by ANSI standards and are a dependable measure of this lamp/ballast performance. Energy savings can be determined by comparing the input watts of different lighting systems.

Input watts may be affected by tolerance build-up from the ballast, lamp, input voltage and ambient temperature. The input watts published in this catalog are for nominal conditions only.

Ballast Factor (BF) is the ratio of light output from a lamp operated on a commercial ballast to the light output of that same lamp operated on a "reference ballast" as specified by ANSI standards. Light output ratings published by lamp manufacturers, are based on this "reference ballast".

$$BF = \frac{\text{light output of lamp operated on commercial ballast}}{\text{light output of lamp operated on reference ballast}}$$

BF is a measure of light output best thought of as a 'multiplier'. Multiplying the BF times rated lumens will determine actual light output of a given system operated on commercial ballasts.

Ballast Efficacy Factor (BEF) is the ratio of ballast factor to input watts. This measurement is generally used to compare the efficiency of various lighting systems — higher numbers being more efficient.

$$\text{Ballast Efficacy Factor} = \frac{\text{Ballast Factor} \times 100}{\text{Input Watts}}$$

This comparison is only valid, however, for ballasts operating the same number and type of lamps. In order to compare different types of lighting systems, the lumen output of the lamps must also be used.

For 25W-48" Lamps

HIGH POWER FACTOR SOUND RATED A

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F32T8/ES (25W - 48")											
1	120-277	IS	Optanium	IOP-1P32-LW-SC	21	0.77	10	0.17-0.07	60/16	B	63
				IOPA-1P32-LW-SC							
				IOP-1P32-SC	23	0.87	10	0.20-0.09			
				IOPA-1P32-SC							
				IOP-1P32-HL-SC	32	1.21	10	0.26-0.12			
				IOPA-1P32-HL-SC							
				IOP-2P32-LW-SC	24	0.90	10	0.20-0.09			*64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	27	1.05	10	0.23-0.10			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	37	1.40	15	0.31-0.14			
				IOPA-2P32-HL-SC							
		PS		IOP-1S32-LW-SC	21	0.72	10	0.17-0.07			20
				IOP-1S32-SC	24	0.88	10	0.20-0.08			
				IOP-2S32-LW-SC	21	0.73	10	0.17-0.08			39
				IOP-2S32-SC	24	0.89	10-15	0.20-0.09			
	347	IS	Optanium	GOPA-1P32-LW-SC	21	0.77	10	0.06			63
				GOPA-1P32-SC	23	0.88		0.06			
				GOPA-2P32-LW-SC	25	0.88		0.07			
				GOPA-2P32-SC	27	1.04		0.09			*64
2	120-277	IS	Optanium	IOP-2P32-LW-SC	38	0.77	10	0.32-0.14	60/16	B	64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	44-43	0.87	10	0.37-0.06			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	60	1.19	10	0.50-0.22			
				IOPA-2P32-HL-SC							
				IOP-3P32-LW-SC	43	0.86	10	0.36-0.16			*65
				IOPA-3P32-LW-SC							
				IOP-3P32-SC	49	1.00	10	0.42-0.18			
				IOPA-3P32-SC							
				IOP-3P32-HL-90C-SC	70	1.32	10-20	0.59-0.27			
				IOPA-3P32-HL-SC							
		PS		IOP-2S32-LW-SC	39-38	0.71	10	0.32-0.14			21
				IOP-2S32-SC	45-44	0.88	10	0.38-0.16			
	347	IS	Optanium	GOPA-2P32-LW-SC	39	0.78	10	0.12			63
				GOPA-2P32-SC	44	0.88		0.13			
				GOPA-3P32-LW-SC	43	0.86		0.13			*64
				GOPA-3P32-SC	48	1.00		0.14			

Refer to page 1-41 and 1-42 for dimensions
Refer to page 1-47 and 1-48 for wiring diagrams
Refer to pages 9-24 to 9-28 for lead lengths and shipping data

For 28W-48" Lamps

HIGH POWER FACTOR SOUND RATED A

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F32T8/ES (28W - 48")											
1	120-277	IS	Optanium	IOP-1P32-LW-SC	22	0.77	10	0.19-0.08	60/16	B	63
				IOPA-1P32-LW-SC							
				IOP-1P32-SC	25	0.87	10	0.22-0.10			
				IOPA-1P32-SC							
				IOP-1P32-HL-SC	33	1.21	10	0.28-0.12			
				IOPA-1P32-HL-SC							
				IOP-2P32-LW-SC	26	0.90	10	0.22-0.10			*64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	31	1.05	10	0.26-0.11			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	39	1.38	10	0.33-0.15			
				IOPA-2P32-HL-SC							
		PS		IOP-1S32-LW-SC	21	0.72	10	0.18-0.07			20
				IOP-1S32-SC	25	0.88	10	0.20-0.09			
				IOP-2S32-LW-SC	22	0.73	10	0.18-0.08			39
				IOP-2S32-SC	26	0.88	10-15	0.21-0.09			
	347	IS	Optanium	GOPA-1P32-LW-SC	22	0.77	10	0.07	60/16		63
				GOPA-1P32-SC	25	0.88		0.07			
				GOPA-2P32-LW-SC	26	0.88		0.08			*64
				GOPA-2P32-SC	29	1.04		0.09			
2	120-277	IS	Optanium	IOP-2P32-LW-SC	42	0.77	10	0.35-0.15	60/16	B	64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	48-47	0.87	10	0.41-0.18			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	65-64	1.19	10	0.55-0.24			
				IOPA-2P32-HL-SC							
				IOP-3P32-LW-SC	47	0.86	10	0.40-0.18			*65
				IOPA-3P32-LW-SC							
				IOP-3P32-SC	55-54	1.00	10	0.46-0.20			
				IOPA-3P32-SC							
				IOP-3P32-HL-90C-SC	74-73	1.31	10-15	0.62-0.27			
				IOPA-3P32-HL-SC							
		PS		IOP-2S32-LW-SC	41-40	0.71	10	0.34-0.15			21
				IOP-2S32-SC	49-48	0.88	10	0.41-0.18			
	347	IS	Optanium	GOPA-2P32-LW-SC	42	0.78	10	0.12	60/16	B	64
				GOPA-2P32-SC	47	0.88		0.14			
				GOPA-3P32-LW-SC	46	0.77		0.13			*65
				GOPA-3P32-SC	52	1.00		0.16			

Refer to page 1-41 and 1-42 for dimensions
Refer to page 1-47 and 1-48 for wiring diagrams
Refer to pages 9-24 to 9-28 for lead lengths and shipping data

For 30W-48" Lamps

HIGH POWER FACTOR SOUND RATED A

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F32T8/ES (30W - 48")											
1	120	PS	Centium	RCN-1S32-SC	32	0.90	10	0.27	60/16	B	20
	277			VCN-1S32-SC	32	0.90	10	0.12			
	120-277	IS	Centium	ICN-132-MC	27	0.88	10	0.23-0.10	60/16	A2	63
				ICN-1P32-LW-SC	25	0.77	10	0.21-0.09		B	
				ICN-1P32-N	29	0.90	10	0.24-0.11			
				ICN-2P32-LW-SC	29-28	0.85	15-20	0.24-0.11			*64
				ICN-2P32-N	33	1.03	10	0.28-0.12			
			Optanium	IOP-1P32-LW-SC	24	0.77	10	0.20-0.09			63
				IOPA-1P32-LW-SC							
				IOP-1P32-SC	27	0.87	10	0.23-0.10			
				IOPA-1P32-SC							
				IOP-1P32-HL-SC	37-36	1.20	10	0.31-0.13			
				IOPA-1P32-HL-SC							
				IOP-2P32-LW-SC	28	0.90	10	0.24-0.10			*64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	33	1.05	10	0.28-0.12			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	42	1.38	10	0.35-0.16			
				IOPA-2P32-HL-SC							
		PS		IOP-1S32-LW-SC	23	0.72	10	0.19-0.08			20
				IOP-1S32-SC	27	0.88	10	0.22-0.10			
				IOP-2S32-LW-SC	24-23	0.73	10	0.20-0.09			39
				IOP-2S32-SC	27	0.90	10	0.23-0.10			
	347	IS	Optanium	GOPA-1P32-LW-SC	24	0.77	10	0.07	60/16		63
				GOPA-1P32-SC	27	0.88		0.08			
				GOPA-2P32-LW-SC	28	0.88		0.08			*64
				GOPA-2P32-SC	32	1.04		0.10			

Refer to page 1-41 and 1-42 for dimensions
Refer to page 1-55 and 1-56 for wiring diagrams
Refer to pages 9-24 to 9-28 for lead lengths and shipping data

For 30W-48" Lamps

HIGH POWER FACTOR SOUND RATED A

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F32T8/ES (30W - 48")											
2	120	PS	Centium	RCN-2S32-SC	60	0.88	10	0.51	60/16	B	21
	277			VCN-2S32-SC	60	0.88	10	0.22			
	120-277	IS	Centium	ICN-2M32-MC	54	0.88	10	0.45-0.20	60/16	A2	64
				ICN-2P32-LW-SC	47-46	0.77	10	0.39-0.17		B	
				ICN-2P32-N	54	0.88	10	0.45-0.20			
				ICN-3P32-LW-SC	52	0.83	10	0.44-0.19			*65
				ICN-3P32-SC	61	1.01	10	0.51-0.22			
			Optanium	IOP-2P32-LW-SC	45	0.77	10	0.38-0.17			64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	52-51	0.87	10	0.44-0.19			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	72-70	1.19	10	0.60-0.26			
				IOPA-2P32-HL-SC							
				IOP-3P32-LW-SC	51	0.85	10	0.43-0.19			*65
				IOPA-3P32-LW-SC							
				IOP-3P32-SC	59-58	1.00	10	0.50-0.21			
				IOPA-3P32-SC							
				IOP-3P32-HL-90C-SC	78-77	1.31	10	0.65-0.29			
				IOPA-3P32-HL-SC							
		PS		IOP-2S32-LW-SC	44-43	0.71	10	0.36-0.16			21
				IOP-2S32-SC	52	0.88	10	0.44-0.19			
	347	IS	Optanium	GOPA-2P32-LW-SC	46	0.78	10	0.13	60/16	B	64
				GOPA-2P32-SC	51	0.88		0.15			
				GOPA-3P32-LW-SC	50	0.86		0.15			*65
				GOPA-3P32-SC	57	1.00		0.17			

Refer to page 1-41 and 1-42 for dimensions
Refer to page 1-55 and 1-56 for wiring diagrams
Refer to pages 9-24 to 9-28 for lead lengths and shipping data

For 32W Lamps

HIGH POWER FACTOR SOUND RATED A

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F32T8, FBO31T8, F32T8/U6 (32W)											
1	120	IS	AmbiStar‡	REB-2P32-SC	33	1.00	140	0.48	0/-18	B	*64
		PS	Centium	RCN-1S32-SC	34	0.90	10	0.29	32/0		20
		RS	PowrKut	RK-132-TP	34	0.85	20	0.31	50/10	A	
	277	PS	Centium	VCN-1S32-SC	34	0.90	10	0.13	32/0	B	
		RS	PowrKut	VK-132-TP	34	0.85	20	0.13	50/10	A	
	120-277	IS	Centium	ICN-132-MC	30	0.88	10	0.25-0.11	0/-18	A2	63
				ICN-1P32-LW-SC	27	0.77	10	0.22-0.10		B	
				ICN-1P32-N	31	0.90	10	0.26-0.12			
				ICN-2P32-LW-SC	32	0.85	15-20	0.27-0.12			*64
				ICN-2P32-N	36	1.03	15	0.30-0.14			
			Optanium	IOP-1P32-LW-SC	25	0.77	10	0.22-0.10	-20/-29		63
				IOPA-1P32-LW-SC							
				IOP-1P32-SC	28	0.87	10	0.25-0.11			
				IOPA-1P32-SC							
				IOP-1P32-HL-SC	39-38	1.18	10	0.33-0.14			
				IOPA-1P32-HL-SC							
				IOP-2P32-LW-SC	31	0.90	10	0.26-0.11			*64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	35	1.05	10	0.30-0.13			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	45	1.37	10	0.37-0.17			
				IOPA-2P32-HL-SC							
		PS		IOP-1S32-LW-SC	25	0.72	10	0.20-0.09	0/-18		20
				IOP-1S32-SC	28	0.88	10	0.24-0.10			
				IOP-2S32-LW-SC	25	0.73	10	0.20-0.09			39
				IOP-2S32-SC	29	0.90	10	0.24-0.11			
	347	IS	Optanium	GOPA-1P32-LW-SC	26	0.77	10	0.08	-20/29		63
				GOPA-1P32-SC	30	0.88		0.09			
				GOPA-2P32-LW-SC	31	0.88		0.09			*64
				GOPA-2P32-SC	34	1.03		1.03			

‡ The above AmbiStar ballasts are normal power factor and labeled 'For Residential Use Only'

NEMA Premium®

See pages 1-3 and 1-4 for specific SKU's that meet the NEMA Premium Standard

Refer to page 1-41 and 1-42 for dimensions
Refer to page 1-59 and 1-60 for wiring diagrams
Refer to pages 9-24 to 9-28 for lead lengths and shipping data

For 32W Lamps

HIGH POWER FACTOR SOUND RATED A

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F32T8, FBO31T8, F32T8/U6 (32W)											
2	120	IS	AmbiStar‡	REB-2P32-SC	56	0.88	120	0.80	0/-18	B	64
		PS	Centium	RCN-2S32-SC	63	0.88	10	0.53	32/0		21
		RS	PowrKut	RK-2S32-TP	66	0.86	15	0.60	50/10	A	
	277	PS	Centium	VCN-2S32-SC	63	0.88	10	0.23	32/0	B	*65
		RS	PowrKut	VK-2S32-TP	66	0.85	15	0.26	50/10	A	21
	120-277	IS	Centium	ICN-2M32-MC	59	0.88	10	0.50-0.21	0/-18	A2	64
				ICN-2P32-LW-SC	50-49	0.77	10	0.42-0.12		B	
				ICN-2P32-N	59	0.88	10	0.49-0.22			
				ICN-3P32-LW-SC	57-56	0.86	10	0.48-0.21			*65
				ICN-3P32-SC	65	1.01	10	0.54-0.24			
			Optanium	IOP-2P32-LW-SC	48	0.77	10	0.41-0.17	-20/-29		64
				IOPA-2P32-LW-SC							
				IOP-2P32-SC	55-54	0.87	10	0.47-0.20			
				IOPA-2P32-SC							
				IOP-2P32-HL-SC	74-72	1.18	10	0.62-0.26			
				IOPA-2P32-HL-SC							
				IOP-3P32-LW-SC	55-54	0.85	10	0.46-0.20			*65
				IOPA-3P32-LW-SC							
				IOP-3P32-SC	63-62	1.00	10	0.53-0.23			
				IOPA-3P32-SC							
				IOP-3P32-HL-90C-SC	80-79	1.38	10	0.67-0.29			
				IOPA-3P32-HL-SC							
		PS		IOP-2S32-LW-SC	47-46	0.71	10	0.38-0.17	0/-18		21
				IOP-2S32-SC	56-55	0.88	10	0.47-0.20			
	347	IS	Optanium	GOPA-2P32-LW-SC	48	0.78	10	0.14	-20/-29	B	64
				GOPA-2P32-SC	54	0.88		0.16			
				GOPA-3P32-LW-SC	55	0.86		0.16			*65
				GOPA-3P32-SC	63	1.00		0.18			

‡ The above AmbiStar ballasts are normal power factor and labeled 'For Residential Use Only'

NEMA Premium

See pages 1-3 and 1-4 for specific SKU's that meet the NEMA Premium Standard

Refer to page 1-41 and 1-42 for dimensions
Refer to page 1-59 and 1-60 for wiring diagrams
Refer to pages 9-24 to 9-28 for lead lengths and shipping data