

# Sign Illuminating Products

## A Complete Range Of Solutions... From The Name You Trust

Universal Lighting Technologies ("Universal") is known throughout the sign business as a company that can set and meet today's toughest industry standards.

- Universal Electronic Sign ballasts are ideal for new sign installations with minimum wire connections, universal input voltage, parallel lamp operation, and maximum energy savings.
- Universal Electronic Sign ballasts, when paired with our wiring blocks, offer the perfect solution for magnetic to electronic sign cabinet retrofits.
- EVERLINE® Constant Voltage Drivers are optimized for performance and efficiency and are ideal for new and replacement business.
- EVERLINE® Sign Chains offer the ultimate in flexibility and ease with class II wiring, constant voltage powering and endless applications.

Universal offers the convenience of one-stop shopping for not just sign ballasts, but compact fluorescent, linear fluorescent, HID, and all your other ballast needs.

For the unmistakable sign of quality and reliability, turn to Universal.



# Application And Operating Information

## Heat

Ballasts generate heat during normal operation. By design, fluorescent ballasts should operate so that their maximum hot-spot case temperature does not exceed 80°C (176°F).

Operating at higher temperatures will shorten ballast life or may cause the thermal protection circuit to trip.

The temperature the ballast reaches depends on the temperature of the area surrounding it — plus the heat-conducting surface touching the ballast. Ballasts should be installed in a manner that avoids future overheating. To maintain normal ballast temperature, you should:

1. Mount the ballast against a flat surface of heavy gauge metal such as the structural part of the sign.
2. Keep the ballast as far away as possible from other ballasts, lamps or reflective surfaces. (Lamps generate approximately three-fourths of the heat in a plastic sign.) The ends of the lamps are the hottest part, so you should mount the ballast as far away from the ends as possible.
3. Paint the inside of the sign with flat white paint.

## Moisture Protection

1. Vent the sign as well as possible without allowing water to enter.
2. Ballasts should be mounted horizontally (except for weatherproof types). If the ballast must be mounted vertically, allow room for sufficient air circulation. Wherever possible, mount the ballast in an enclosure outside the sign by using Universal pup tents. You can get pup tents when you order the plastic sign ballast. Your wholesaler will also have a supply for your convenience.

## Grounding

The white lead of a ballast must be connected to the neutral or ground side of the power supply. All metal parts of the sign, as well as the ballast case, must be grounded either through the conduit which holds the power supply or by direct connection with a grounding wire. An ungrounded sign is a potential hazard—and it can give misleading symptoms when looking for sign faults.

## Light Output vs. Temperature

The light output of a fluorescent lamp varies according to the mercury vapor pressure inside the lamp. This pressure is controlled by the coldest spot on the bulb wall. The ballast may start the lamp, but the light output can be very low if the bulb wall temperature is low. Several factors influence this, including ambient temperatures, wind, type of enclosure, etc. If maximum light output is critical, consult a lamp manufacturer for advice.

## Lamp Starting Problems

Occasionally a field problem will arise involving improper lamp starting. The usual complaint is that the lamps start slowly (or not at all). Here are some of the causes:

1. Low line voltage
2. Improper sign grounding
3. Insufficient or no open circuit voltage
4. Dirty lamps during high-humidity operating conditions
5. Lamps improperly inserted in the sockets

If lamp starting is a problem in your installation, check the sign grounding and open circuit voltage. If both are normal, the probable cause is dirty lamps. The lamps should be washed in clean water, drip-dried, and reinstalled. If this doesn't solve the problem, contact your nearest Universal representative for further assistance.

## Short Lamp Life

If the lamp has not given proper length of service as specified by the lamp manufacturer, the following reasons for early failure should be considered:

1. Frequent starting and short operating periods
2. Improper ballast
3. Improper voltage supply
4. Faulty wiring
5. Defective lamps
6. Lamps improperly inserted in sockets

Early lamp failure will be preceded by a dense blackening on either or both ends of the lamps. This blackening will extend three or four inches from the lamp base and should not be confused with a small dense spot, which is a mercury deposit that can occur any time during lamp life. Dense blackening due to early lamp failure should not be confused with the gray bands that sometimes appear toward the end of normal lamp life (about two inches from either end of the lamp).

# Sign Ballast Footage Chart

ELECTRONIC SIGN BALLASTS																					T12HO Lamps						
No. of Lamps Per Ballasts	TOTAL FOOTAGE FOR T12HO & T8HO LAMPS																				T8HO Lamps						
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48			
1-2	ESB-216-12 (Up to 8' Lamps)																										
	ESB-216-12 (Up to 6' Lamps)																										
1-4	ESB-432-14 (Up to 8' Lamps)																										
	ESB-432-14 (Up to 6' Lamps)																										
4-6	ESB-848-46 (Up to 8' Lamps)																										
	ESB-848-46 (Up to 6' Lamps)																										
1-4	ESB-1040-14 (Up to 10' Lamps)																										
	ESB-1040-14 (Up to 8' Lamps)																										

PLASTIC SIGN BALLAST LEAD LENGTHS (INCHES)				
CATALOG NUMBER	WHITE	BLACK	BLUES	REDS
SIGNA ELECTRONIC SIGN BALLASTS - T8 & T12 HIGH OUTPUT LAMPS - 108-35 Volts - 50-60 Hz				
SIX LAMP BALLASTS				
ESB216-12	24	24	120	120
ESB432-14	24	24	120	120
ESB848-46	24	24	120	120
ESB1040-46	24	24	120	120

Note: Maximum volts above ground, any lead 590 volts.

- Instant start for maximum energy savings
- Simplified wiring for fewer connections
- Universal input voltage
- Parallel Lamp Operation

## ELECTRONIC SIGN BALLASTS

PLASTIC SIGN BALLAST LEAD LENGTHS (INCHES)								
CATALOG NUMBER	TOTAL LAMP FOOTAGE	START TEMP (°F)	INPUT VOLTAGE	MAX. INPUT VOLTAGE	MAX. LINE CURRENT (A)	WIRING DIAGRAM	DIMENSION CHART REF.	WEIGHT (LBS.)
<b>T12HO UP TO 8' IN LENGTH OR T8HO UP TO 6' IN LENGTH - 120 to 277 Volts - 50/60 Hz</b>								
<b>ONE TO TWO LAMP BALLASTS</b>								
ESB216-12	2' min. – 16' max.	-20	120	134	1.12	1	1	4.2
			277	130	0.47			
<b>ONE, TWO, THREE OR FOUR LAMP BALLASTS</b>								
ESB432-14	4' min. – 32' max.	-20	120	280	2.34	2	2	7.4
			277	274	0.99			
<b>FOUR, FIVE OR SIX LAMP BALLASTS</b>								
ESB848-46	8' min. – 48' max.	-20	120	408	3.41	3	3	9.7
			277	395	1.47			
<b>T12HO UP TO 10' IN LENGTH OR T8HO UP TO 8' IN LENGTH - 120 to 277 Volts - 50/60 Hz</b>								
<b>ONE, TWO, THREE OR FOUR LAMP BALLASTS</b>								
ESB1040-14	10' min. – 40' max.	-20	120	341	2.85	2	3	10
			277	331	1.25			

Consult [www.signasign.com](http://www.signasign.com) for complete specification information

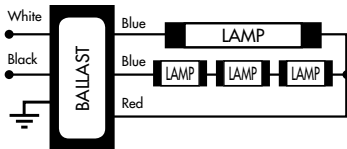


Diagram 1

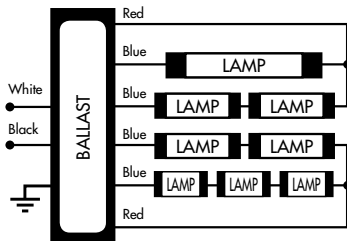


Diagram 2

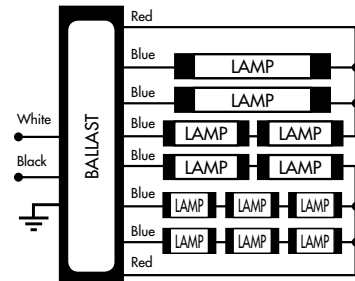
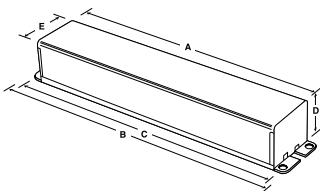


Diagram 3



### ELECTRONIC SIGN BALLASTS DIMENSION CHART - STANDARD CASE (INCHES)

Ref. #	A	B	C	D	E
1	10 <sup>37/64</sup> "	11 <sup>45/64</sup> "	11 <sup>9/64</sup> "	1 <sup>3/4</sup> "	3 <sup>3/16</sup> "
2	13 <sup>3/16</sup> "	14 <sup>5/16</sup> "	13 <sup>3/4</sup> "	2 <sup>43/64</sup> "	3 <sup>3/16</sup> "
3	15 <sup>9/16</sup> "	16 <sup>11/16</sup> "	16 <sup>1/8</sup> "	2 <sup>43/64</sup> "	3 <sup>3/16</sup> "

#### Diagrams Notes:

When Operating less than the maximum number of lamps, insulate unused blue leads.

### UNIVERSAL WIRE BLOCK

For use converting magnetic ballast installations to electronic systems.

CATALOG NUMBER	MAGNETIC BALLASTS	NUMBER OF LAMPS OPERATED	FOR USE WITH:
WB66	6 Lamps	6 Lamps	ESB848-46
WB65	6 Lamps	5 Lamps	ESB848-46
WB64	6 Lamps	4 Lamps	ESB848-46
WB44	4 Lamps	4 Lamps	ESB432-14 / ESB1040-14
WBEXT – 24" wiring harness for extending magnetic ballast leads.			

PHYSICAL PROPERTIES	
LENGTH	6.00 in (152.4 mm)
WIDTH	3.00 in (76.2 mm)
HEIGHT	0.75 in (19.05 mm)
WEIGHT	0.06 lbs.

# EVERLINE® LED Drivers & Chain



## LED Modules

Catalog Number	LSA-25WH	LSA-25WW
Description	White	Warm White
Input Voltage	12V	
Viewing Angle	120°	
Color Temp/ Wave Length	6500K	3500K
Lumens/ Ft	100	95
Power/ Ft	1.00	1.00
Feet/ 60W PS	60'	60'
LEDs/ Module	3	
Module/ Ft	2	
Module Length	1.81"	
Module Width	0.95"	
Module Height	0.32"	
Operating Temperature	-40°C to 70°C (-40°F to 158°F)	
Storage Temperature	-40°C to 85°C (-40°F to 185°F)	
Carton Quantity	100 feet/200 Modules	
Warranty (yr)	5 year	



## Constant Voltage LED Power Supplies

Catalog Number	D12V20UNV-JL	L12V60UNV-A	L12V60UNV-Q	L24V100UNV-A	L24V100UNV-Q
Input Voltage	100-277 VAC	100-277 VAC	100-277 VAC	100-277 VAC	100-277 VAC
Max Input Current	0.27/0.09	0.58/0.26	0.58/0.26	0.89/0.39	0.89/0.39
Output Voltage	12VDC	12VDC	12VDC	24VDC	24VDC
Output Current Range	1.7 A Max	5.0 A Max	5.0 A Max	4.0 A Max	4.0 A Max
Output Power Max	20W	60W	60W	96W	96W
UL Rating	Dry & Damp Location	Dry & Damp Locations	Dry ,Damp, & Wet Locations	Dry & Damp Locations	Dry ,Damp, & Wet Locations
Operating Temperature	-22F to 140F (-30°C to 60°C)	-22°F to 140°F (-30°C to 60°C)	-22°F to 140°F (-30°C to 60°C)	-22°F to 140°F (-30°C to 60°C)	-22°F to 140°F (-30°C to 60°C)
Dimensions (L x W x H)	5.3" x 1.34" x 1.00"	9.5" x 1.5" x 1.18"	10.7" x 2.1" x 1.5"	9.5" x 1.5" x 1.18"	10.7" x 2.1" x 1.5"
IP Rating	IP54	IP66	IP67	IP66	IP67



Plastic Sign Ballasts

# EVERLINE® LED Sign Tube



## Ordering

Part Number	Length	Power (W)	Lumens	CRI	CCT
<b>Single Sided LED Sign Tube</b>					
ST24-865-SS	24"	6W	680lm/ft	82	6500
ST48-865-SS	48"	12W	1360lm/ft	82	6500
ST72-865-SS	72"	18W	2040lm/ft	82	6500
ST96-865-SS	96"	24W	2720lm/ft	82	6500
<b>Double Sided LED Sign Tube</b>					
ST24-865-DS	24"	12W	1360lm/ft	82	6500
ST48-865-DS	48"	24W	2720lm/ft	82	6500
ST72-865-DS	72"	36W	4080lm/ft	82	6500
ST96-865-DS	96"	48W	5440lm/ft	82	6500

## Easy Installation

- 24V Constant voltage product allows for simple class II wiring.
- Run up to 32' of single sided (16' double sided) tubes on one 100W power supply.
- 90° Adjustable RDC style endcaps for correct lamp orientations.
- Ideal for Vertical or Horizontal installation.
- Utilizes the same spacing as standard fluorescent systems.
- Designed for daisy-chain or parallel wiring.

## Superior Performance

- Up to 60% more efficient than fluorescent systems at over 113lm/W.
- 340lm/ft delivered to the sign face for bright and even illumination.
- Mounts as close as 5" from the acrylic face.
- Rated for more than 60,000 hours of usable life.
- 6500 CCT
- 5 year warranty.

## LED Sign Tube Specifications

Operational	
Input Voltage	24VDC
Lumens per Watt	113
Lumen Maintenance	L85>60Khrs
Color Consistency	<4 SDCM (6500K)
Environmental	
Min. Ambient Operating Temp	-22°F, -30°C
Max. Ambient Operating Temp	140°F, 60°C
Regulatory	
Safety	UL8750 CSA-C22.2 No. 250.13-14 RoHS Compliant

Mechanical	
Tube Length (not including connectors)	ST24": 21.8"
	ST48": 45.8"
	ST72": 69.8"
	ST96": 93.8"
Diameter	1.5"
Lead Length	8"
Ordering	
Carton Quantity	4/Master Pack



# Notes

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*It's **EASY**  
to **REACH US...***



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For Technical Engineering Services (TES),  
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