



**Metrolight
Electronic Ballast
Product Specifications**

Metrolight Electronic Ballasts



Metrolight is the leading manufacturer of SmartHID™ electronic ballasts that power High Intensity Discharge (HID) energy efficient lighting systems. The patented technology saves Local Authorities, Highways Agencies, PFI's, warehouses and manufacturers up to 65% on their energy bills while delivering spectacular light lasting up to two times longer than competitors. The control ready system offers connectivity with both analog and digital control devices and control and communication systems, extending the system's energy saving capabilities.

Energy Conservation	Reduced Maintenance Costs
<ul style="list-style-type: none"> ◆ Energy Savings – up to 65% ◆ Minimal ballast losses ◆ Stable power factor ◆ Stable power supply to the lamp ◆ Wide range of dimming options 	<ul style="list-style-type: none"> ◆ High Efficiency – 93% lumen maintenance ◆ Dramatic extension of lamp life ◆ Reduced real-time maintenance

Key Features:



- ◆ Wide Range of Electronic Ballasts from 45W-600W (1200W in development)
- ◆ Central Control
- ◆ Two Way Communication
- ◆ Retrofit for different lanterns
- ◆ Lower Carbon Emissions
- ◆ Reduced Energy Bills

Metrolight Cosmopolis™ Electronic Ballast - 45, 60, 90 & 140 Watt

Metrolight CompactHID™ Electronic Ballast - 50,70,100, & 150 Watt

Operating Specifications

The Metrolight CompactHID™ Electronic Ballast is designed to suit most lighting solutions. This section lists the CompactHID™ Ballast's operating specifications, input and output characteristics and its built-in protections.

Dimensions (LxWxH)	50W, 70W, 100W	4.70"x3.03" x1.25" / 119.3 x 77 x 31.4mm
	150W	4.646"x3.37"x1.497" / 118x85.6x38mm
Weight	50W, 70W, 100W	0.56lb / 254g
	150W	0.71lb / 318g
Operating Temperature Range	-25°C to +65°C / -13°F to 149°F	
Maximum Case Temperature (Tc)	85°C	
EMC	FCC Title 47 Part 18 C (non-consumer) EN55015 EN61547 (If the Compact Ballast is installed within a lighting fixture, an external dedicated Metrolight Line Adapter may be required.)	
Regulation	UL1029 & UL935, Outdoor Type 1, suitable for recessed use. EN 61347 UL Listed  	
Surge Protection	With optional surge protection adaptor, the unit will comply with IEEE C62.41 Category C Low Between phase and neutral 6KV/3KA Between line and ground 10KV/1KA	

Metrolight Electronic Ballasts

Operating Specifications

The Metrolight CompactHID™ is designed to suit most lighting solutions. This section lists the CompactHID's™ operating specifications, its input and output characteristics and its built-in protections.

150W Lamp		
	@208V, 230V, 277V	@120V
Input Power	158W	160W
Input Current	0.76A, 0.69A, 0.57A	1.33A
Power Factor (at nominal conditions and full power)	>0.9	>0.98
100W Lamp		
	@208V, 230V, 277V	@120V
Input Power	108W	110W
Input Current	0.52A, 0.47A, 0.39A	0.92A
Power Factor (at nominal conditions and full power)	>0.9	>0.98
70W Lamp		
	@208V, 230V, 277V	@120V
Input Power	76W	78W
Input Current	0.37A, 0.33A, 0.27A	0.65A
Power Factor (at nominal conditions and full power)	>0.9	>0.98
50W Lamp		
	@208V, 230V, 277V	@120V
Input Power	56W	58W
Input Current	0.27A, 0.24A, 0.2A	0.48A
Power Factor (at nominal conditions and full power)	>0.8	>0.98

Standards

The CompactHID™ Electronic Ballasts 50W–150W have been designed to comply with the following ANSI standards:

Ballast	ANSI Lamp Code
150W	MH M81, M102, HPS S56
100W	MH M90, M91, M92
70W	MH M98
50W	MH M110

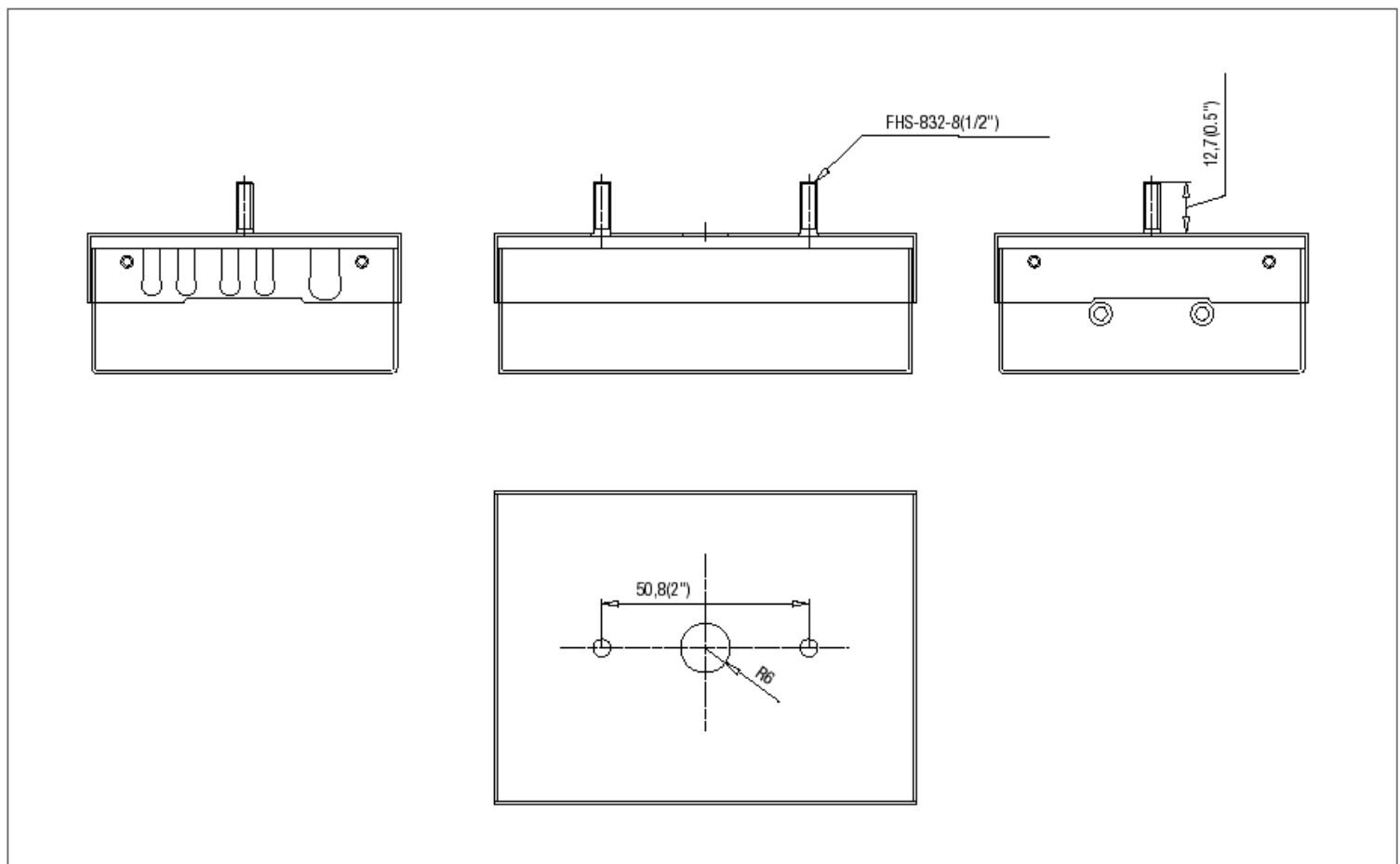
Metrolight Electronic Ballasts

General Input Specifications	
Voltage	120 – 277VAC (+10% to -15%)
Frequency	50/60Hz
Inrush current	<5A for 1ms
Harmonics (at nominal conditions)	Fully complies with EN61000-3-2
Input current protection	Fuse (internal)
Continuous full range dimming	50% – 100% of full power, by dimmer, ambient sensor, light sensor or any other compatible sensor

Output Specifications	
Open circuit voltage	<300V
Ignition voltage	<4kV
Frequency	166Hz \pm 10% square wave

CompactHID™ Electronic Ballast 50–150W: Mechanical Dimensions (Stud Version)

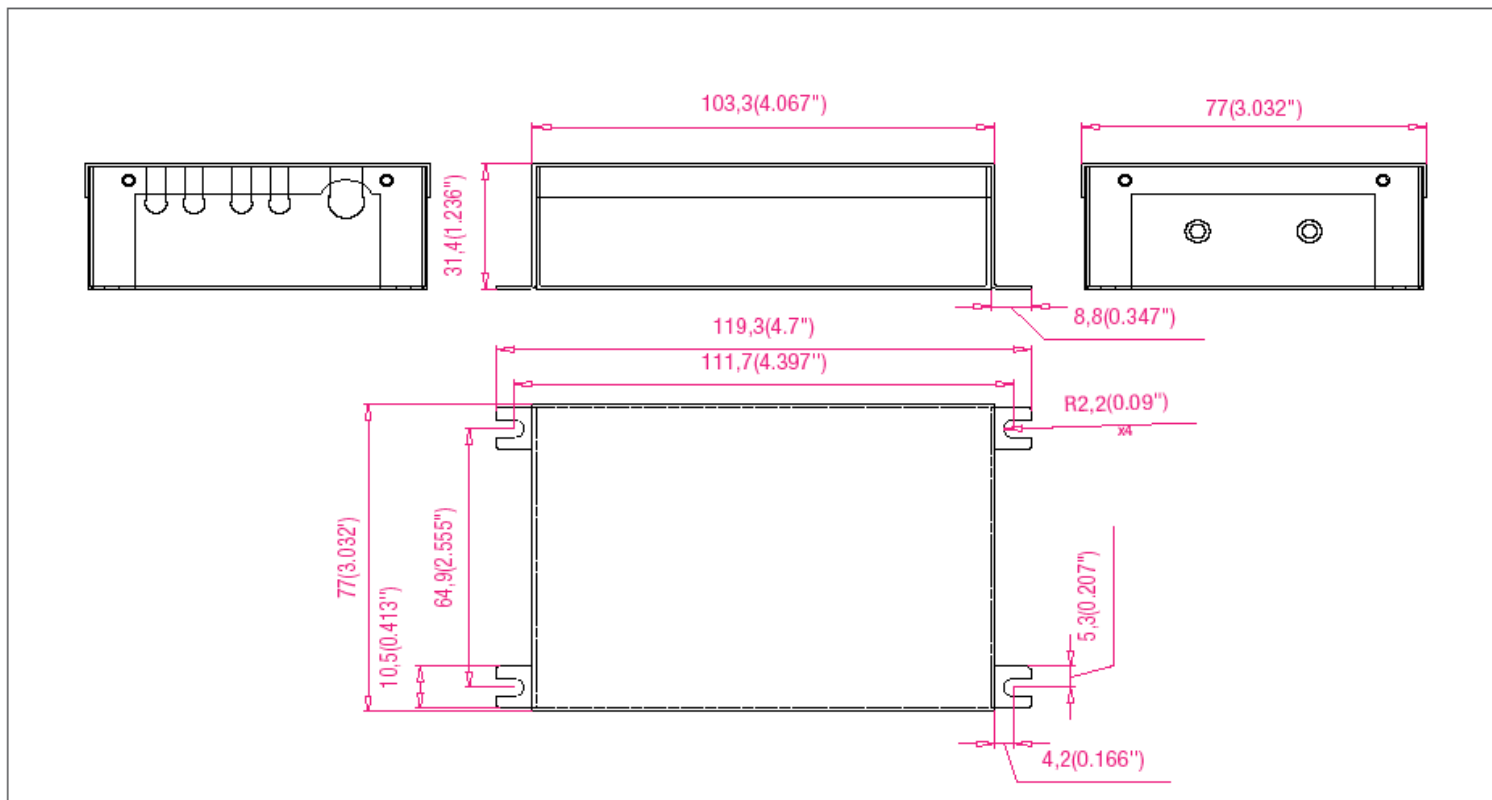
Metrolight Smart Electronic Ballast for HID 50/70/100/150W (Stud Version)



Metrolight Electronic Ballasts

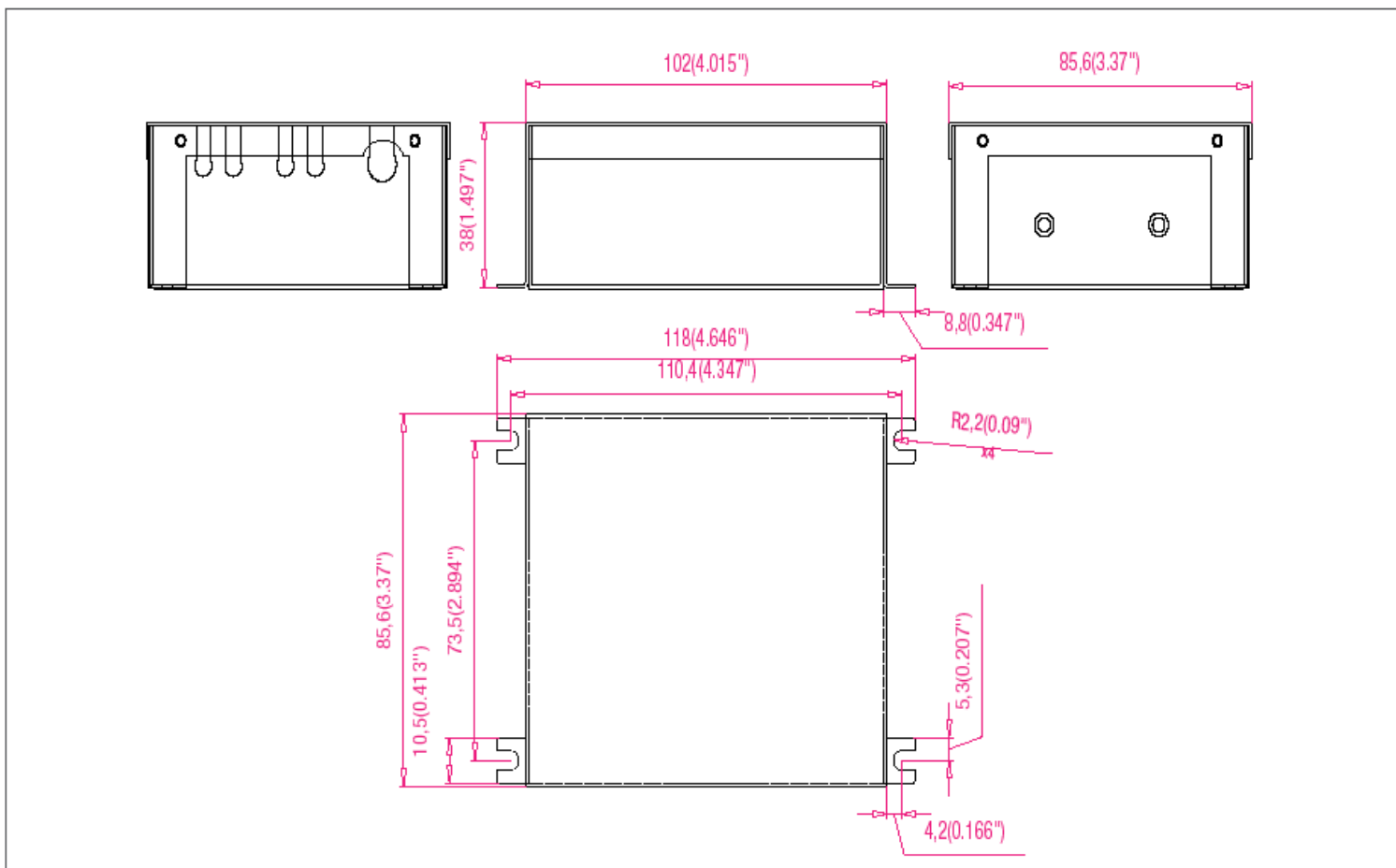
CompactHID™ Electronic Ballast 50–100W

Mechanical Dimensions



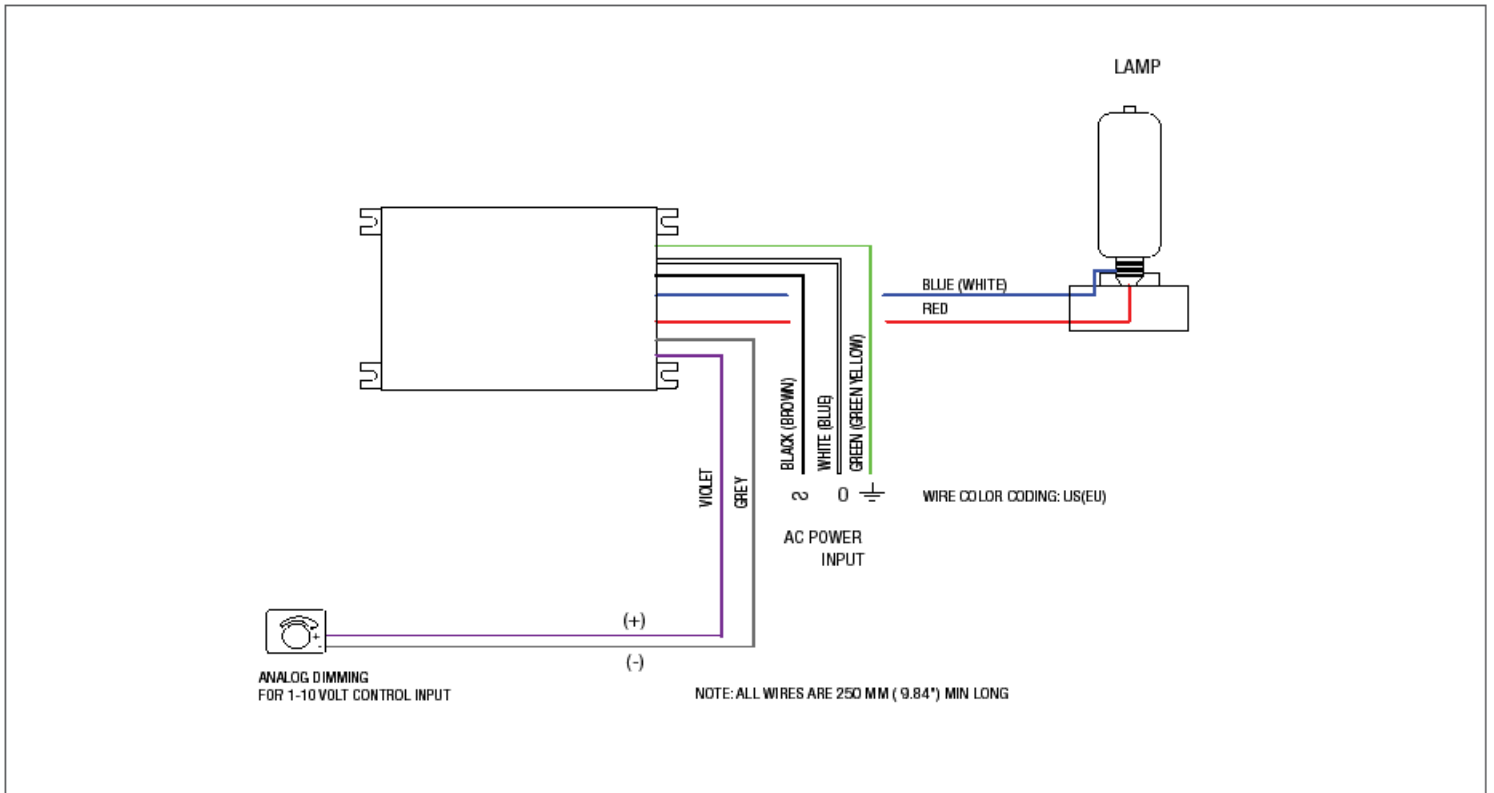
CompactHID™ Electronic Ballast 150W

Mechanical Dimensions



Metrolight Electronic Ballasts

CompactHID™ Electronic Ballast 50–150W Wiring Diagram



Metrolight Electronic Ballasts

Metrolight SmarHID™ LP 150 Electronic Ballast, 100-150 Watt—HPS

Metrolight SmarHID™ LP 150 Electronic Ballast, 90-140 Watt—Cosmopolis

From the company that brought you the energy efficient SmarHID™ solution comes the SmarHID™ LP 150 electronic ballast designed specifically for street lighting applications. Metrolight's robust SmarHID™ LP 150 electronic ballast combines energy efficiency, CO₂ and maintenance cost reduction and flexible lighting controls while performing effectively and consistently even in challenging outdoor environments, providing excellent lumen stability and effective lamp life. The LP 150 electronic ballast provides the opportunity to participate in and enjoy the benefits of carbon reduction and energy saving programs and incentives offered by municipalities worldwide.

Microprocessor-controlled
Extends effective lamp life
Greater efficiency and efficacy
Low component count, higher reliability
Micro-Start™ digitally controlled ignition
Lumen and colour consistency
Virtually eliminates "wall blackening" caused by eroding
Extends effective lamp life
Full range analogue and digital dimming
Event triggered scheduling - traffic movement, daylight
Automatic Scheduling
SmartDim™ - Auto dimming capability
Greater Protections
Greater surge protection ensures low failure rate and
TOV (Temporary Over Voltage) protection
Full protection against capacitive mode of operation (hard
Full protection against arcing or shorting

Control & Communication
Can be integrated with existing control and communication systems
Based on proprietary and feature-rich MADLI open protocol
Extends system's energy saving capabilities
Provides advanced end-of-life alerts resulting in reduced maintenance costs
Plug and play platform
Smart Grid connection option
Enables tie in with demand response systems
Full range analogue and digital dimming
Remote reconfiguration capabilities
<ul style="list-style-type: none"> ◆ Per requirement ◆ Per lamp parameters (power rating, dimming settings, etc.)
Sodium lamp hot re-strike
Instant relighting after power cuts or turn-off
Remote Installation
Ballast location and fixture can be separated (up to 7m/23ft as standard; above 7m/23ft and up to 25m/82ft upon special request)

Operating Specifications

The Metrolight SmarHID™ LP 150 Electronic Ballast is designed to suit most lighting solutions. This section lists the ballast's operating specifications, its input and output characteristics and its built-in protections.

Specifications	
Dimensions (LxWxH)	7.55" x 3.31" x 1.65" / 192mm x 84.2mm x 42mm
Operating temperature range	-30°C to +65°C / -22°F to 149°F
Maximum case temperature (Tc)	85°C

Metrolight Electronic Ballasts

Input Specifications

Input values for power and current are dependent on the lamp wattage. Other input values apply across all SmartHID™ Ballasts.

Lamp Power, Voltage and Current Specifications				
Lamp Type	Typical Input Power @ 230V	Input Voltage	Power Factor (at nominal conditions and full power)	Input Current
150W HPS	160w	120 – 277VAC (+10% to -15%)	>0.98	0.59A @ 277V; 0.71A @ 230V; 1.40A @ 120V
100W HPS	110w	120 – 277VAC (+10% to -15%)	>0.97	0.43A @ 277V; 0.49A @ 230V; 0.95A @ 120V

Lamp Power, Voltage and Current Specifications				
Lamp Type	Typical Input Power @ 230V	Input Voltage	Power Factor (at nominal conditions and full power)	Input Current
140W Cosmopolis	149w	120 – 277VAC (+10% to -15%)	>0.98	0.56A @ 277V; 0.66A @ 230V; 1.29A @ 120V
90W Cosmopolis	100w	120 – 277VAC (+10% to -15%)	>0.96	0.39A @ 277V; 0.45A @ 230V; 0.85A @ 120V

General Input Specifications	
Continuous full range dimming	50% - 100% of full power (Optional: Reverse dimming 100% - 50%)
Dimming options	Analogue dimming by dimmer, ambient sensor, light sensor or any other compatible sensor. Digital dimming - Connection to control software or automatic dimming profile
Lumen maintenance	>80% over lamp life (dependent on lamp type)

Protections

Self-protection mechanisms:

- ◆ In the event of a short circuit, or open circuit
- ◆ If the lamp fails to light
- ◆ At the end of the lamp's life
- ◆ Advanced surge protection between phase and neutral and between line and ground
- ◆ Advanced output protection against arcing or shorting to ground

Heat Management:

The SmartHID™ LP 150 Electronic Ballast operates at full output power at a Tc temperature range of -30°C to 85°C.

Should the Tc temperature reach beyond 85°C during use, the SmartHID™ LP 150 Ballast will gradually reduce its output power to 50%, allowing the ballast to cool. When the Tc temperature falls below 85°C, the ballast will return to full output power. Should the Tc temperature reach 91°C or beyond, the SmartHID™ LP 150 Ballast will switch itself off.

EMC Note: We recommend that the following EMI suppression components be used in order to comply with EMC standard EN55015. Power line side: EMI filter P/N FN2030-4-06 by Schaffner or equivalent; Lamp side: EMI suppression ferrite cores P/N 2631540002 by Fair-rite or equivalent.




Metrolight Electronic Ballasts

Metrolight SmarHID™ Electronic Ballast—250, 400 & 600 Watt—HPS

Metrolight SmarHID™ Electronic Ballast—175, 200, 250, 320, 350, 400, 450 & 575 Watt—MH Watt

Metrolight SmarHID™ Electronic Ballasts 100 watt through 400 watt lighting systems provide dramatic energy savings, drastically reduced maintenance costs, and significantly extended lamp life. The SmarHID™ Electronic Ballasts are perfect for demanding indoor and outdoor environments such as supermarkets, malls, industrial sites, parking lots, distribution centers, warehouses, and street lighting. The software embedded within the SmarHID™ Electronic Ballast system improves efficiency, reliability, size, and cost of the ballast. The SmarHID™ Ballasts perform effectively and consistently, providing excellent lumen stability, extending lamp life, and dramatically reducing the frequency of lamp replacement.

Operating Specifications

Dimensions (LxWxH)	8.46" x 3.43" x 2.16" / 215mm x 87mm x 55mm
Operating temperature range	-25°C to +65°C / -13°F to 149°F
Maximum case temperature (Tc)	85°C
Operating Humidity	0 to 95% RH non-condensing
EMC	FCC Title 47 Part 18 C (non-consumer); EN5501 5:2006 (If the Smart Ballast is installed within a lighting fixture, an external dedicated Metrolight Line Adapter may be required to fully comply with EN5501 5. Contact Metrolight customer support for more information.) EN61 547 EN61 000-3-2 EN61 00-3-3
Regulation	UL1 029 & UL935, Outdoor Type 1, suitable for recessed use. EN 61347-2-12 UL Listed    Nr. 40026719
Surge Protection	IEEE C62.41 Category C Low Between phase and neutral 6KV/3KA Between line and ground 1 0KV/1 KA

Input Specifications

Input values for power, voltage and current are dependent on the lamp wattage. Other input values apply across all SmarHID™ Ballasts. Lamp Power, Voltage and Current Specifications

400W MH or HPS lamp	
Input Power	426W
Input Voltage	200 – 277VAC (+10% to -15%)
Input Current	2.1A @ 208V, 1.98A @ 220V, 1.83A @ 240V, 1.58A @ 277V
Power Factor (at nominal conditions and full power)	>0.96

Metrolight Electronic Ballasts

350W MH lamp

Input Power	375W
Input Voltage	200 – 277VAC (+10% to -15%)
Input Current	1.8A @ 208V, 1.74A @ 220V, 1.61A @ 240V, 1.4A @ 277V
Power Factor (at nominal conditions and full power)	>0.96

320W MH lamp

Input Power	344W
Input Voltage	200 – 277VAC (+10% to -15%)
Input Current	1.7A @ 208V, 1.6A @ 220V, 1.48A @ 240V, 1.2A @ 277V
Power Factor (at nominal conditions and full power)	>0.96

250W MH or HPS lamp

Input Power	269W
Input Voltage	120 – 277VAC (+10% to -15%)
Input Current	2.3A @ 120V, 1.26A @ 220V, 1.16A @ 240V, 1.0A @ 277V
Power Factor (at nominal conditions and full power)	>0.95

200W MH lamp

Input Power	208W
Input Voltage	120 – 277VAC (+10% to -15%)
Input Current	1.82A @ 120V, 1.0A @ 220V, 0.9A @ 240V, 0.78A @ 277V
Power Factor (at nominal conditions and full power)	>0.95

175W MH lamp

Input Power	192W
Input Voltage	120 – 277VAC (+10% to -15%)
Input Current	1.6A @ 120V, 0.88A @ 220V, 0.8A @ 240V, 0.7A @ 277V
Power Factor (at nominal conditions and full power)	>0.94

Metrolight Electronic Ballasts

General Input Specifications	
Frequency	50/60Hz
Inrush current	<25A
Harmonics (at nominal conditions)	Fully complies with EN61000-3-2
Input current protection	Fuse (internal)
Continuous full range dimming	<ul style="list-style-type: none"> 50% – 100% of full power Optional: 35% – 100% of full power, subject to Metrolight approval
Dimming options	<ul style="list-style-type: none"> Analogue dimming by dimmer, ambient sensor, light sensor or any other compatible sensor Digital dimming – Connection to control software
Lumen maintenance	>90% over lamp life (dependent on lamp type)

Output Specifications	
Open Circuit Voltage	300V
Ignition Voltage	<4kV
Frequency	>106KHz

The SmartHID™ Electronic Ballasts 175–450W have been designed to comply with the following ANSI standards:

Ballast	ANSI Lamp Code
175W	MH M152
200W	MH M136, HPS S66
250W	MH M153, M80, HPS S50
320W	MH M132, M154
350W	MH M131, HPS S129
400W	MH M135, M155, HPS S51
450W	MH M144

Protections

Self-protection mechanisms:

- ◆ In the event of a short circuit, or open circuit
- ◆ If the lamp fails to light
- ◆ At the end of the lamp's life
- ◆ Input current protection by internal fuse
- ◆ Advanced surge protection between phase and neutral and between line and ground
- ◆ Advanced output protection against arcing or shorting to ground

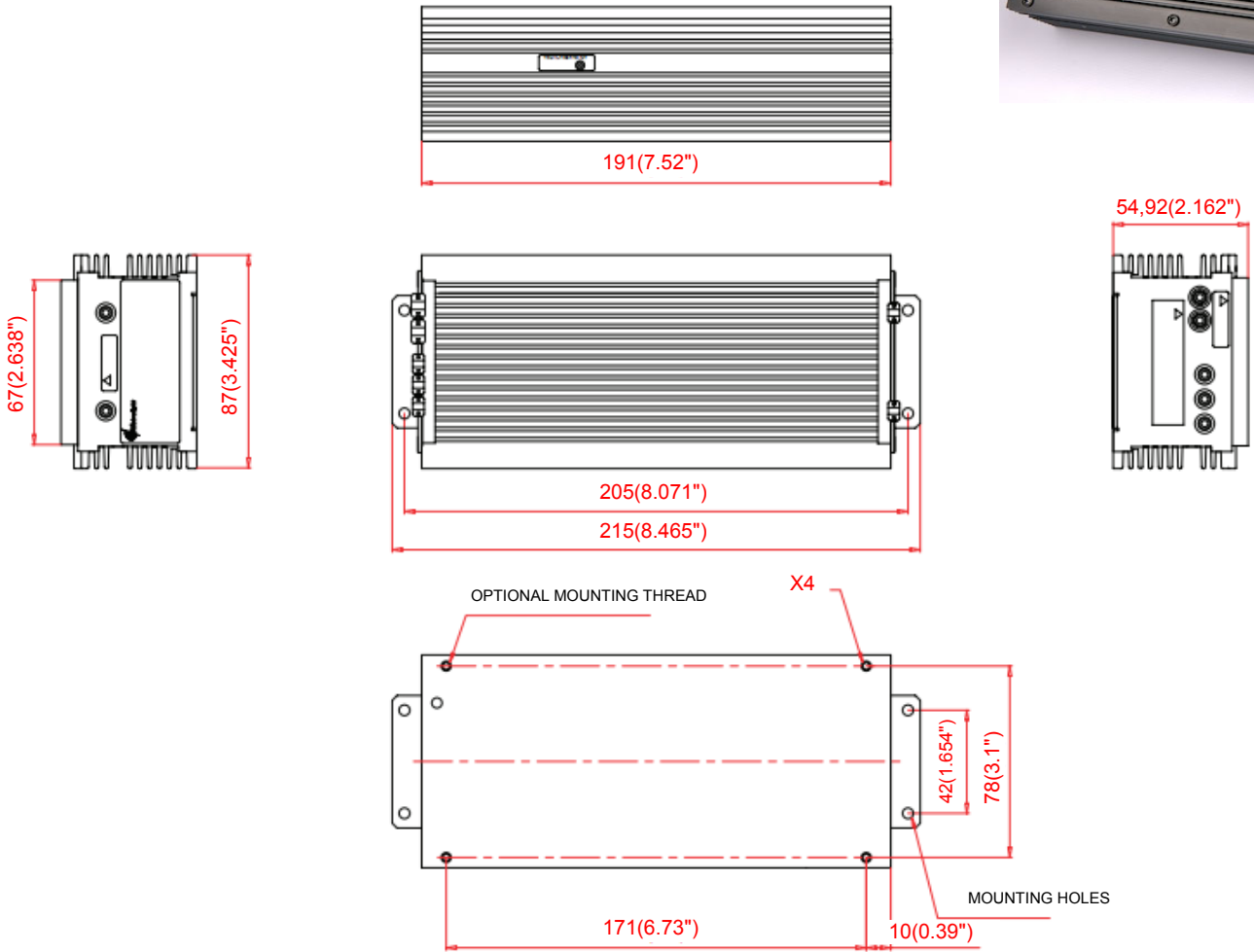
Heat Management:

- ◆ If the Tc rises beyond 90°C during use, the Smart Ballast may switch itself off.
- ◆ If the ballast's Tc temperature reaches beyond 85°C during use, the SmartHID™ Ballast will gradually reduce its output power to 50%, allowing the ballast to cool. When the Tc falls below 85°C again, the ballast will return to full output power.

Metrolight Electronic Ballasts

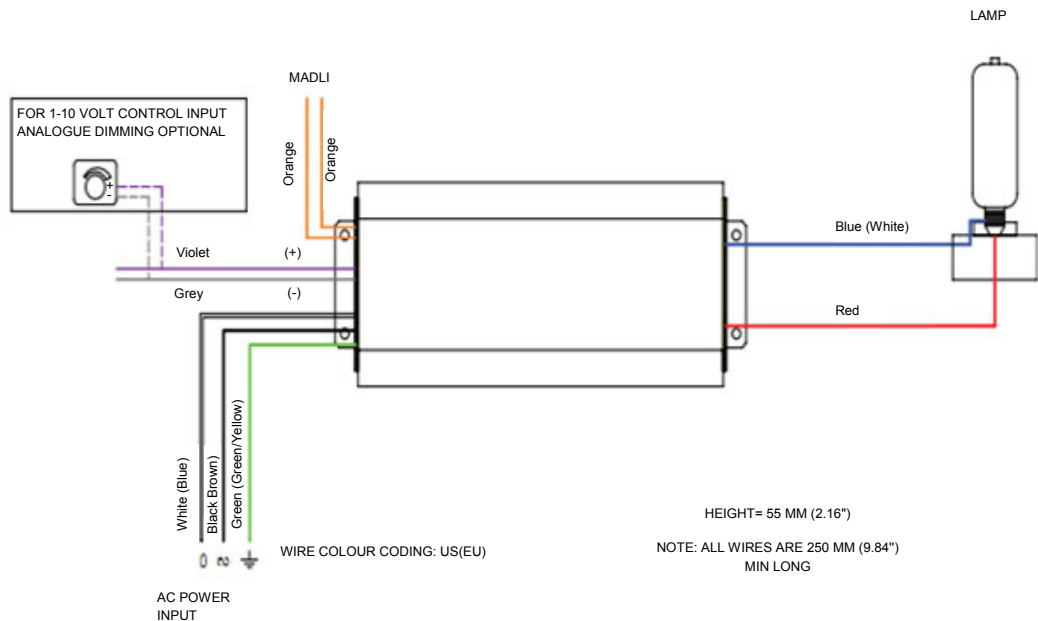
SmartHID™ Electronic Ballast 175–450W

Mechanical Dimensions



SmartHID™ Electronic Ballast 175–450W

Wiring Diagram



Retrofit for Existing Ballasts



We can change the current fittings into Metrolight by retro fitting the gear tray into the existing casing, minimising wastage. We will supply this directly to the end user giving you total control over the project and we can retrofit into any luminaire regardless of the make and model.

Using our facilities we can design the gear tray to give an optimum fit into any luminaire. We will also test the luminaires to ensure it keeps the ballast as cool as possible and approve it for use.

We can deliver the total solution, providing you with a cost effective and environmentally friendly product.

Ballasts for New Luminaires

We can fit the Metrolight ballasts into new luminaires via the original equipment manufacturer, e.g. Urbis and Philips. If you are planning to implement a new lighting scheme, ask your manufacture about using Metrolight ballasts.

Eco Box

The Metrolight Smart EcoBOX™ is a weatherproof, rugged and IP-65 rated remote mounting box. Powered by Metrolight's SmartHID™ Electronic Ballasts, the eco box provides intelligent control capabilities. Metrolight's leading edge dimming control feature provides an additional and significant energy saving advantage.



Case Study – Highways Agency – Street Lighting

In 2008, the maintenance contractor for the North East of England embarked on an energy savings initiative for the A1(M). The lighting system comprised of 250W Magnetic ballasts, operating 12 hours a day. By switching to Metrolight ballasts the astonishing results can be seen below:

- ◆ Energy Savings - 43%
- ◆ Annual CO₂ Saved - 2,607 metric tons
- ◆ Lamp Power - Reduced from 250 to 200w (Through dimming)
- ◆ Simple Payback Period - 3.9 years
- ◆ Maintenance Costs - Reduction of 60%
- ◆ **Total Annual Saving - £57,600**

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