Electronic HID Overview

Just as electronic ballast technology enhanced fluorescent lighting systems, electronic HID ballasts bring significant performance improvements to HID lighting systems, including:

- Higher efficiency
- Greater lumen maintenance
- Longer lamp life
- Enhanced color control

e-Vision

Low frequency electronic ballasts are recommended by lamp manufacturers to drive the latest generation of ceramic, low wattage metal halide lamps. These ceramic lamps have superior color rendition and can potentially maintain that color over the life of the lamps when properly operated with electronic ballasts. Since color is dependent on proper lamp wattage, the electronic ballast must be able to maintain lamp wattage precisely at its rated point throughout the rated average life of the lamp. Low frequency electronic HID ballasts, such as the Philips Advance e-Vision line, constantly measure and adjust the wattage, optimizing delivery of the ceramic lamps' superior color properties. This makes ceramic metal halide operated by e-Vision ballasts the premier choice for many applications previously illuminated by either tungsten halogen or incandescent sources, such as retail lighting.

Operational improvements are gained as greater efficiency and cooler running electronic ballasts lead to energy savings. In addition, ballasts run quieter, weigh less and have smaller footprints.

CosmoPolis

CosmoPolis presents a major step forward in outdoor lighting and was developed specifically to meet the challenges of the 21st century. The CosmoPolis system simplifies outdoor lighting with the combination of a compact lamp and an optimized, rugged electronic ballast system. Designed specifically for outdoor area and roadway lighting applications, these Xtreme ballasts have integral surge protection of 10kV/5kA, and 80,000 hours rated average life.* This highly efficient system provides end users the ability to convert to a warm white light without sacrificing color rendering or system lifetime.

MasterColor Elite Medium Wattage

The lamp's sparkling white light with 90 CRI creates a natural ambiance and brings out the best in all different types of colors. The high efficiency of the lamp and ballast together means reduced energy use and a lower cost of ownership compared to traditional 400W Metal Halide HID systems.** The e-Vision ballast comes with 0-10V control wires that allow for dimming to 50% of lamp power and allow for operation by 0-10V controls such as the Philips DynaDimmer. This system is ideal for indoor lighting in both high-bay and recessed applications, as well as outdoor lighting for street and area installations.

* Rated average life is based on 90% surviving when operating at 10°C less than the marked maximum case temperature (Tc - 10°C) with one switch per day. Rated average life is based on engineering testing in laboratory conditions and probability data as defined in IEC Norm 60929.

** Based on a comparison of published data of a Philips CDM EliteMW 315/T9/942/U/E lamp operated by Philips Advance IZTMH-210315-R-LF (341 System Watts) to a Philips MS400/BU/ED28/PS operated by a Philips Advance 71A6092AEE ballast (452 system Watts) operated for 30,000 hours (rated average life of 315W CDM Elite lamp).

Catalog Number Explanation

I	ZT	MH	_	100	A	BLS	ID

ID — Additional Features:
- Blank = None
- ID = Integral 120V output to supply power to a 4-Wire Self Heating Thermal Protector (39W, 70W, 100W)

BLS — Lead Exit / Mounting Options:
- BLS = Bottom Leads with Studs
- LF = Leads (side exit) with mounting Feet
- LFS = Leads (side exit, lead exit from same end) with mounting Feet (K metal case models only)
- LS = Connector (side exit) with mounting Feet

A — Can Material / Size: (Dimensions include mounting feet)
- A/B = Metal case with dim. 5.5" L x 3.6" W x 1.5" H
- D = Metal case with dim. 5.0" L x 3.0" W x 1.5" H
- E = Metal case with dim. 5.5" L x 1.75" W x 1.2" H
- G = Metal case with dim. 3.9" L x 3.0" W x 1.2" H
- H = Metal case with dim. 6.4" L x 3.7" W x 1.5" H
- K = Metal case with dim. 4.75" L x 1.3" W x 1.2" H
- M = Plastic case with dim. 5.9" L x 2.6" W x 2.6" H (no longer available)
- N = Plastic case with dim. 5.3" L x 2.6" W x 2.6" H (no longer available)
- Q = Plastic case with dim. 5.9" L x 3.5" W x 1.5" H
- R = Metal case with dim. 8.2" L x 4.9" W x 2.2" H
- T = Plastic case with dim. 6.3" L x 3.9" W x 2.4" H (no longer available)

100 — Max Lamp Wattage:

G20 = 20W Lamp, ANSI C156/M156	P39 = 39W Lamp+	60 = 60W Lamp	100 = 100W Lamp	210315 = 210 W or 315W Lamp
20 = 22 W Lamp^	45 = 45W Lamp	70 = 70W Lamp	140 = 140W Lamp	
39 = 39 W Lamp, ANSI C130/M130	50 = 50W Lamp	90 = 90W Lamp	150 = 150W Lamp	

_ — Number of Lamps: Blank = 1 Lamp Operation; 2 = 2 Lamp Operation

MH — Primary Lamp Type:
- MH = Metal Halide
- CW = CosmoPolis Metal Halide

ZT — Dimming Scheme: Blank = Fixed Light Output; ZT = 0-10V Dimming; D = Programmable DALI Interface (no longer available)

I — Input Voltage:
- I = Intellivolt (accepts input of 120 thru 277V, 50/60 Hz nominal)‡
- R = 120V, 50/60 Hz nominal

^ Philips 22W MiniMaster Color Lamp, ANSI C175/M175, with PGj5 base
+ Philips 39W MiniMaster Color Lamp, ANSI C179/M179, with PGj5 base
‡ For CosmoPolis and MasterColor CDM Elite Medium Wattage, Intellivolt is limited to 208 thru 277V

e-Vision Low Frequency Electronic HID Ballasts

For Low Wattage HID Lamps

Key Features	Key Benefits
IntelliVolt · Operates on either 120 or 277V, or any voltage in between, 50 or 60Hz	· Fewer SKUs required in inventory · Broadens the range of applications
Smaller and lighter weight than magnetic HID F-Can ballasts	· Compact footprints · Provides greater design flexibility
Reduced input watts compared to magnetic systems	· Energy savings; lower cost of ownership
Low frequency lamp operation	· Prevents acoustic resonance in the lamp arc tube
Square wave output waveform	· Helps maximize lamp life
Lamp EOL detection; shuts down system at lamp end of life	· Enhanced safeguard
Thermally protected, internally fused and output short circuit protected	· Shuts system down upon abnormal failure or conditions
Lamp wattage regulation · Lamp wattage will change less than .5% with a +/-10% change in line voltage	Excellent light quality · Optimizes lamp color stability over time · Reduces lamp-to-lamp color variations both initially and during lamp life
Metallic enclosure	· Provides enhanced capability for high ambient temperatures by transferring heat away from sensitive internal components
1.0 Ballast Factor	· Lamp produces maximum light output over its rated average life

eHID Lead Wire Information

Wire Color	Function	Lengths Lead (-LF model)	Lengths (-BLS model)	Length Strip
Black	Input Power	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
White	Input Power	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Red	Lamp Base	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Blue	Lamp Screwshell	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Green	Ground	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Orange	Lamp Base (Second Lamp on 2-Lamp Ballasts)	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Brown	Lamp Screwshell (Second Lamp on 2-Lamp Ballasts)	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Yellow	Output for 120V Self Heating Thermal protector	N/A	9.0" +3.0"/-2.0"	0.5"
Gray with Red Stripe	Output for 120V Self Heating Thermal protector	N/A	9.0" +3.0"/-2.0"	0.5"

Metal Halide

RoHS COMPLIANT

Lamp Data		Input Volts	Catalog Number* *Note 1*	Certifications		Line Current (Amps)	Input Power ANSI (Watts)	Max. Case Temp. *Note 3*	Wiring Diag.	Fig.	Weight (lb)	Max. Distance to Lamp (ft)
Number	Watts			UL	SA							
20W Lamp, ANSI Code M156/C156 Minimum Starting Temp -20°C/-4°F												
1	20	120	IMH-G20-K-LF, IMH-G20-K-LFS or IMH-G20-K-BLS *Note 2*	✓	✓	0.2	24	90°C	3	K	0.5	4
		277				0.10						
1	20	120	IMH-G20-G-LF IMH-G20-G-BLS	✓	✓	0.2	24	90°C	3	G	0.9	5
		277				0.09						
1	20	120	IMH-G20-E-LF	✓	✓	0.21	24	90°C	3	E	0.8	5
		277				0.09						
22W Lamp, Philips Mini MasterColor, ANSI Code M175/C175, Minimum Starting Temp. -20°C/-4°F												
1	22	120	RMH-20-K-LF, RMH-20-K-LFS or RMH-20-K-BLS *Note 2*	✓	✓	0.23	26	90°C	4	K	0.5	6
39W Lamp, ANSI Code M130/C130, Minimum Starting Temp. -20°C/-4°F												
1	39	120	IMH-39-K-LF, IMH-39-K-BLS or IMH-39-K-LFS *Note 2*	✓	✓	0.39	46	90°C	3	K	0.5	4
		277				0.18	45					
1	39	120	IMH-39-G-LF or IMH-39-G-BLS	✓	✓	0.37	44	90°C	3	G	0.9	3
		277		✓	✓	0.17	43					
1	39	120	IMH-39-E-LF	✓	✓	0.38	44	90°C	3	E	0.8	5
		277		✓	✓	0.16	43					
1	39	120	IMH-39-A-BLS-ID[x]	✓	✓	0.45	48	90°C	8	A	1.5	5
		277		✓	✓	0.18	47					
2	39	120	IMH-239-A-LF or IMH-239-A-BLS	✓	✓	0.74	89	85°C	5	A	1.7	6
		277		✓	✓	0.31	86					
39W Mini MasterColor Lamp, CDM-Tm 35W/930, ANSI Code M179/C179 Minimum Starting Temp -20°C/-4°F												
1	39	120	IMH-P39-G-LF IMH-P39-G-BLS	✓	✓	0.39	46	90°C	3	G	0.9	5
		277		✓	✓	0.17	45					
1	39	120	RMH-39-K-LF, RMH-39-K-BLS or RMH-39-K-LFS *Note 2*	✓	✓	0.40	45	90°C	4	K	0.5	6

1. All ballasts are sound rated A and feature high power factor (>0.9), a ballast factor of 1.0 resettable thermal protection and a maximum Harmonic Distortion of 15%.
2. For IMH-39-K-LF, RMH-39-K-LF, RMH-20-K-LF and IMH-G20-KLF input and output lead wires exit on opposite sides of ballast. For IMH-39-K-LFS, RMH-39-K-LFS, RMH-20-K-LFS and IMH-G20-K-LFS all lead wires exit the same side of the ballast.
3. Maximum case temperature should not be exceeded in the application, as life will be affected and the integral resettable thermal protector may activate. A lower maximum temperature rating does not imply lesser thermal performance and can be indicative of a cooler running ballast design. Consult factory for further application assistance.

* Ordering information:
— LF Side exit leads with mounting feet
— BLS Bottom exit leads with mounting studs

[x] Use with any Self Heating Thermal Protector (Insulation Detector) having equivalent resistive value 5k to 25k ohm (4 wire versions only).

¥ Restrictions on Hazardous Substances (RoHS) is a European directive (2002/95/EC) designed to limit the content of 6 substances [lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)] in electrical and electronic products.

Refer to page 6-3 for lead wire information.
Refer to pages 6-10 to 6-11 for ballast dimensions.
Refer to page 6-9 for wiring diagrams.