

# Sign Illuminating Ballasts

## 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. Our high-output ballasts are great for rugged outdoor sign cabinet applications because they provide ultra-reliable, low-temperature starting as low as -20° F. All Universal sign ballasts offer Class P thermal protection.

- Signa® Electronic Sign ballasts are ideal for new sign installations with minimum wire connections, universal input voltage, parallel lamp operation, and maximum energy savings.
- Signa® Electronic Sign ballasts, when paired with our wiring blocks, offer the perfect solution for magnetic to electronic sign cabinet retrofits.

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.



Universal® sign ballasts provide ultra-reliable low-temperature starting — plus Class P thermal protection.

# 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.

# ELECTRONIC SIGN BALLASTS

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

# SIGNA® 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

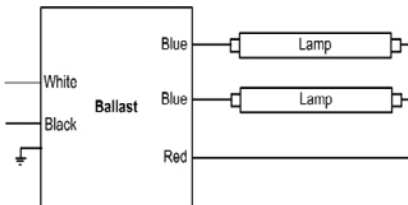


Diagram 1

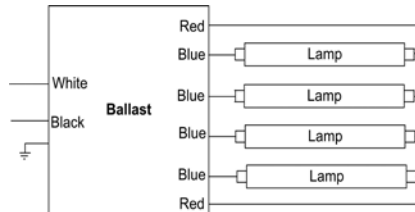


Diagram 2

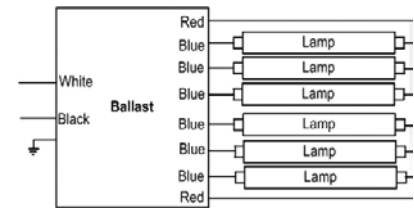
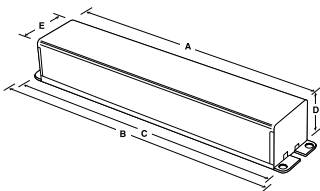


Diagram 3



### 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.

### SIGNA 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.