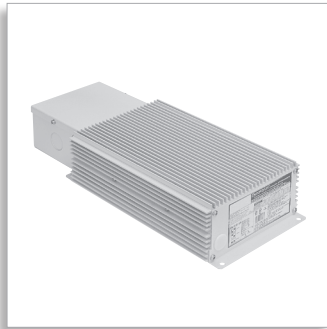




e-Vision®



DynaVision®



CosmoPolis™



MasterColor CDM™ Elite MV

ELECTRONIC HID BALLASTS

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ELECTRONIC HID BALLASTS

Electronic HID Overview

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

- 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 new 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 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 metal ceramic halide operated by e-vision ballasts the premier choice for many applications previously lit 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 compact footprints.

DynaVision®

Improved lumen maintenance — the lamp/ballast system's ability to minimize light output depreciation over the life of the lamp — is the most fundamental and significant benefit of electronic HID ballasts, especially medium wattage, high frequency ballasts such as the Philips Advance DynaVision® ballast. DynaVision delivers a 30-50% improvement in lumen maintenance over conventional HID systems (magnetic ballasts driving probe-start metal halide lamps) and a 19% improvement over pulse-start systems. Conventional HID systems typically experience a 50-60% fall-off in light output over the published life of the lamp. By maintaining higher light levels across the rated average life of the lamp, electronic HID ballasts reduce the need for frequent re-lamping.

With more maintained lumens the overall fixture count can be significantly reduced. For example, a 400W DynaVision system produces up to 56% more mean lumens over a 400W probe-start system with magnetic ballasts. Taking advantage of this performance benefit, the fixture count can be reduced by up to 36% without sacrificing light levels. Fewer fixtures also lead to much lower operating costs in terms of both energy savings and maintenance.

The DynaVision ballast provides dimming (to 50% power) using lighting controls such as relays, occupancy sensors, building management systems (BMS) and, other 0-10V controls. Also included is a 120V output for quartz auxiliary lighting during restrike. The microprocessor-based technology incorporated in this ballast provides comprehensive lamp and ballast parameter control and is a solid platform for the future.

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. 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

The MasterColor CDM Elite MW system offers an unrivalled level of light quality and performance. The lamp's sparkling white light 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. This new system is ideal for indoor lighting in both high-bay and recessed applications, as well as outdoor lighting for street and area installations.

e-Vision® Low Frequency Electronic HID Ballasts

For Low Wattage HID Lamps

E-HID 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"
Black/White	Lamp Power Selection (IMH50A and IMH175C models only)	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	11.0" +/- 1.0"	9.0" +3.0"/-2.0"	0.5"
Brown	Lamp Screwshell	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"

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 electronic HID 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 - Recommended by lamp manufacturers
Square wave output waveform	Maximizes 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
Excellent lamp wattage regulation Lamp wattage will change less than .5% with a +/-10% change in line voltage	Better light quality - Optimizes lamp color stability over rated average life - 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.

I	ZT	—	MH	—	—	I00	—	A	—	BLS	—	ID
Additional Options: Blank = None 6 = 6 hours* 8 = 8 hours* I0 = 10 hours* ID = Integral I20V output to supply power to a Self Heating Thermal Protector (39W, 70W, 100W)												
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 (RMH-G20-K, RMH-20-K and RMH-39-K Only) LS = Connector (side exit) with mounting Feet												
Can Material / Size: (Dimensions include mounting feet) A/B = Metal case with dim. 5.5" L x 3.6" W x 1.5" H C = Metal case with dim. 8.0" 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 N = Plastic case with dim. 5.3" L x 2.6" W x 2.6" 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												
Max Lamp Wattage: G20 = 20W Lamp 20= 22 W Lamp^ 39 = 39 W Lamp P39 = 39W Lamp+ 50 = 50W Lamp 60 = 60W CW Lamp 70 = 70W Lamp 90 = 90W CW Lamp 100 = 100W Lamp I40 = 140W CW Lamp I50 = 150W Lamp I75 = 175W Lamp 210315 = 210 W/315W MCE												
Number of Lamps: Blank = 1 Lamp Operation 2 = (2) Lamp Operation												
Primary Lamp Type: MH = Metal Halide WSN = Mini white SON (100 W Only) SN = High Pressure Sodium CW = CosmoWhite												
Dimming Scheme: Blank = Fixed Light Output ZT = 0-10V Dimming L = LumiStep												

Input Voltage:

I = Intellivolt (accepts input of I20 thru 277V, 50/60 Hz nominal) R = I20V, 50/60 Hz nominal)

- ^ Philips 20W MiniMaster Color Lamp
- + Philips 39W MiniMaster Color Lamp
- * Dimming time with LumiStep

e-Vision® Electronic Ballast Specifications

Section I - Physical Characteristics

- 1.0 The electronic ballast shall be furnished with integral, color-coded leads.

Section II - Performance Requirements

- 2.0 The electronic ballast shall be IntelliVolt® and operate from a nominal line voltage range of 120-27V, +/- 10%, 50/60Hz unless stated otherwise.
- 2.1 The electronic ballast input current shall have Total Harmonic Distortion (THD) of less than 15%.
- 2.2 The electronic ballast shall have a Power Factor greater than 90%.
- 2.3 The electronic ballast shall have a lamp end-of-life detection and shutdown circuit.
- 2.4 The electronic ballast shall be Sound Rated A.
- 2.5 The electronic ballast output frequency to the lamps shall be less than 200Hz to prevent acoustic resonance inside the lamp arc tube and to minimize visible flicker.
- 2.6 The electronic ballast shall provide a "Lamp Current Crest Factor" of less than 1.5.
- 2.7 The electronic ballast shall be thermally protected to shut off when operating temperatures reach unacceptable levels.

Section III - Regulatory Requirements

- 3.0 The electronic ballast shall meet the requirements of the Federal Communications Commission rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
- 3.1 The electronic ballast shall be Underwriters Laboratories (UL) Listed and CSA Certified where applicable.

Section IV - Other

- 4.0 The electronic ballast shall not contain Polychlorinated Biphenyl (PCB's).
- 4.1 The electronic ballast shall carry a three-year limited warranty from the date of manufacture for operation at marked maximum case temperature or less (See www.philips.com/advancewarranty for further information).
- 4.2 The manufacturer shall have a twenty-five year history of producing HID lamp ballasts for the North American market.
- 4.3 The electronic ballast shall be produced in a factory certified to ISO 9002 Quality System Standards

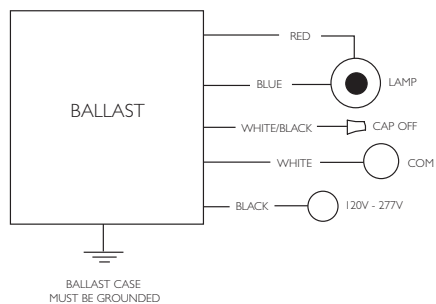
Installation Notes

1. Red lead must be connected to center terminal of lamp (for Edison, screw base lamps). Do not connect red or blue lead to neutral or ground.
2. Use appropriately rated lampholder.
3. Maximum ballast-to-lamp distance is 5ft. using typical wiring methods and materials. Additional distance up to 15ft. may be possible using wire between lamp and ballast with a total measured capacitance of 100 picofarads or less. Consult Philips Lighting Electronics for application assistance.
4. Power mains must be cycled off and then on to reset ballast after failed lamps are replaced.

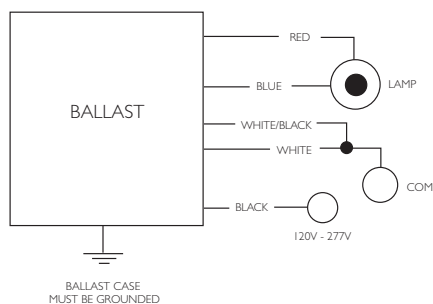
Ballast Hot Spot Location

Hot spot locations differ with each ballast model and are designated on the individual ballast labels. Consult ballast labels and ballast specification sheets for Hot Spot locations.

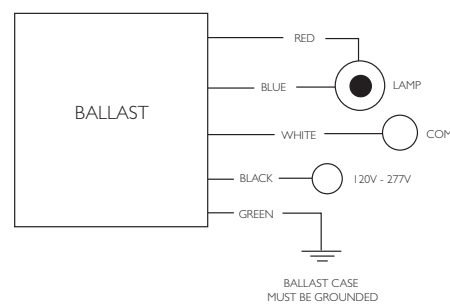
Enclosure Dimensions, Lead Lengths and Wiring Diagrams



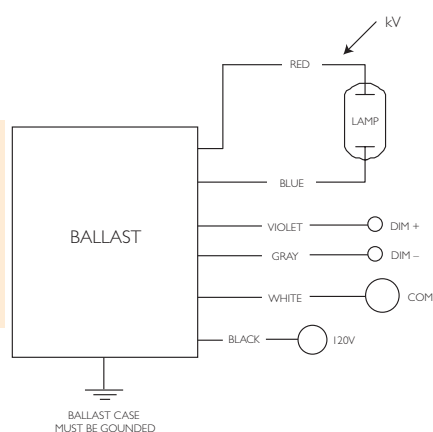
Wiring Diag. 1



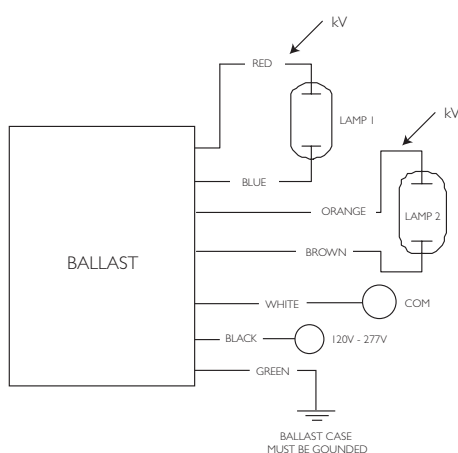
Wiring Diag. 2



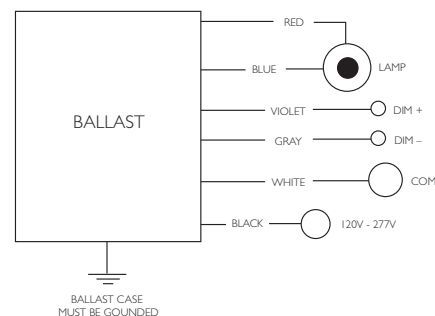
Wiring Diag. 3



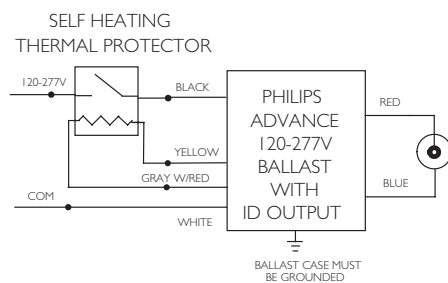
Wiring Diag. 4



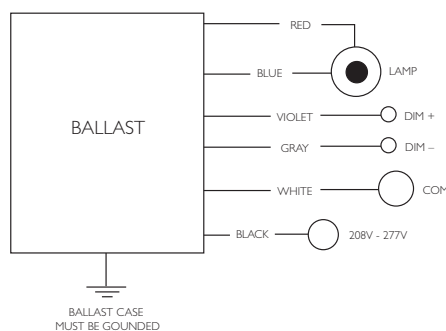
Wiring Diag. 5



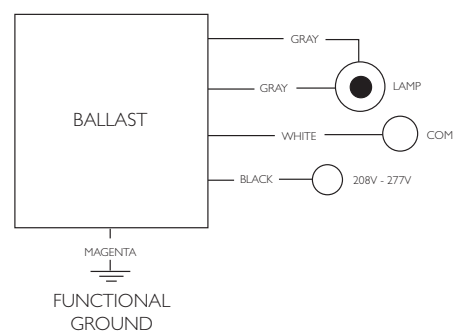
Wiring Diag. 6



Wiring Diag. 8



Wiring Diag. 9



Wiring Diag. 10

Metal Halide and High Pressure Sodium

Lamp Data		Input Volts	Catalog Number* <i>Note 1</i>	Certifications		Line Current (Amps)	Input Power ANSI (Watts)	Max. Case Temp. <i>Note 5</i>	Wiring Diag.	Fig.	Weight (lb)	Max. Distance to Lamp (ft)
Number	Watts											
20W Lamp, ANSI Code M156 Minimum Starting Temp -20°C/-4°F												
I	20	120	RMH-G20-K-LF RMH-G20-K-LFS <i>Note 2</i>	✓	✓	0.23	26	90°C	4	K	0.4	6
I	20	120 277	IMH-G20-G-LF IMH-G20-G-BLS	✓	✓	0.2 0.09	24	90°C	3	G	0.9	5
I	20	120 277	IMH-G20-E-LF	✓	✓	0.21 0.09	24	90°C	3	E	0.55	5
22W Lamp, Philips Mini MasterColor, ANSI Code M175, Minimum Starting Temp. -20°C/-4°F												
I	22	120	RMH-20-K-LF or RMH-20-K-LFS <i>Note 2,7</i>	✓	✓	0.23	26	90°C	4	K	0.5	6
I	22	120	RMH-20-E-LF RMH-20-E-BLS	✓	✓	0.23	26	70°C	4	E	0.4	6
39W Lamp, ANSI Code M130/C130, Minimum Starting Temp. -20°C/-4°F												
I	39	120	RMH-39-K-LF, RMH-39-K-BLS or RMH-39-K-LFS <i>Note 2,7,8</i>	✓	✓	0.40	45	90°C	4	K	0.5	6
I	39	120 277	IMH-39-G-LF or IMH-39-G-BLS	✓ ✓	✓ ✓	0.39 0.18	46 45	90°C	3	G	0.9	5
I	39	120 277	IMH-39-E-LF	✓ ✓	✓ ✓	0.39 0.18	46 45	90°C	3	E	0.6	5
I	39	120 277	IMH-39-A-BLS-ID ^x	✓ ✓	✓ ✓	0.45 0.18	48 47	90°C	8	A	1.5	5
I	39	120 277	IMH-50-A-LF or IMH-50-A-BLS <i>Note 3</i>	✓ ✓	✓ ✓	0.38 0.16	45 44	85°C	I	A	1.4	5
2	39	120 277	IMH-239-A-LF or IMH-239-A-BLS	✓ ✓	✓ ✓	0.74 0.31	89 89	85°C	5	A	1.7	6
39W Mini MasterColor Lamp, CDM-Tm 35W/930, ANSI Code M179 Minimum Starting Temp -20°C/-4°F												
I	39	120 277	IMH-P39-G-LF IMH-P39-G-BLS	✓ ✓	✓ ✓	0.39 0.17	46 45	90°C	3	G	0.9	5
I	39	120	RMH-39-K-LF, RMH-39-K-BLS or RMH-39-K-LFS <i>Note 2,7,8</i>	✓	✓	0.40	45	90°C	4	K	0.5	6
50W Lamp, ANSI Code M110 or M148, Minimum Starting Temp. -20°C/-4°F												
I	50	120 277	IMH-50-A-LF or IMH-50-A-BLS <i>Note 3</i>	✓ ✓	✓ ✓	0.47 0.20	56 55	85°C	2	A	1.4	5

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 RMH-39-K-LF, RMH-20-K-LF and RMH-G20-K-LF input and output lead wires exit on opposite sides of ballast. For RMH-39-K-LFS, RMH-20-K-LFS and RMH-G20-K-LFS all lead wires exit the same side of the ballast.

3. A dual-wattage ballast for 39W or 50W MH.

4. A dual-wattage ballast for 150W or 175W MH.

5. Maximum case temperature should not be exceeded in the application, as life will be affected and the integral re-settable 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.

6. Also operates (1) 150W HPS S56 (100V) Lamp

7. Also operates the ES16 and ES36 SLI Brightspot lamps

8. Also operates the 39W Philips miniMastercolor lamp (ANSI Code C179)

* Ordering information:

—LF Side exit leads with mounting feet

—BLS Bottom exit leads with mounting studs

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

Refer to pages 4-9 for ballast dimensions

Refer to pages 4-3 for lead wire information

Metal Halide and High Pressure Sodium

Lamp Data		Input Volts	Catalog Number* <i>Note 1</i>	Certifications			Line Current (Amps)	Input Power ANSI (Watts)	Max. Case Temp. <i>Note 5</i>	Wiring Diag.	Fig.	Weight (lb)	Max. Distance to Lamp (ft)
Number	Watts												
70W Lamp, ANSI Code M98 or M143 or M139, Minimum Starting Temp. -20°C/-4°F													
I	70	120	IMH-70-G-LF or IMH-70-G-BLS		✓	✓	0.67	80	90°C	3	G	0.9	5
		277			✓	✓	0.30	79					
I	70	120	IMH-70-E-LF		✓	✓	0.67	80	90°C	3	E	0.6	5
		277			✓	✓	0.30	79					
I	70	120	IMH-70-D-LF or IMH-70-D-BLS		✓	✓	0.67	80	85°C	3	D	1.6	5
		277			✓	✓	0.29	79					
I	70	120	IMH-70-A-BLS-ID*		✓	✓	0.72	86	90°C	8	A	1.6	6
		277			✓	✓	0.31	84					
I	70	120	IMH-70-A-LF		✓	✓	0.67	80	85°C	3	A	1.5	5
		277			✓	✓	0.29	79					
100W Lamp, ANSI Code M90 or M140, Minimum Starting Temp. -20°C/-4°F													
I	100	120	IMH-100-D-LF or IMH-100-D-BLS		✓	✓	0.92	110	85°C	3	D	1.6	5
		277			✓	✓	0.40	109					
I	100	120	IMH-100-B-LF		✓	✓	0.92	110	85°C	3	A/B	1.5	5
		277			✓	✓	0.40	109					
I	100	120	IMH-100-A-BLS-ID*		✓	✓	0.96	115	90°C	8	A	1.4	6
		277			✓	✓	0.42	113					
150W Lamp, ANSI Code M102 or M142, Minimum Starting Temp. -20°C/-4°F													
I	150	120	IMH-150-H-LF or IMH-150-H-BLS <i>Note 9</i>	✓	✓	✓	1.4	165	85°C	3	H	1.9	5
		277		✓	✓	✓	0.6	161					
I	150	120	IMH-175-C-LF or IMH-175-C-BLS <i>Note 5,6,9</i>	✓	✓	✓	1.4	169	85°C	1	C	2.5	5
		277		✓	✓	✓	0.6	166					
175W Pulse Start Lamp, ANSI Code M137 or M152 (Pulse Start), Minimum Starting Temp. -20°C/-4°F													
I	175	120	IMH-175-C-LF or IMH-175-C-BLS <i>Note 4,9</i>	✓	✓	✓	1.7	194	85°C	2	C	2.5	5
		277		✓	✓	✓	0.7	191					
100W Lamp, Philips Mini whiteSON (SDW-TG), ANSI Code S167 (Pulse Start), Min. Starting Temp. -20°C/-4°F													
I	100	120	IWSN-100-C-LF		✓	✓	0.9	165	85°C	3	C	1.9	5
		277			✓	✓	0.5	161					

Controllable Ballasts with 0-10V Dimming Interface

Lamp Data		Input Volts	Catalog Number* <i>Note 1</i>	Certifications			Line Current (Amps)	Input Power ANSI (Watts)	Max. Case Temp. <i>Note 5</i>	Wiring Diag.	Fig.	Weight (lb)	Max. Distance to Lamp (ft)
Number	Watts												
150W Lamp, ANSI Code M102 or M142, Minimum Starting Temp. -20°C/-4°F													
I	150	120	IZTMH-150C-LF <i>Note 9</i>	✓	✓	✓	1.4	169	85°C	6	C	2.5	5
		277		✓	✓	✓	0.6	166					

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 RMH-39-K-LF and RMH-20-K-LF input and output lead wires exit on opposite sides of ballast. For RMH-39-K-LFS and RMH-20-K-LFS all lead wires exit the same side of the ballast.
3. A dual-wattage ballast for 39W or 50W MH.
4. A dual-wattage ballast for 150W or 175W MH.

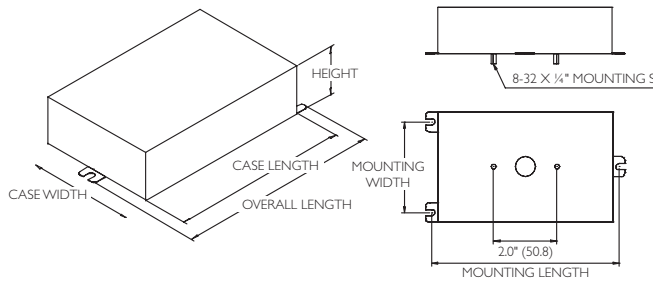
5. Maximum case temperature should not be exceeded in the application, as life will be affected and the integral re-settable thermal protector may activate. A lower maximum temperature rating does not imply lesser thermal performance, and can be indicative of a cooler running ballast design. Consult factory for further application assistance.
6. Also operates (1) 150W HPS S56 (100V) Lamp
7. Also operates the ES16 and ES36 SLI Brightspot lamps
8. Also operates the 39W Philips miniMastercolor lamp (ANSI Code C179)
9. "Circle E" denotes EISA compliance

* Ordering information:

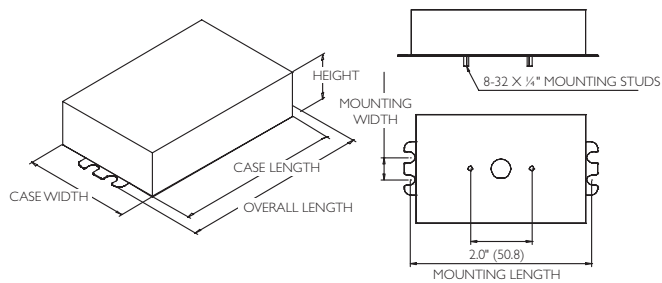
- LF Side exit leads with mounting feet
- BLS Bottom exit leads with mounting studs

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

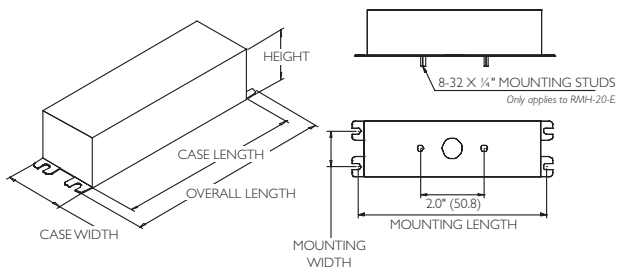
Refer to pages 4-9 for ballast dimensions
Refer to pages 4-3 for lead wire information



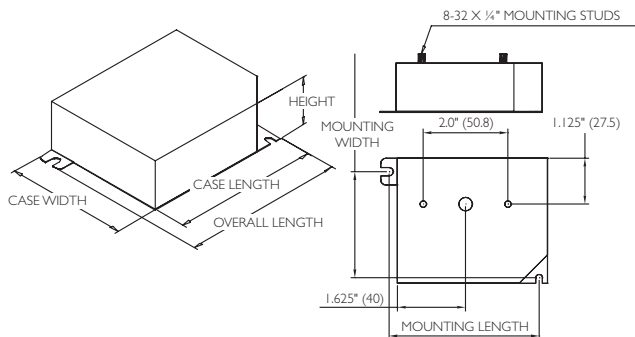
Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
A/B	140mm [5.5"]	120mm [4.7"]	92mm [3.6"]	38mm [1.5"]	132mm [5.2"]	73mm [2.9"]
C	204mm [8.0"]	184mm [7.2"]	92mm [3.6"]	38mm [1.5"]	195mm [7.7"]	73mm [2.9"]
H	161mm [6.3"]	144mm [5.7"]	92mm [3.6"]	38mm [1.5"]	152mm [6.0"]	73mm [2.9"]



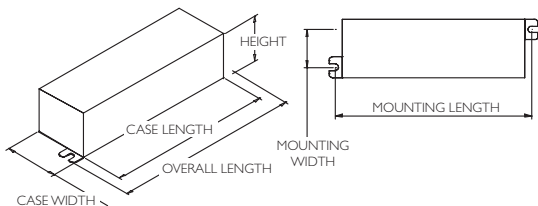
Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
D	128mm [5.0"]	108mm [4.3"]	77mm [3.0"]	38mm [1.5"]	118mm [4.6"]	19mm [0.7"]



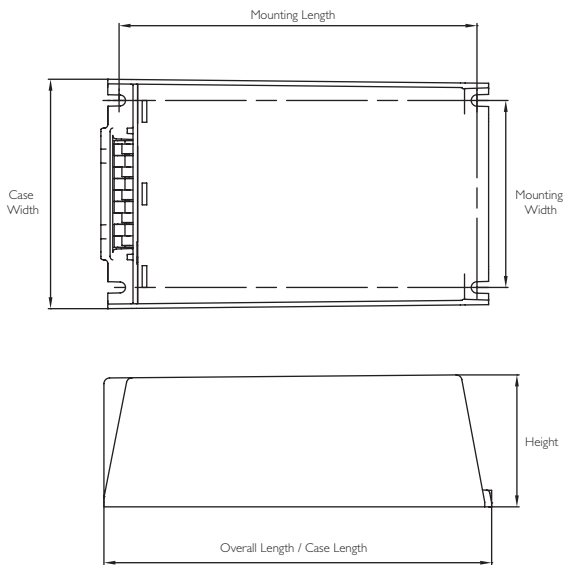
Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
E	140mm [5.5"]	127mm [5.0"]	44mm [1.7"]	30mm [1.2"]	135mm [5.3"]	26mm [1.0"]



Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
G	97mm [3.8"]	90mm [3.5"]	77mm [3.0"]	30mm [1.2"]	87mm [3.4"]	67mm [2.6"]

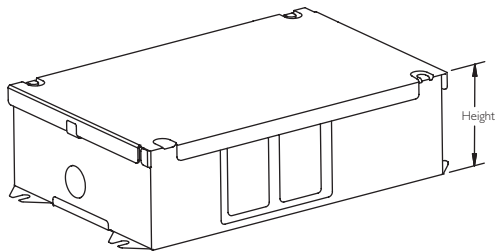


Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
K	119mm [4.4"]	104mm [4.1"]	33mm [1.1"]	30mm [1.2"]	114mm [4.5"]	13.5mm [0.5"]

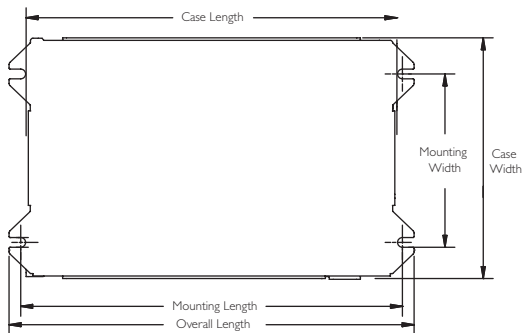


Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
M	150mm [5.9"]	150mm [5.9"]	65mm [2.6"]	65mm [2.6"]	136mm [5.4"]	47mm [1.8"]
N	135mm [5.3"]	135mm [5.3"]	65mm [2.6"]	65mm [2.6"]	126mm [4.9"]	47mm [1.8"]
T	166mm [6.3"]	166mm [6.3"]	100mm [3.9"]	60mm [2.4"]	156mm [6.1"]	81.5mm [3.2"]

Electronic HID



Case Figure	Overall Length	Case Length	Case Width	Height	Mounting Length	Mounting Width
R	208mm [8.2"]	191mm [7.5"]	124mm [4.9"]	56mm [2.2"]	192mm [7.6"]	86.5mm [3.4"]



ELECTRONIC HID BALLASTS

DynaVision extends the key benefits of magnetic pulse-start metal halide systems — energy efficiency and white light. With its very-high frequency operation, as well as its on-board microprocessor and standard features, DynaVision provides numerous **additional** benefits and advantages.

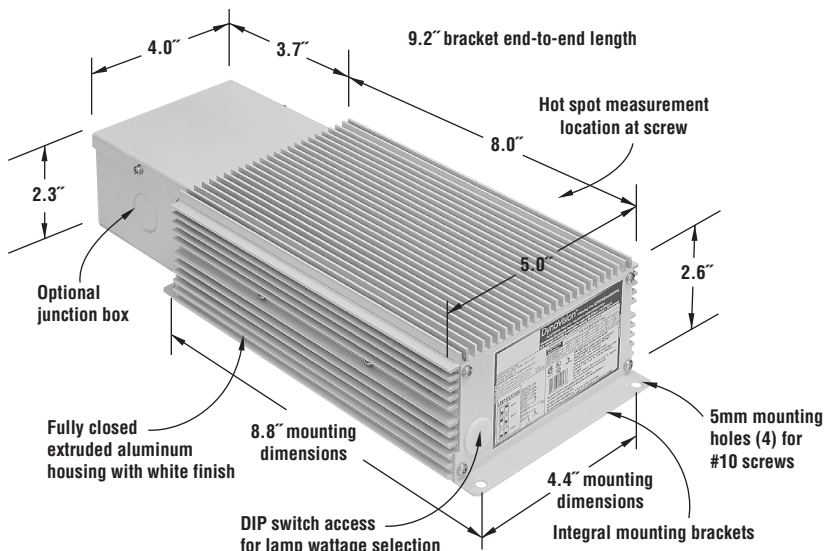
DynaVision Feature	Benefits and Advantages
Microprocessor technology High frequency operation True constant wattage	Lower operating and maintenance costs Fewer fixtures Energy savings
320/350/400 Tri-Wattage IntelliVolt 200-277V 50/60 Hz	Fewer SKU's Less chance for ordering error Ease of change over to different wattage lamps
Integral 120V quartz tap and relay, 250W	Standby-lighting ready No special orders No special relay or control required
0-10V dimming with automatic 15-minute warm up	Continuous dimming down to 50% power Additional energy savings through daylight harvesting and occupancy sensing
0° to 55°C ambient rating standard -30° to +40°C ambient rating optional	Greater reliability, flexibility and applications opportunities
Lamp End-of-Life Protection (EOL)	Safeguard

More about...

Standby Lighting Versatility	Controllability
DynaVision's 120V output is designed to operate one quartz (incandescent) standby lamp up to 250W. The quartz lamp on or off modes are determined by the HID lamp's specific operating conditions. Once the HID lamp strikes, the quartz lamp automatically switches off when the HID lamp reaches 50% power.	DynaVision is dimmable — down to 50% of nominal lamp power, with no noticeable loss in color characteristics. With 0-10V dimming, and compatible with a host of products from most control manufacturers, DynaVision brings new flexibility and energy-saving strategies, such as daylight harvesting and occupancy sensing, to applications in the industrial, educational, government, hospitality, commercial and retail sectors.

Electronic HID

Physical Characteristics



DynaVision™ Electronic Ballast Catalog
Number Breakdown

IZTEMH4003PS - XJ
Basic Model Number

Options

- I = IntelliVolt (200-277 50/60 Hz)
- ZT = Zero-to-ten volt dimming
- E = Electronic
- MH = Metal Halide
- 400 = 400W maximum
- 3 = 3 wattage capability (320/350/400W)
- PS = Pulse-Start
- XJ = Without junction box
(i.e. junction box is included if this suffix is omitted).
- XJF = Low temperature, without junction box

DynaVision Electronic Ballast Specification

Section I — Physical Characteristics

- 1.1 The electronic ballast shall be fully enclosed in an aluminum housing painted white.
- 1.2 The aluminum housing shall include a divided wiring compartment to separate the power leads from the control leads. All leads to be color-coded.

Section II — Performance Requirements

- 2.1 The electronic ballast shall be multivoltage capable and operate from a line voltage range of 180 — 305V, 50/60 Hz.
- 2.2 The electronic ballast shall incorporate a microprocessor controller to provide for optimum starting and operation of the HID lamp.
- 2.3 The electronic ballast input current shall have Total Harmonic Distortion (THD) of less than 15% when operated at nominal line voltage (200V, 208V, 230V, 240V, 277V).
- 2.4 The ballast shall incorporate a 0-10V dimming interface and control the dimming function such that the HID lamp is allowed to warm up for fifteen minutes at full power before the lamp will be allowed to dim, regardless of the level of the 0-10V signal. 10V applied to the dimming control leads, shall result in full light output. 0V applied, or shorting the control leads together, shall result in dimming to 50% of nominal lamp power.
- 2.5 The ballast shall include a 120V/250W auxiliary output for stand-by incandescent lighting that shall include an integral control to turn the auxiliary lamp on and off. The integral control shall include a time-delay feature to keep the auxiliary lamp on until the HID lamp reaches 50% power.
- 2.6 The electronic ballast shall have a Power Factor greater than 90%.

- 2.7 The electronic ballast shall have a lamp end-of-life detection and shutdown circuit.
- 2.8 The electronic ballast shall be Sound Rated A.
- 2.9 The electronic ballast output frequency to the lamps shall be higher than 100 kHz to prevent acoustic resonance inside the lamp arc tube and to minimize visible flicker.
- 2.10 The electronic ballast shall be thermally protected to shut off when operating temperatures reach unacceptable levels.

Section III — Regulatory Requirements

- 3.1 The electronic ballast shall meet the requirements of the Federal Communications Commission rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
- 3.2 The electronic ballast shall be Underwriters Laboratories (UL) Listed and CSA Certified where applicable.

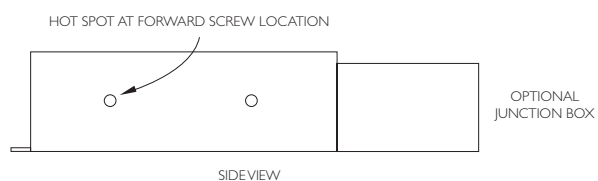
Section VI — Other

- 4.1 The electronic ballast shall not contain Polychlorinated Biphenyl (PCB's).
- 4.2 The electronic ballast shall carry a three-year warranty from the date of manufacture for operation at an ambient temperature of 55° C or less and when operated as a stand alone product (i.e. remotely from a lighting fixture housing). When operated within a lighting fixture housing, the same three-year warranty shall apply for a maximum ballast case hot spot temperature of 76° C or less.
- 4.3 The manufacturer shall have a twenty-five year history of producing HID lamp ballasts for the North American market.
- 4.4 The electronic ballast shall be produced in a factory certified to ISO 9002 Quality System Standards.

Installation and Application Notes

1. Red lead must be connected to center terminal of lamp. Do not connect red or blue lead to line neutral.
2. Setting precaution with triple-wattage feature: Do not operate lower wattage lamp on a ballast which has been set for operation of higher wattage lamp. Short lamp life may result.
3. Ballast output will shut off after 40 minutes maximum if lamp does not successfully ignite. Replace lamp and cycle mains to restore output.
4. Use appropriately rated lampholder.
5. Connect red lamp lead to 600Vrms, 3.5kV or UL style 1452 wire.
6. Remote mounting distances not exceeding 15ft. are possible with normal wiring methods. For distances greater than 15ft., power losses in the wire can result in appreciable decline in actual lamp operating power. Consult Philips Lighting Electronics for application assistance.
7. Power mains must be cycled off and then on to reset ballast after failed lamps are replaced.
8. Ballast output exceeds 100kHz. Suitable test equipment is required for measurement.
9. Ballast is suitable for recessed use. Do not install insulation above or within 3" of ballast sides.

Where to Measure the Ballast Hot Spot



Breaks New Ground in HID Performance

Application Specifications

Pulse-Start Metal Halide

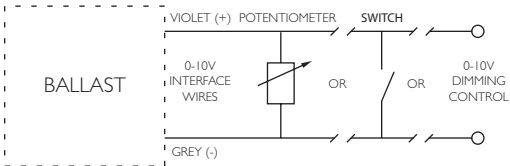
Lamp Data		Min Start Temp. (F/C)	Input Volts	Catalog Number	Listings	Line Current (A)	Input Power ANSI (W)	Ballast Factor	Max. THD %	Max. PF %	DIP Switch Settings
No.	Watts										
320W Lamp, ANSI Code M132/M154											
I	320	32/0 -20/-30	200 to 277	IZTEMH4003PS IZTEMH4003PS-F		1.8 @ 200V 1.3 @ 277V	345	1.0	15	90	
350W Lamp, ANSI Code M131											
I	350	32/0 -20/-30	200 to 277	IZTEMH4003PS IZTEMH4003PS-F		1.9 @ 200V 1.4 @ 277V	375	1.0	15	90	
400W Lamp, ANSI Code M135/M155											
I	430	32/0 -20/-30	200 to 277	IZTEMH4003PS IZTEMH4003PS-F		2.2 @ 200V 1.6 @ 277V	430	1.0	15	90	Preset at Factory 

NOTE: These specifications apply to operation of pulse-start metal halide lamps with quartz arc-tube construction only. For operating compatibility with ceramic arc-tube lamps, consult Philips Lighting Electronics.

DIP switches are "on" in the down position

Dimming Feature

With an integral, industry-standard 0-10V interface, the DynaVision electronic ballasts offer the capability to dim the lamp by lowering the wattage lamp, reducing energy consumption of the light fixture by up to 50%. Access to this interface is via the violet (+) and grey (-) dimming control leads. These leads can be connected to either a 0-10V dimming control, (DynaVision ballast are compatible with standard 0-10V control devices available from many manufacturers) a 0-10V DC power supply, or with a switch. An open switch provides full lamp power, and a closed switch, short-circuiting the 0-10V wires, yields 50% lamp power. Control devices such as relays and occupancy sensors may also be used.



A potentiometer may also be used. However, the value of the potentiometer is dependent on the number of ballasts connected. Consult Philips Lighting Electronics for guidance.

In accordance with the requirements of the HID lamp manufacturers and NEMA, the dimming feature includes a time delay to allow the HID lamp to warm up for 15 minutes at full power before the lamps will be allowed to dim, regardless of the level of the 0-10V signal.

Lead Wire Information

Wire Color	Function
Black	Input Power
White	Input Power
Green	Ground
Red	Lamp Eyelet
Blue	Lamp Eyelet
Yellow (2)	120V Lamp Output
Violet (+)	0-10V Dimming
Grey	0-10V Dimming (-)

All lead lengths are 11" +/- 1". The black & white (input power), green (ground), and red & blue (lamp) leads are pre-stripped 1/2". The two yellow 120v (output) and violet & grey (dimming control) leads have insulated ends.

Fixed Output and LumiStep™

The invention of the low-pressure sodium lamp and linear fluorescent lamp in the 1930s created a foundation for today's outdoor lighting. Then, in the 1960s, the light sources of choice became high pressure sodium and mercury vapor.

With CosmoPolis, Philips presents to you another major step forward in urban outdoor lighting, developed specifically to meet the challenges you face in the 21st century. The CosmoPolis system simplifies outdoor lighting with the combination of a miniature lamp and an optimized electronic ballast system.

The Six Performance Features of the CosmoPolis System are Impressive:

1. Quality of Light
2. System Efficiency
3. Optical Efficiency
4. Dependable Service
5. Compact System
6. Sustainability

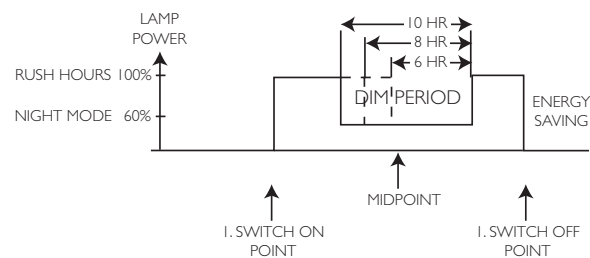
With CosmoPolis, the benefits you experience from using Philips advanced outdoor HID lamps are more impressive than ever.

CosmoPolis is not a retrofit for existing lamps, but offers you impressive benefits for new or renewed installations. Consider:

- CosmoWhite 60W instead of HPS 70W, MV/QMH 100W
- CosmoWhite 90W instead of HPS 100W, MV/QMH 175W.
- CosmoWhite 140W instead of HPS 150W, MV/QMH 250W.

LumiStep

The CosmoPolis system offers a step dimming capability with three possible dimming times of 6, 8 or 10 hours with the LumiStep feature. The ballast will dim the 60W lamp to 75% of lamp power and the 90 and 140W lamps to 60% lamp power. The ballast calculates the mid-point of the evening, which is the starting point for 6 hour LumiStep and will dim the lamp for 6 hours before returning to full light output. The 8 and 10 hour LumiStep models will begin their dimming at 2 and 4 hours before the mid-point respectively.



Applications

- Outdoor: Architectural façade lighting, illumination of roads and pedestrian areas, public spaces, and parking garages

Lamp Data		Input Volts	Catalog Number	Certifications		Line Current (Amps)	Input Power ANSI (Watts)	Max. Case Temp.	Wiring Diag.	Fig.	Weight (lb)	Max. Distance to Lamp (ft)
Number	Watts											
60W Cosmo White Lamp, ANSI Code TBD Minimum Starting Temp -30°C/-20°F												
I	60	208	ICW-60-N-LS ¹ ILCW-60-N-LS, -6, 8, 10 ²	✓	✓	0.33	67	80°C	10	N	1.9	30
		277				0.24	67					
I	60	120	RCW-60-M-LS RLCW-60-M-LS, -6, -8, 10 ²	✓	✓	0.58	68	80°C	10	M	2.1	30
90W Cosmo White Lamp, ANSI Code TBD Minimum Starting Temp -30°C/-20°F												
I	90	208	ICW-90-M-LS ¹ ILCW-90-M-LS, -6, 8, 10 ²	✓	✓	0.49	99	80°C	10	M	2.1	30
		277				0.37	99					
I	90	120	RCW-90-T-LS RLCW-90-T-LS, -6, -8, 10 ²	✓	✓	0.83	99	70°C	10	T	3.1	30
140W Cosmo White Lamp, ANSI Code TBD Minimum Starting Temp -30°C/-20°F												
I	140	208	ICW-140-M-LS ¹ ILCW-140-M-LS, -6, 8, 10 ²	✓	✓	0.75	153	80°C	10	M	2.1	30
		277				0.57	153					
I	140	120	RCW-140-T-LS RLCW-140-T-LS, -6, -8, 10 ²	✓	✓	1.3	154	70°C	10	T	3.1	30

¹ 208-277V

² ILCW and RLCW indicate LumiStep ballasts

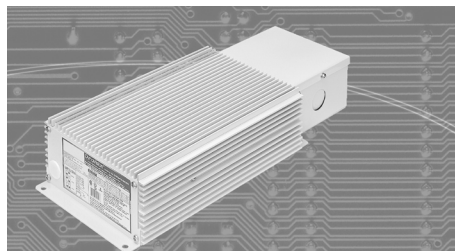
The Philips MasterColor Elite MW system offers an unrivalled level of light quality and performance. The lamp's sparkling white light creates a natural ambience and brings out the best in all different types of colors. Additionally the high efficiency of the lamp and ballast together means reduced energy use and a lower cost of ownership compared to a 400W Metal Halide HID system.

Philips "Green Flagship Product"

- Low mercury, no lead
- Up to 120 lm/W
- 92% ballast efficacy

Light quality

- Excellent color rendering of CRI 90+
- Crisp, white light in 3000K and 4200K CCT
- Stable color performance over the rated average life of the lamp
- New socket design enhances higher optical efficiency



Product Benefits

- Significant upgrade opportunity over traditional HID systems.
- Viable alternative to fluorescent options.
- Excellent color quality and consistent light output from beginning to end.
- Being 50% smaller than traditional metal halide lamps gives freedom in optic and luminaire design.
- Greater harmony in lighting design due to availability of Elite lamps in various wattages and two color temperatures.
- Sparkling properties of white light create a more natural and inviting ambience.
- High system energy efficacy: sound TCO.
- A Green Flagship product to minimize environmental impact and CO² emission.
- Long life for low maintenance cost.
- True universal operation with no effect on life and color.

Applications

- **Outdoor:** Architectural façade lighting, illumination of roads and pedestrian areas, public spaces, and parking garages
- **Indoor:** High-Bay retail, Grocery stores, warehouses, manufacturing facilities

Lamp Data		Input Volts	Catalog Number	Certifications			Line Current (Amps)	Input Power ANSI (Watts)	Max. Case Temp.	Wiring Diag.	Fig.	Weight (lb)	Max. Distance to Lamp (ft)	Dip Switch Settings
Number	Watts													
210W MasterColor CDM Elite MW Lamp, ANSI Code C183 Minimum Starting Temp -20°C/-4°F														
I	210	200 277	IZTMH-210315-R-LF1				1.2 0.82	229 227	85°C	9	R	4.5	30	
315W MasterColor CDM Elite MW Lamp, ANSI Code C182 Minimum Starting Temp -20°C/-4°F														
I	315	200 277	IZTMH-210315-R-LF1				1.8 1.25	343 341	85°C	9	R	4.5	30	

I 200-277V

DIP switches are "on" in the down position

