

ELECTROMAGNETIC BALLASTS

T12 STRAIGHT RAPID START LAMPS

Straight Lamps



HIGH POWER FACTOR SOUND RATED A

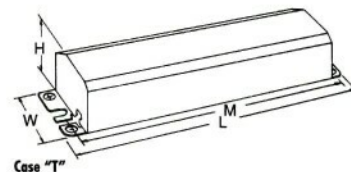
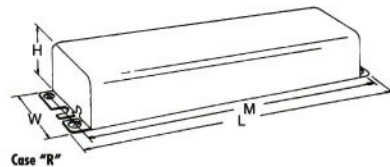
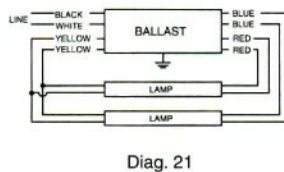
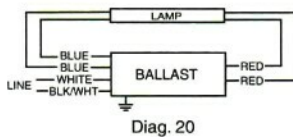
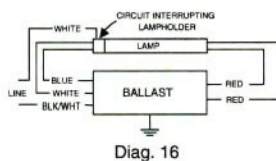
Lamp Data		Min. Starting Temp. (F)	Input Volts	Catalog Number	Certifications					Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	THD %	Power Factor	Dim./Wiring Diagram
Number	Watts				UL	CS	E	IE	DM						
F30T12 Energy Saver (455mA)															
1	25	60	120	HM-1P30-TP	✓	✓			0.34	40	0.91	<20	0.98	T-2/20	
			277	VM-1P30-TP	✓				0.15	40	0.94	<15	0.96		
2	25	60	120	RM-2SP30-TP	✓	✓			0.58	70	0.90	<10	0.99	T-2/21	
				R-2SP30-TP Mark III	✓	✓			0.55	65	0.91	<15	0.98		
			277	VM-2SP30-TP	✓				0.26	70	0.93	<10	0.97		
				V-2SP30-TP Mark III	✓				0.24	65	0.91	<15	0.98		
F30T12 (430mA)															
1	30	50	120	RL-140-TP ❖	✓	✓			0.60	33	0.71	<10	0.46	R-4/16	
				HM-1P30-TP	✓	✓		✓	0.40	47	0.96	<20	0.98	T-2/20	
			0	RC-1P40-TP	✓	✓			0.34	41	0.79	<15	0.99	R-5/20	
		50	240	YHQM-1P40-TP	✓				0.18	43	0.82	<10	0.99		
			277	VM-1P30-TP	✓			✓	0.18	49	0.99	<15	0.98	T-2/20	
		0		VC-1P40-TP	✓	✓			0.15	40	0.83	<15	0.96	R-5/20	
2	30	50	120	RM-2SP30-TP	✓	✓		✓	0.66	79	0.97	<10	0.99	T-2/21	
				R-2SP30-TP Mark III	✓	✓		✓	0.63	75	0.96	<15	0.99		
			0	RC-2SP40-TP ●	✓	✓			0.62	74	0.85	<15	0.99	R-5/21	
		50	277	VM-2SP30-TP	✓			✓	0.29	81	0.97	<10	0.99	T-2/21	
				V-2SP30-TP Mark III	✓			✓	0.27	74	0.95	<10	0.99		
		0	347	VC-2SP40-TP ●	✓	✓			0.27	73	0.86	<15	0.98	R-5/21	
				50	G-140-TP Mark III		✓			0.13	44	0.88	<15	0.98	T-2/20
					G-2S40-TP Mark III		✓			0.24	75	0.90	<20	0.90	T-2/21

- ❖ Normal Power Factor
- ❖ Requires Circuit-Interrupting Lamp Holders
- Sound Rated B

DIMENSIONS

Designation	Length (L) (inches)	Width (W) (inches)	Height (H) (inches)	Mounting (M) (inches)
R-4	6½	1 15/16	1 3/8	6+
R-5	9½	2 3/8	1 11/16	8 ^{29/32}
T-2	9½	2 3/8	1 ½	8 ^{29/32}

+ Mounting dimensions refer to slots only



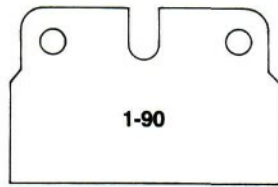
Refer to pages 208 to 215 for lead lengths and shipping data



ELECTROMAGNETIC RAPID START

Ballast Date Codes

Advance electromagnetic fluorescent lamp ballasts are date stamped on the ballast cover to designate month and year of manufacture. The month is indicated first, followed by the year. In the example shown (1-90), the manufacturing date is January, 1990. See inside front cover for warranty information.



Certifications



All Advance ballasts unless otherwise indicated bear the seal of Underwriters' Laboratories, Inc. in accordance with UL935 Standard for Fluorescent Ballasts. File No. E14927



Component recognition - yellow card listing in accordance with UL935 Standard for Fluorescent Ballasts. File No. E14927



Advance ballasts which meet the Canadian Standards Association requirements for Fluorescent Ballasts per CAN/CSA-22.2 No. 74-92 bear the CSA seal. File No. LR7310



Indicates ballast complies with National Energy Conservation Amendments (NAECA) of 1988 to Energy Policy and Conservation Act (EPCA) of 1987.



Indicates ballast complies with Canadian Energy Standards.



Advance ballasts meeting the rigid standards of Certified Ballast Manufacturers bear the CBM seal.



Advance fluorescent ballasts are designed and manufactured in accordance with the American National Standards Institute standard for fluorescent ballasts, ANSI C82.1.

Class P Ballasts — Section 410-73(e) of the National Electrical Code (NEC) requires that all indoor fluorescent fixtures shall incorporate ballast protection. Those fixtures employing a simple reactive type ballast are exempted.

The protector is located within the ballast case to prevent physical damage and tampering.

Advance electromagnetic ballasts ordered with ADVAN-guard® Class P ballast protection (TP suffix) are equipped with a thermally actuated automatic reclosing protective device. This revolutionary development was originally designed and introduced by Advance, and today this Class P device is a requirement of the National Electrical Code in all indoor lighting installations.

Safety

The National Electrical Code requires grounding of fluorescent fixtures. The fluorescent ballast case must be grounded either to the fluorescent fixture or, if remote mounted, by other means such as a wire from the ballast case to ground. Without proper fixture and ballast grounding, a shock hazard may exist due to

the fluorescent fixture becoming energized by an internal ballast failure to case. Also, all ballasts have normal leakage current. When the ballast is properly grounded, the leakage current does not constitute a hazard.

Starting

The metal of a fluorescent fixture is a starting aid when properly grounded. T12 Fluorescent lamps rated at 40 watts or less used for rapid or trigger start operation must be mounted within 1/2" of a grounded metal surface. T8 Lamps must be mounted within 3/4" of a grounded metal surface. All other lamps must be mounted within 1" of a grounded metal surface.

An important additional factor for proper lamps starting is polarity. The white ballast lead must be connected to the ground of the power supply (neutral) and the black lead to the hot line wire. A reversal of polarity may result in lamp damage or improper lamp starting.

Cold Weather Operation

Lumen ratings of fluorescent lamps apply for operation in still air at a temperature of 77°F. While many fluorescent lamps and fluorescent lamp ballasts are designed to give their best performance at 77°F, they will provide reasonably good light output down to 50°F. Further decreases in ambient temperature will result in decreased light output.

Variables such as humidity, line voltage, fixture design and variations within the particular design of the lamp and the fluorescent lamp ballast play an important part in determining the low temperature starting limit.

These are the two considerations for low temperature application:

1. Starting of the lamps

Low temperatures change the electrical starting characteristics of a fluorescent lamp. As the fluorescent lamp becomes colder, it becomes more difficult to start. Therefore, a fluorescent ballast must have a higher starting voltage; thus, follow the temperature recommendations shown in the tables. **Ballasts designed for low temperature use ensure reliable starting only and not the light output.**

2. Operating the lamps

The light output of any fluorescent lamp depends on the mercury vapor pressure within the lamp. Maximum light output for most fluorescent lamps occurs when the bulb temperature is about 100°F. As bulb wall temperature goes above 100°F the mercury vapor pressure within the tube increases and the light output decreases.

Interestingly enough, at lower bulb-wall temperatures, the mercury condenses on the tube, pressure drops and the light output again decreases. This is inherent in all fluorescent lamps. In order to prevent reduction in light output at low temperatures the lamp should be enclosed so it has a chance to overcome the low bulb-wall temperature by the heat generated by the lamp.

In general, outdoor lighting installations have tended toward 800 and 1500mA lamps since the additional heat generated by these lamps will provide better illumination in cold weather than can be obtained with 430mA lamps. The 430mA lamps are not recommended by the lamp manufacturer for starting conditions below 0°F. Above this temperature, shielding is required to a greater degree than with the more heavily loaded lamps. Special low temperature lamps, which may be purchased with shields, are available for 1500mA operation.

Ballast Sound

The slight hum present in fluorescent lighting installations originates from the inherent magnetic action in the core & coil assembly of the ballasts. This hum may be amplified by the method of mounting the ballast in the fixture...the fixture design...and, more often than not, this hum is amplified by the resonant qualities of the ceiling, walls, floors and furniture. In planning a lighting installation, careful consideration must be given to the selection of the fluorescent lamp ballast, the lighting fixture and room components. These precautions will ensure the quietest installation possible.

The choice of fluorescent lamp ballast should be made on the basis of selecting the one rated quietest for a specific location or interior as some ballast have a more discernable hum due to basic construction features and electrical ratings.

SOUND RATINGS

For any Installation in:	Average Ambient Noise Level Of Interior	Sound Level Rating*
TV or Radio Station, Library, Reception or Reading Room, Church, School Study Hall	20-24 DECIBELS	A
Residence, Quiet Office, Night School Classroom	25-30 DECIBELS	B
General Office Area, Commercial Building, Storeroom	31-36 DECIBELS	C
Manufacturing Facility, Retail Store, Noisy Office	37-42 DECIBELS	D

*These sound ratings are based on measurements of **Average Ambient** noise levels during conditions of normal occupancy. Audible ballast hum may appear amplified during exceptionally quiet periods and at times when area is unoccupied.

Temperature and Ventilation

Underwriters' Laboratories, Inc. stipulates that the temperature limitation of a fluorescent lamp ballast using Class A insulation at normal operation should have a maximum ballast coil temperature of 105°C (221°F) and maximum ballast case temperature of 90°C (194°F) at its hottest spot. Ballast life will be reduced if it is operated at a temperature above these limits.

A fluorescent lamp ballast, like other electrical equipment, generates heat during normal operation. If not maintained within prescribed limits, this heat will become the primary cause of reduced ballast life. Heat generated in the conventional ballast is transferred to the case through a silica compound which totally surrounds the internal components and is then dissipated to the surrounding air or mounting surface by conduction, convection or radiation.

It is therefore essential that a ballast which is placed in an enclosure be suitably ventilated. Where more than one ballast is installed in an enclosure, the ballast should be positioned far enough apart to provide adequate heat dissipation.

To assist in limiting the temperature rise of ballasts, the following procedures are recommended:

- **Mount ballast with maximum number of sides in direct contact with the metal channel of fixture. Radiators are an excellent way of dissipating heat.**
- **Provide fixture ventilation.**
- **Paint the unpainted fixture channels with a non-metallic finish to increase radiation.**
- **Place ballast in a cooler location outside the fixture.**
- **Place fixture to attain maximum dissipation of heat by conduction, convection or radiation.**

BALLAST TYPE

Magnetic = Standard electromagnetic core and coil construction continues to provide reliable service and economy over a wide variety of lighting system applications. Operates lamps at 60 Hz.

Mark III = Energy-saving electromagnetic ballast designed to provide 10% energy savings over corresponding standard magnetic units while maintaining equivalent full light output. Operates lamps at 60 Hz.

E-PAK 34 & E-PAK 60 = Energy-saving electromagnetic ballast specifically optimized for energy saving lamps to provide 17% energy savings over corresponding standard magnetic units while maintaining equivalent light output. Operates lamps at 60 Hz.

ELECTROMAGNETIC BALLASTS

T5 PREHEAT LAMPS PREHEAT BALLASTS (STARTER REQUIRED) ☆

Straight Lamps



CLASS B INSULATION NORMAL POWER FACTOR SOUND RATED A

ELECTROMAGNETIC PREHEAT

Lamp Data		Min. Starting Temp. (F)	Input Volts	Catalog Number	Certifications					Line Current (Amps)	Input Power ANSI (Watts)	Ballast Factor	THD %	Power Factor	Dim./Wiring Diagram
Number	Watts				UL	CSA	E	ETL	CBM						
F4T5															
1	4	50	120	LPL-5-9 ◆❖□	✓	✓			0.19	9	1.01	<10	0.39	X-1/116	
				LC-4-9-C ★❖	✓	✓			0.20	9	1.07	<10	0.38	C-2/116	
F6T5															
1	6	50	120	LPL-5-9 ◆❖□	✓	✓			0.17	9	1.02	<10	0.44	X-1/116	
				LC-4-9-C ★❖	✓	✓			0.19	10	1.07	<10	0.44	C-2/116	
F8T5															
1	8	50	120	LPL-5-9 ◆❖□	✓	✓			0.14	9	1.00	<10	0.54	X-1/116	
				LPL-7-9	✓	✓			0.17	11	0.95	<10	0.54	X-2/116	
				LC-4-9-C ★❖	✓	✓			0.17	11	1.08	<10	0.54	C-2/116	
1	8	50	120	LSX-113-TP ☆ †	✓	✓			0.14	10	0.99	<10	0.60	LS/119	
2	8	50	120	LSX-213-TP ☆ †	✓	✓			0.29	19	0.99	<15	0.55	LS/136	
F13T5															
1	13	50	120	L-1Q13-TP-W	✓	✓			0.33	18	0.95	<10	0.45	R-4/2	
				LS-113-TP †	✓	✓			0.28	17	0.89	<10	0.51	LS/2	
1	13	50	120	LSX-113-TP ☆ †	✓	✓			0.14	13	0.88	<15	0.77	LS/119	
2	13	50	120	LSX-213-TP ☆ †	✓	✓			0.29	26	0.88	<25	0.75	LS/136	
(1) F8T5 & (1) F13T5															
2	8 & 13	50	120	LSX-213-TP ☆ †	✓	✓			0.29	23	0.93	<20	0.66	LS/136	

ELECTRONIC START LOW PROFILE

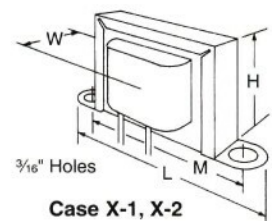
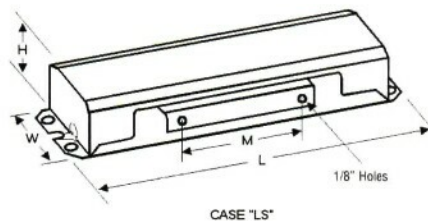
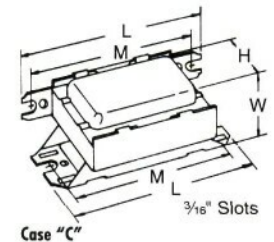
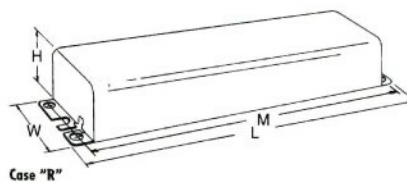
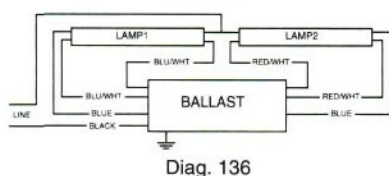
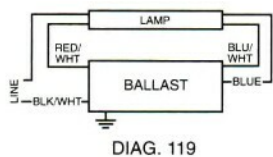
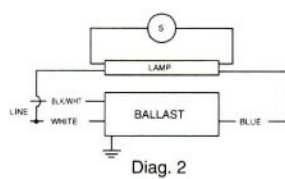
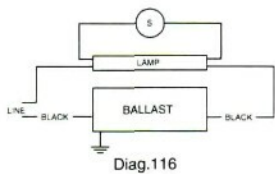
ELECTRONIC START LOW PROFILE

ELECTRONIC START LOW PROFILE

- ❖ Available with Class P Thermal Protection— Add Suffix -TP to Catalog Number.
- ◆ Open Core & Coil Ballasts are available without mounting feet— Add Suffix -A to Catalog Number. Units without mounting feet are UL Component Recognized.
- ★ Core & Coil with Cover, painted white
- For Emergency/Exit Fixture applications, add suffix "R" to Catalog Number. Ballasts with this suffix are UL component recognized.
- ☆ Ballast Includes Built-in Starter
- † Class A Insulation

DIMENSIONS

Designation	Length (L) (inches)	Width (W) (inches)		Height (H) (inches)	Mounting (M) (inches)
		Standard	With TP		
C-2	3 ¹ / ₁₆	1 ³ / ₈	1 ¹⁹ / ₃₂	1 ¹³ / ₁₆	2 ³ / ₄
LS	6 ⁷ / ₁₆	—	1 ¹³ / ₁₆	1 ⁹ / ₁₆	2 ³ / ₈
R-4	6 ¹ / ₂	—	1 ¹⁵ / ₁₆	1 ³ / ₈	6 ⁺
X-1	2 ³ / ₈	1 ¹ / ₈	1 ³ / ₈	1 ³ / ₈	2
X-2	2 ³ / ₈	1 ⁹ / ₁₆	—	1 ³ / ₈	2



Refer to pages 208-215 for lead lengths and shipping data



GENERIC DCI NUMBER 781087	CATALOG NUMBER (GENERIC)	IC-PACK DCI NUMBER 781087	MID-PACK DCI NUMBER 781087	DISTRIBUTOR COST EACH	VOLUME CODE	DESCRIPTION INDICATES PRIMARY APPLICATION AND IS FOR REFERENCE ONLY. FOR COMPLETE DATA, SEE ADVANCE ATLAS.	IC-PACK MASTER PACK QTY.	MID-PACK STANDARD CARTON QTY.	UNIT WEIGHT
20852	VM1P30TP	20852	00939	\$22.71	C	MAG BALLAST (1) F30T12 RS 277V	10	10	3.4
10702	VM2SP20TP	10702	00942	26.20	C	MAG BALLAST (2) F20T12 PH 277V	10	10	3.4
22562	VM2SP30TP	22562	00944	22.94	C	MAG BALLAST (2) F30T12 RS 277V	10	10	3.6
22792	VS110TP	22792	00947	44.52	C	MAG BALLAST (1) F96T12/HO 277V	6	6	9.8
10672	VS2S110TP	10672	00955	41.20	A	MAG BALLAST (2) F96T12/HO 277V	6	6	10.2
22774	VS2S200FO	22774	-	129.49	C	MAG WP BALLAST (2) F96T12/VHO 277V	1	-	20.0
22772	VS2S200TP	22772	00958	78.39	A	MAG BALLAST (2) F96T12/VHO 277V	1	4	15.0
22502	VSM175STP	22502	00966	25.37	A	MAG BALLAST (1) F96T12 SLIMLINE 277V	6	10	6.2
28702	VSM2E40STP	28702	00971	26.19	A	MAG BALLAST (2) F48T12 SLIMLINE 277V	6	10	5.8
06483	X140TP	-	00975	27.30	C	MAG BALLAST (1) F40T12 RS 220V	-	10	3.6
26542	XQM2S40TP	-	00979	27.30	C	MAG BALLAST (2) F40T12 RS 220V	-	10	3.4
08176	XSM2E75STP	-	00981	24.55	C	MAG BALLAST (2) F96T12 SLIMLINE 220V	-	6	8.1
37062	YHQM1P40TP	-	00989	25.49	C	MAG BALLAST (1) F40T12 RS 240V	-	10	3.6
22472	YQM2S40TP	22472	00995	25.23	C	MAG BALLAST (2) F40T12 RS 240V	10	10	3.5
28162	YS2S110TP	-	00998	50.71	C	MAG BALLAST (2) F96T12/HO 240V	-	6	10.1
38862	YS2S85TP	-	01001	51.34	C	MAG BALLAST (2) F72T12/HO 240V	-	6	10.0
09282	YSM2E75STP	-	01002	24.55	C	MAG BALLAST (2) F96T12 SLIMLINE 240V	-	6	8.1

NOTES: IC-PACK BALLASTS ARE INDIVIDUALLY PACKAGED CONTAINING A BALLAST WITH SHORT LEADS.
 MASTER PACK QUANTITY IS A BUNDLE OF IC-PACKS.
 MID-PACK BALLASTS ARE NOT INDIVIDUALLY PACKAGED AND CONTAIN BALLASTS WITH STANDARD LEAD LENGTHS.
 WHEN ORDERING BY CATALOG NUMBER, PLEASE ADD SUFFIX I TO DESIGNATE AN IC-PACK OR SUFFIX M TO DESIGNATE A MID-PACK.
 WHEN ORDERING BY DCI NUMBER, PLEASE USE CORRECT PACKAGING DCI NUMBER REFERENCED ABOVE.

EXAMPLE: R2S40TPI OR 10902 DENOTES IC-PACK AND R2S40TPM OR 00474 DENOTES MID-PACK.