

# Compact Fluorescent Ballasts

---

## The Courage To Dream Small

Universal Lighting Technologies (“Universal”) offers a full range of magnetic and electronic compact fluorescent ballasts. Our magnetic models come in a variety of shapes and sizes, from core and coils to High Power Factor potted ballasts with bottom exit leads and mounting studs for all downlighting applications.

Our newest electronic models offer installer-friendly universal input voltage, which reduces your inventory and ensures that you have the right voltage ballast every time. These models feature a low profile case that fits in any fixture. And their metal housing construction meets all plenum codes and delivers maximum heat transfer to extend ballast life.



Our newest compact fluorescent models offer installer-friendly universal input voltage.

# Product Overview

## Electronic Compact Fluorescent Ballasts

Universal's newest TRIAD® electronic compact fluorescent ballasts feature installer-friendly universal input voltage (108 to 305 volts) and metal case designs for compliance with all plenum and construction code requirements. They also offer an end-of-lamp-life shutdown circuit with auto-reset that meets ANSI/NEMA requirements—a feature that eliminates lamp/socket damage while allowing you to replace failed lamps after shutdown without turning off the power.

Our universal voltage compact fluorescent ballasts offer both 1- and 2-lamp operation—and they're ideal for a wide variety of downlight and surface mount applications for atriums, hotel corridors, offices, and outdoors. All models operate multiple lamp types for added versatility in many different applications.

All universal voltage compact fluorescent ballasts incorporate Universal's Programmed Rapid Start (PRS) technology that increases lamp life for those frequently switched applications where occupancy sensors are used. PRS is recommended by all lamp manufacturers.

For the Canadian market, we have 347 volt compact fluorescent models. These also offer outstanding reliability and lamp performance. These 347 volt models are available for 1 and 2 lamp operation for lamps ranging from 13 to 70 Watts.

These ballasts are designed and manufactured for long life. Lamps can be mounted in close proximity to these ballasts because they have no temperature-critical components near the can sides. And their circuit board potting enhances reliability by lowering case temperatures.

### CFL Mult-E Kit

The multi-exit ballast lead wire connectors accommodate side and bottom lead exit requirements. The snap mount adapter plate adds bottom-exit studs and additional flexibility for replacement of older magnetic ballasts. They also fit virtually every j-box cover and fixture application. This product is for distribution sale only.

#### Mult-E Kit products:

C213UNVME000K	C213/347ME001K
C218UNVME000K	C218/347ME001K
C2642UNVME000K	C2642/347ME001K

#### Mult-E Kit contains:

- Multi-exit ballast
- Snap-mount adapter plate
- Lead wire set
- Wire extraction tool
- Instructions

## Magnetic Compact Fluorescent Ballasts

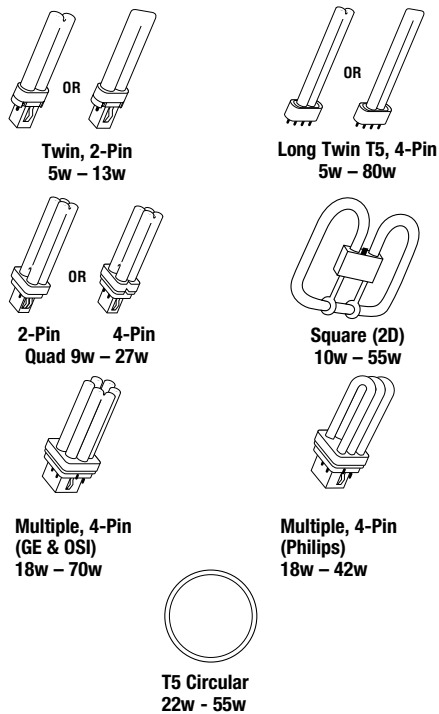
Universal offers a complete line of magnetic compact fluorescent ballasts, ranging from 5 - 40 watts (10 - 38 watts for 2D lamps). Both core & coil and F-can models are available...in a variety of configurations that include Side Exit, Bottom Exit and Bottom Exit Studs.

# Understanding Compact Fluorescent Technology

Compact fluorescent (CFL) lamps are single-ended and plug into sockets. They're sometimes referred to as "single-based" or "single-ended" fluorescent lamps.

## Lamp Shapes

Today's CFL lamps come in these basic shapes: twin tube, quad, triple, multi and circular. Each of these shapes has its own subset of sizes. For example, the twin tube may range from 4' long (5 watt) to 22' long (40 watt).



## Pins and Starters

CFL lamps feature either two pins or four pins. Those with two pins have starters built into their bases, and they require a magnetic preheat ballast. The two-pin CFL lamps are available in wattages from 5 to 28.

Four-pin lamps are traditionally powered by electronic ballasts. These lamps do not have an internal starter, so the other filament terminals (pins) are made accessible for external connection to the ballasts. Note: Universal offers both magnetic and electronic ballasts for the four-pin 32 and 26 watt lamps and all four-pin Long Twin T5 lamps.

Industry	Watts	GE	OSI	Philips
Single or Twin	5, 7, 9, 13	Low Watt Biax	Dulux S, S/E	PL-S
Double or Quad	9, 13, 18, 20, 26, 27	Double Biax	Dulux D, D/E	PL-C
Multiple	13, 18, 26, 32, 42	Biax T/E	Dulux T, T/E, T/E/IN	PL-T
Multiple	42, 57, 70	Biax Q/E	Dulux T/E/IN	PL-T
Long Twin T5	18, 24/27, 36/39, 40, 50, 80	High Lumen Biax	Dulux L, F	PL-L
Square	10, 16, 21, 28, 38, 55	2D	—	—
Circline	22, 40, 55	—	Pentron	Silhouette

## Lamp Bases

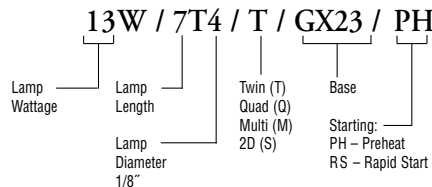
There are a variety of lamp bases used with today's CFL lamps. This provides a safeguard to make sure that the proper lamp/ballast combination is installed. The lamp base style is part of the ANSI/NEMA designation.

In this catalog, Universal CFL ballasts are classified according to lamp type. Icons representing each lamp type provide a quick visual reference. Within each classification, the lamps and their appropriate ballasts can be found by referring to the generic NEMA lamp descriptions.

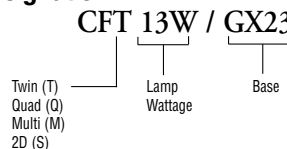
## Lamp Designation

There are two different industry-recognized nomenclatures for identifying CFL lamps: ANSI Lamp Designations and NEMA Lamp Designations. Here are examples of each:

### ANSI Designation



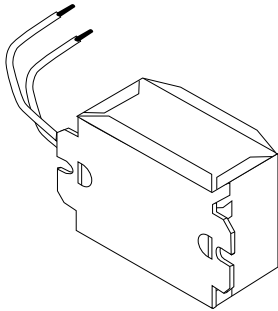
### NEMA Designation



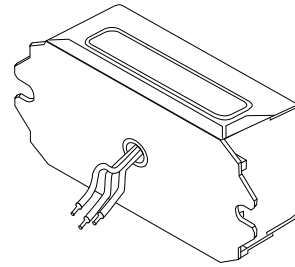
Both lamp designations refer to lamp wattage, shape, and base type. Since the NEMA designation is shorter, it will probably be the nomenclature of choice in the future. All of the major lamp companies have trade names for various CFL lamp types, such as GE's "Biax" and "2D" lamps, OSI's "Dulux," and Philips' "PL." These names have become more widely used than either of the industry designations.

# Configurations

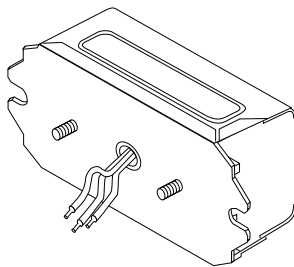
**Standard Side Exit**



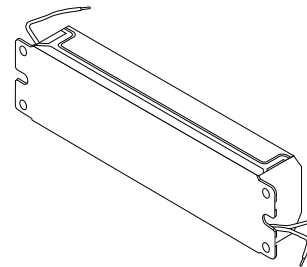
**Bottom Exit\***



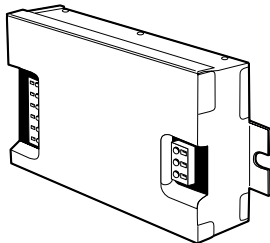
**Bottom Exit with Studs\*\***



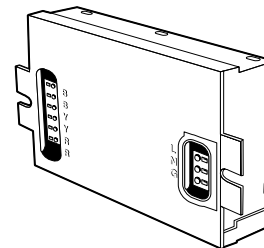
**Standard Side Exit—Both Ends**



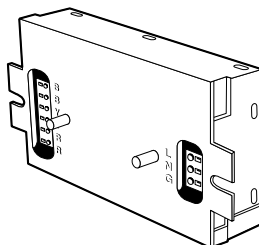
**Electronic Side Exit**



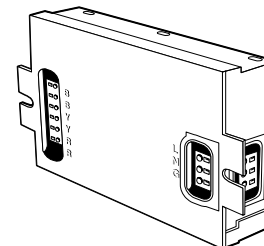
**Electronic Bottom Exit**



**Electronic Bottom Exit with Studs**













**Electronic Multi-Exit**



For full versatility in application according to various fixture requirements, Universal manufactures encased ballasts in three lead and mounting options. This catalog lists ordering codes for standard side exit units. \*Bottom exit units should be ordered with suffix “-BE” attached to the catalog number. \*\*Bottom exit with studs should be ordered with suffix “-BES” attached to the catalog number. (Example: Standard Unit: “4000P”; Bottom Exit unit “4000-BE”; Bottom Exit with Studs: “4000-BES”).

# Product Overview

	ANSI Lamp Designation	NEMA Lamp Designation	Built-In Starter	LAMP MANUFACTURER		
				GE	OSI	Philips
	5W/4T4/T/G23/PH	CFT5W/G23	YES	F5 BX	CF 5DS	PL-S 5W
	7W/5T4/T/G23/PH	CFT7W/G23	YES	F7 BX	CF 7DS	PL-S 7W
	9W/6T4/T/G23/PH	CFT9W/G23	YES	F9 BX	CF 9DS	PL-S 9W
	13W/7T4/T/GX23/PH	CFT13W/GX23	YES	F13 BX	CF 13DS	PL-S 13W
<b>Twin, 2-Pin</b>						
	9W/4T4/Q/G23-2/PH	CFQ9W/G23	YES	F9 DBX23	CF 9DD	—
	13W/5T4/Q/GX23-2/PH	CFQ13W/GX23	YES	F13 DBX23	CF 13DD	PL-C 13W/USA
<b>Quad, 2-Pin</b>						
	13W/6T4/Q/G24d-1/PH	CFQ13W/G24d	YES	F13 DBX T4	—	PL-C 13W
	18W/7T4/Q/G24d-2/PH	CFQ18W/G24d	YES	F18 DBX T4	CF 18DD	PL-C 18W
	26W/8T4/Q/G24d-3/PH	CFQ26W/G24d	YES	F26 DBX T4	CF 26DD	PL-C 26W
<b>Quad, 2-Pin</b>						
	13W/6T4/Q/G24q-1	CFQ13W/G24q	NO	F13 DBX/4P	CF 13DD/E	PL-C 13W/4P
	18W/7T4/Q/G24q-2	CFQ18W/G24q	NO	F18 DBX/4P	CF 18DD/E	PL-C 18W/4P
	26W/8T4/Q/G24q-3	CFQ26W/G24q	NO	F26 DBX/4P	CF 26DD/E	PL-C 26W/4P
<b>Quad, 4-Pin</b>						
	10W/3.5T4/S/GR10q-4	CFS10W/GR10q	NO	F10 2D/4P	—	—
	16W/5.5T4/S/GR10q-4	CFS16W/GR10q	NO	F16 2D/4P	—	—
	21W/5.5T4/S/GR10q-4	CFS21W/GR10q	NO	F21 2D/4P	—	—
	28W/8T6/S/GR8-2/PH	CFS28W/GR8	YES	F28 2D	—	—
	28W/8T6/S/GR10q-4	CFS28W/GR10q	NO	F28 2D/4P	—	—
	38W/8T6/S/GR10q-4	CFS38W/GR10q	NO	F38 2D/4P	—	—
	55W/8T6/S/GRY10q-3	CFS55W/GRY10q	NO	F55 2D/4P	—	—
<b>Square, (2D)</b>						
	20W/6T5/Q/GX32d-2/PH	CFQ20W/GX32d	YES	—	—	PL-C 15MM/22W
	27W/7T5/Q/GX32d-3/PH	CFQ27W/GX32d	YES	—	—	PL-C 15MM/28W
<b>T5 Quad, 2-Pin</b>						
	13W/6T4/T/2GX7	CFT13W/2GX7	NO	—	CF 13DS/E	—
	18-20W/9T5/T/2G11/PH-RS	FT18W/2G11	NO	F18 BX	FT 18DL	—
	18W/10T5/T/2G11/RS	FT18W/2G11/RS	NO	F18 BX/RS	FT 18DL/RS	PL-L 18W
	18W/5T5/T/2G10	CFM18W/2G10	NO	—	CF 18DF	—
	24-27W/13T5/T/2G11/PH-RS	FT24W/2G11/RS	NO	F27 BX/RS	FT 24DL	PL-L 24W
	24W/7T5/T/2G10	CFM24W/2G10	NO	—	CF 24DF	—
	36-39W/16T5/T/2G11/PH-RS	FT36W/2G11/RS	NO	F39 BX/RS	FT 36DL	PL-L 36W
	36W/9T5/T/2G10	CFM36W/2G10	NO	—	CF 36DF	—
	40W/22T5/T/2G11/RS	FT40W/2G11/RS	NO	F40 BX/RS	FT 40DL/RS	PL-L 40W/RS
	50W/22T5/T/2G11/RS	FT50W/2G11/RS	NO	F50 BX/RS	—	PL-L 50W/RS
55W/21T5/T/2G11	FT55W/2G11	NO	F55 BX	FT 55DL	—	
80W/22T5/T/2G11	FT80W/2G11	NO	—	—	PL-L 80W	
<b>Long Twin T5, 4-Pin</b>						
	18W/5T4/M/GX24d-2	CFM18W/GX24d	YES	—	CF 18DT	—
	26W/6T4/M/GX24d-3	CFM26W/GX24d	YES	—	CF 26DT	—
<b>Multiple, 2-Pin</b>						
	13W/5T4/M/GX24q-1	CFM13W/GX24q	NO	F13 TBX/4P	CF 13DT/E	—
	18W/5T4/M/GX24q-2	CFM18W/GX24q	NO	F18 TBX/4P	CF 18DT/E/IN	PL-T 18W/4P
	26W/6T4/M/GX24q-3	CFM26W/GX24q	NO	F26 TBX/4P	CF 26DT/E/IN	PL-T 26W/4P
	32W/6T4/M/GX24q-3	CFM32W/GX24q	NO	F32 TBX/4P/EOL	CF 32DT/E/IN	PL-T 32W/4P
	42W/7T4/M/GX24q-4	CFM42W/GX24q	NO	F42 TBX/4P/EOL	CF 42DT/E/IN	PL-T 42W/4P
	57W/7T4/M/GX24q-5	CFM57W/GX24q	NO	F57 QBX/4P/EOL	CF 57DT/E/IN	—
	70W/8T4/M/GX24q-6	CFM70W/GX24q	NO	F70 QBX/4P/EOL	—	—
<b>Multiple, 4-Pin</b>						
	—	FC9T5-22W/2GX13	NO	—	FPC22	FC9T5 22W
	—	FC12T5-40W/2GX13	NO	—	FPC40	FC12T5 40W
	—	FC12T5-55W/2GX13	NO	—	FPC55/HO	FC12T5 55W

Compact Fluorescent

# Specifications

## TYPICAL SPECIFICATIONS FOR ELECTRONIC COMPACT FLUORESCENT BALLASTS

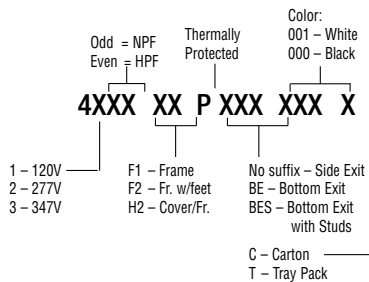
---

1. Ballast shall be Programmed Rapid Start.
2. Ballast shall incorporate lamp shutdown circuitry for end of lamp life protection.
3. Ballast shall allow for re-lamping without the need to cycle power.
4. Ballasts shall operate from 50/60 Hz input source of 120, 277, or 347 Volts with no damage to the ballasts.
- 4a. Ballasts shall operate from 50/60 Hz input source of 108-305 Volts with no damage to the ballasts for High Performance (HP) models.
5. Ballast shall be of metal can construction to meet all plenum requirements and to eliminate the need for extra grounding wires.
6. Ballasts shall be a high frequency electronic type, and operate lamps at a frequency above 50 kHz to minimize interference with infrared control systems.
7. Lamp Current Crest Factor (ratio of peak to RMS current) shall be 1.7 or less in accordance with lamp manufacturer recommendation and ANSI C82.11-1993.
8. Ballasts shall tolerate operation in ambient temperatures up to 140°F (55°C) without damage.
9. Ballasts shall have a maximum case temperature test point of 75°C printed on the label for easy fixture testing and trouble shooting.
10. Ballast shall have a maximum case temperature rise of 15°C.
11. Ballasts shall comply with FCC Part 18 Non-Consumer Equipment for EMI (power line conducted) and RFI (Radiated).
12. Ballasts shall provide transient immunity as recommended by ANSI C62.41-1991.
13. Ballasts shall operate lamps with no visible flicker (<3% flicker index).
14. Ballasts shall tolerate sustained open and short circuit output conditions without damage.
15. Ballasts shall be Underwriters Laboratory (UL 935) listed, Class P, Type 1 Outdoor, and CSA certified, and unless noted otherwise, approved for use in hazardous locations (Type HL).
16. Input current Total Harmonic Distortion shall not exceed 10% for the primary lamp.
17. Ballasts shall have a Power Factor greater than .98 for the primary lamp.
18. The ballasts shall not have any PCB's.
19. The manufacturer shall provide written warranty against defects in material or workmanship, including replacement, for five years from date of manufacture.
20. Manufacturer shall have been manufacturing electronic ballasts for at least fifteen years.
21. Ballast shall be manufactured in an ISO 9001 Certified Facility.
22. Universal model \_\_\_\_\_ (or approved equal).

# Understanding Universal Part Numbers

## MAGNETIC

Our part number nomenclature for magnetic ballasts is shown below:



**Example:** 4123PBES000T

**Ballast for CFL Lamps:** Indicated by “4” prefix

**Voltage:** 120V

**Lamp Type:** 26W Quad Lamp (refer to catalog for wattage)

**Power Factor:** Normal

**Encased and Potted:** Indicated by absence of F1, F2, or H2)

**P:** Thermally protected

**BES:** Bottom exit leads with studs

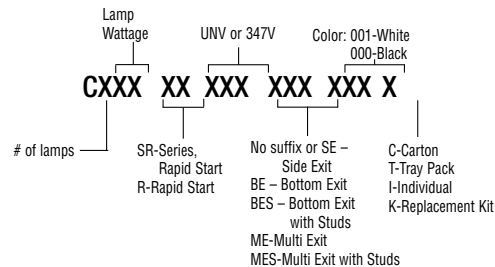
**000:** Color—Black

**T:** Packaging container style—Tray Pack

These ballasts are available for a wide variety of applications with lamps, voltages, mounting configurations, and performance characteristics. For more detailed information, just identify the lamps to be ballasted and work forward to determine the ballast part number.

## ELECTRONIC

Our nomenclature for electronic CFL ballasts follows the system already in place for other Universal electronic ballasts. The exceptions are that the model number prefix for compact fluorescent is a C rather than a B—and the suffixes for the mounting configuration will be the same as those used for magnetic products (BE and BES). If you don’t see these suffixes, the ballast has traditional side exit leads.



**Example:** Electronic C240PUNVHP-B

**Ballast Type:** C — CFL Electronic Ballast

**Lamp Qty:** 2

**Lamp Type:** 40W TT5, 4 Pin (FT40W/2611)

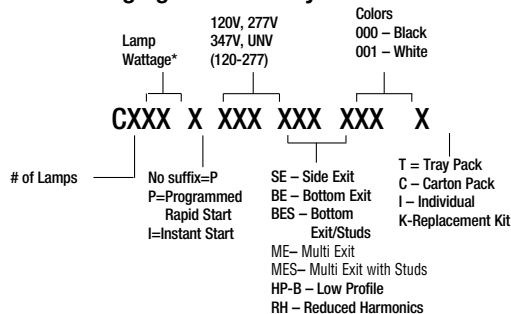
**P:** Programmed Rapid Start

**Voltage:** UNV 120 to 277 volts

**HP-B:** High Performance <10%; low profile can

**000:** Color—Black

**C:** Packaging container style—Carton Pack



**Example:** C213UNVMES000C\*

**Ballast Type:** C

**Lamp Quantity:** 2

**Lamp Type:** 13W Quad, 4 Pin (CFQ13W/G24q)

**Voltage:** UNV 120 to 277 volts

**BES:** Bottom exit connection, studs

**000C:** Color—Black

**C:** Packaging container style—Carton Pack

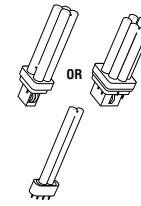
\*Exception is C2642, which does not distinguish number of lamps. See catalog.

# Notes

---

# MAGNETIC AND ELECTRONIC COMPACT FLUORESCENT BALLASTS FOR TWIN, QUAD AND MULTIPLE LAMPS 13-26 WATTS

- Ideal for downlights & wall sconces
- Electronic models feature universal input voltage from 120V to 277V. 347V models are also available.
- Electronic models feature programmed rapid start for excellent lamp performance & auto reset shut-down circuit



**TWIN, QUAD  
& MULTIPLE  
LAMPS  
13-26 WATTS**

**QUICK  
REFERENCE**  
Nominal lamp watts  
and configuration

Lamp Type	Mag or Elec	Qty of Lamps	Line Volt	Catalog Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method*	Dim	Wir Diag		
												Side Exit	Bottom Exit	Bottom Exit Studs					
<b>Electrical Characteristics - 60 Hz</b>																			
<b>13 Watts</b> CFT13W/GX23 OR CFQ13W/GX23		Twin or Quad, 2-Pin U.S. type	○ M	1	120	CF1320H2P	16	0.24	0.30	0.85	32° F	Normal	<15%	X	—	—	PH	B10	1
			○ M	1	120	4113P	14	0.24	0.36	0.80	32° F	Normal	<10%	X	—	—	PH	C1	1
			M	1	120	4113P	14	0.24	0.36	0.90	32° F	Normal	<10%	X	X	X	PH	C1	1
			M	2	277	4214PBES	26	0.09	0.09	0.85	32° F	High	<20%	X	—	X	PH	C2	2
<b>13 Watts</b> CFQ13W/G24q OR CFM13W/GX24q		Quad or Multiple, 4-Pin	E	1	120	C213UNV**	18	0.15	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	3
			E	2	120	C213UNV**	30	0.26	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	4
			E	1	347	C213/347**	18	0.06	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	4
			E	2	347	C213/347**	33	0.10	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	4
<b>13 Watts</b> CFT13W/2GX7		Twin T4, 4-Pin	E	1	120	CT213UNV*	15	0.12	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	5
			E	2	120	CT213UNV*	26	0.22	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	5
<b>18 Watts</b> CFQ18W/G24q OR CFM18W/GX24q		Quad or Multiple, 4-Pin	E	1	120	C218UNV**	19	0.16	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	3
			E	2	120	C218UNV**	35	0.30	—	0.95	0° F	High	<10%	X	X	X	PRS	C3	4
			E	1	347	C218/347*	21	0.11	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	3
			E	2	347	C218/347*	38	0.06	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	4
<b>18 Watts</b> FT18W/2G11RS		Twin T5, 4-Pin	E	1	120	CT218UNV*	23	0.19	—	1.00	0° F	High	<10%	X	—	—	PRS	C3	3
			E	2	120	CT218UNV*	43	0.37	—	0.98	0° F	High	<10%	X	—	—	PRS	C4	4
			E	2	277	CT218UNV*	42	0.16	—	—	—	—	—	—	—	—	—	—	—
<b>26 Watts</b> CFQ26W/G24d		Quad, 2-Pin	M	2	277	4226PBES	62	0.22	0.34	0.90	32° F	High	<20%	X	—	X	PH	C2	6
<b>26 Watts</b> CFQ26W/G24q OR CFM26W/GX24q		Quad or Multiple, 4-Pin	E	1	120	C2642UNV**	28	0.25	—	1.02	0° F	High	<10%	X	X	X	PRS	C3	3
			E	2	120	C2642UNV**	56	0.47	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	3
			E	1	347	C2642/347**	31	0.09	—	1.02	0° F	High	<10%	X	X	X	PRS	C3	3
			E	2	347	C2642/347**	57	0.17	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	4
			E	2	120	C2642UNV**	56	0.46	—	1.02	0° F	High	<10%	X	X	X	PRS	C4	4
			E	2	277	C2642UNV**	55	0.20	—	—	—	—	—	—	—	—	—	—	
			E	2	347	C242/347*	44	0.14	—	1.02	0° F	High	<10%	X	X	X	PRS	C4	4

- \* PH = Preheat; PRS = Programmed Rapid Start
- F2 indicates an open core & coil unit with mounting feet.
- H2 indicates clamped & covered core & coil with mounting feet.
- ◆ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- Not approved for use in hazardous locations.
- ✕ Add "ME000K" suffix for Multi-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Multi-E Kit. For Distribution only.

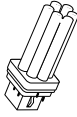
The enclosed ballasts listed on this page are available in white (001) or black (000) cans,

All ballasts are UL listed, CSA approved and designated Class P (thermally protected).

**See page 4-11 for Dimensions  
and Wiring Diagrams.**

# MULTIPLE LAMPS





32, 42, 57 & 70 WATTS



- Ideal for downlights, surface mount & outdoor fixtures
- Electronic models feature universal input voltage from 120V to 277V. 347V models are also available.
- Electronic models feature programmed rapid start for excellent lamp performance & auto reset shutdown circuit

# ELECTRONIC COMPACT FLUORESCENT BALLASTS FOR MULTIPLE LAMPS

32, 42, 57 & 70 WATTS

QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog <sup>Ⓞ</sup> Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method <sup>✳</sup>	Dim	Wir Diag
												Side Exit	Bottom Exit	Bottom Exit Studs			
<b>Lamp Type</b>																	
<b>32 Watts</b>																	
CFM32W/GX24q 	E	1	120	C2642UNV <sup>✳✳</sup>	36	0.30	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	3
	E	1	347	C2642/347 <sup>✳✳</sup>	36	0.11	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	3
	E	2	120	C242UNV <sup>◆</sup>	69	0.58	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
	E	2	347	C242/347 <sup>◆</sup>	62	0.19	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
<b>Multiple, 4-Pin</b>																	
<b>Lamp Type</b>																	
<b>42 Watts</b>																	
CFM42W/GX24q 	E	1	120	C2642UNV <sup>✳✳</sup>	48	0.41	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	3
	E	1	347	C2642/347 <sup>✳✳</sup>	50	0.15	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	3
	E	1	120	C242UNV <sup>◆</sup>	45	0.40	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
	E	2	120	C242UNV <sup>◆</sup>	91	0.76	—	0.98	0° F	High	<10%	X	X	X	PRS	C4	4
	E	2	277	C242UNV <sup>◆</sup>	90	0.32	—	0.98	0° F	High	<10%	X	X	X	PRS	C4	4
<b>Multiple, 4-Pin</b>																	
<b>Lamp Type</b>																	
<b>57 Watts</b>																	
CFM57W/GX24q 	E	1	120	C242UNV <sup>◆</sup>	58	0.52	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
	E	1	347	C242/347 <sup>◆</sup>	61	0.18	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
<b>Multiple, 4-Pin</b>																	
<b>Lamp Type</b>																	
<b>70 Watts</b>																	
CFM70W/GX24q 	E	1	120	C242UNV <sup>◆</sup>	73	0.61	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
	E	1	347	C242/347 <sup>◆</sup>	74	0.21	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	4
<b>Multiple, 4-Pin</b>																	

- ✳ RS = Rapid Start; PRS = Programmed Rapid Start
- ◆ Add following suffix for complete catalog #: "BE" suffix for Bottom Exit connectors or "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for multi-exit connectors, or "MES" for multi exit connectors with 2" O.C. screw studs.
- ✳ Add "ME000K" suffix for Mult-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Mult-E Kit. For Distribution only.

The enclosed ballasts listed on this page are available in white (001) or black (000) cans.

All ballasts are UL listed, CSA approved and designated Class P (thermally protected), Type HL.

Compact Fluorescent

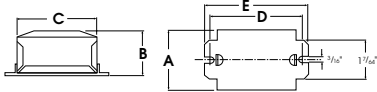
See page 4-11 for Dimensions and Wiring Diagrams.

# MAGNETIC AND ELECTRONIC COMPACT FLUORESCENT BALLASTS

## WIRING DIAGRAMS AND DIMENSIONS

TWIN, TRIPLE,  
QUAD &  
MULTIPLE  
LAMPS

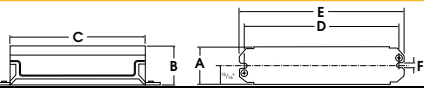
### REFERENCE DRAWING FOR C1



Dwg.	A	B	C	D	E
C1	1.84"	1.42"	2.40"	2.75"	3.13"

Lead Lengths: Side-12"  
BE/BES-8"

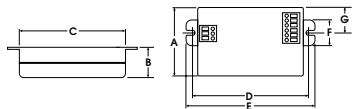
### REFERENCE DRAWING FOR C2



Dwg.	A	B	C	D	E	F
C2	2.34"	1.53"	5.45"	6.00"	6.59"	0.31"

Lead Lengths: Side-12"  
BE/BES-8"

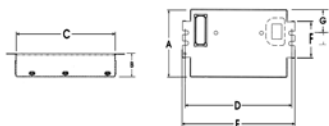
### REFERENCE DRAWING FOR C3



Dwg.	A	B	C	D	E	F	G
C3	2.31"	1.00"	4.25"	4.61"	4.94"	0.98"	1.00"

Leadless-Poke-in wire connection

### REFERENCE DRAWING FOR C4



Dwg.	A	B	C	D	E	F	G
C4	2.98"	1.00"	4.25"	4.61"	4.94"	1.55"	1.00"

Leadless-Poke-in wire connection

Note: Nominal dimensions provided above  
Contact Universal for drawings and/or tolerances

### WIRING DIAGRAMS

Install in accordance with  
National Electrical Code.

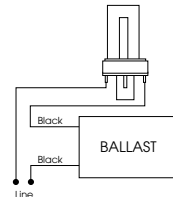


DIAGRAM 1

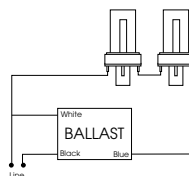


DIAGRAM 2  
Series lamp operation

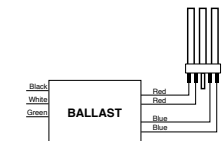


DIAGRAM 3  
Ballast should be grounded

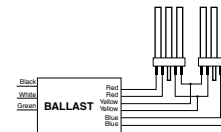


DIAGRAM 4  
Series lamp operation  
Ballast should be grounded

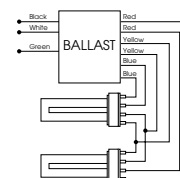


DIAGRAM 5  
Series lamp operation

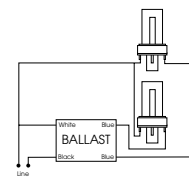


DIAGRAM 6  
Parallel lamp operation




Compact Fluorescent

# 2D LAMPS 10, 16 & 21 WATTS



- Ideal for surface mount fixtures
- All magnetic models are encased & potted.
- Magnetic and electronic models available.
- Electronic models feature universal input voltage from 120V to 277V. 347V models are also available.
- Electronic models feature programmed rapid start for excellent lamp performance & auto reset shutdown circuit

## MAGNETIC & ELECTRONIC COMPACT FLUORESCENT BALLASTS FOR 2D LAMPS 10, 16 AND 21 WATTS

QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method*	Dim	Wir Diag
												Side Exit	Bottom Exit	Bottom Exit Studs			
<b>Lamp Type</b>																	
<b>10 Watts</b>																	
CFS10W/GR10q 	E	1	120 277	C213UNV◆×	15	0.12 0.06	---	1.02	0° F	High	<10% <15%	X	X	X	PRS	C3	2a
	E	2	120 277	C213UNV◆×	26	0.22 0.10	---	1.02	0° F	High	<10%	X	X	X	PRS	C3	3a
	E	1	347	C213/347◆*	16	0.05	---	1.02	0° F	High	<10%	X	X	X	PRS	C3	2a
	E	2	347	C213/347◆*	28	0.08	---	1.02	0° F	High	<10%	X	X	X	PRS	C3	3a
<b>2D, 4-Pin</b>																	
<b>Lamp Type</b>																	
<b>16 Watts</b>																	
CFS16W/GR10q 	E	1	120 277	C213UNV◆×	19	0.15 0.07	---	0.95	0° F	High	<10% <15%	X	X	X	PRS	C3	2a
	E	1	347	C213/347◆*	20	0.06	---	0.95	0° F	High	<10%	X	X	X	PRS	C3	2a
	E	2	120 277	C213UNV◆×	33	0.28 0.12	---	0.95	0° F	High	<10%	X	X	X	PRS	C3	3a
	E	2	347	C213/347◆*	34	0.10	---	0.95	0° F	High	<10%	X	X	X	PRS	C3	3a
<b>2D, 4-Pin</b>																	
<b>Lamp Type</b>																	
<b>21 Watts</b>																	
CFS21W/GR10q 	E	1	120 277	C218UNV◆×	24	0.18 0.08	---	0.98	0° F	High	<10% <15%	X	X	X	PRS	C3	2a
	E	1	347	C218/347◆*	21	0.06	---	0.98	0° F	High	<10%	X	X	X	PRS	C3	2a
	E	2	120 277	C218UNV◆×	43	0.37 0.16	---	0.95	0° F	High	<10% <15%	X	X	X	PRS	C3	3a
	E	2	347	C218/347◆*	39	0.12	---	0.95	0° F	High	<10%	X	X	X	PRS	C3	3a
<b>2D, 4-Pin</b>																	

- ☆ PH = Preheat; PRS = Programmed Rapid Start
- ◆ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- × Add "ME000K" suffix for Mult-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Mult-E Kit. For Distribution only.

The enclosed ballasts listed on this page are available in white (001) or black (000) cans.

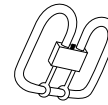
All ballasts are UL listed, CSA approved and designated Class P (thermally protected), Type HL.

See page 4-14 for Dimensions  
and Wiring Diagrams.




# MAGNETIC & ELECTRONIC COMPACT FLUORESCENT BALLASTS FOR 2D LAMPS

28, 38 & 55 WATTS

- Ideal for surface mount fixtures
- All magnetic models are encased & potted
- Magnetic & electronic models available
- Electronic models feature universal input voltage from 120V to 277V.
- Electronic models feature programmed rapid start for excellent lamp performance & auto reset shutdown circuit



**2D  
LAMPS**  
28, 38 & 55  
WATTS

QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog <sup>Ⓞ</sup> Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method <sup>☆</sup>	Dim	Wir Diag
												Side Exit	Bottom Exit	Bottom Exit Studs			
<b>Lamp Type</b> 28 Watts CFS28W/GR8	M	2	277	4226PBES	66	0.23	0.34	0.93	25° F	High	<20%	X	—	X	PH	C2	1a
 <b>2D, 2-Pin</b>	E	1	120 277	C2642UNV <sup>◆*</sup>	31	0.27 0.12	—	0.95	0° F	High	<10%	X	X	X	PRS	C3	2a
	E	1	347	C2642/347 <sup>◆</sup>	33	0.10	—	0.95	0° F	High	<10%	X	X	X	PRS	C3	2a
	E	2	120 277	C242UNV <sup>◆</sup>	64 63	0.54 0.24	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	3a
<b>Lamp Type</b> 28 Watts CFS28W/GR10q	E	2	347	C242/347 <sup>◆*</sup>	60	0.18	—	1.00	0° F	High	<10%	X	X	X	PRS	C4	3a
 <b>2D, 4-Pin</b>																	
<b>Lamp Type</b> 38 Watts CFS38W/GR10q	E	1	120 277	C2642UNV <sup>◆*</sup>	33	0.27 0.12	—	0.80	0° F	High	<10%	X	—	X	PRS	C3	2a
 <b>2D, 4-Pin</b>																	

- ☆ PH = Preheat; PRS = Programmed Rapid Start
- ◆ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- ✕ Add "ME000K" suffix for Multi-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Multi-E Kit. For Distribution only.

The encased ballasts listed on this page are available in white (001) or black (000) cans.

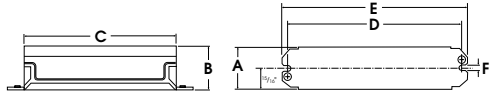
All ballasts are UL listed, CSA approved and designated Class P (thermally protected), Type HL.

See page 4-14 for Dimensions  
and Wiring Diagrams.

# MAGNETIC & ELECTRONIC COMPACT FLUORESCENT BALLASTS FOR 2D LAMPS

## WIRING DIAGRAMS AND DIMENSIONS

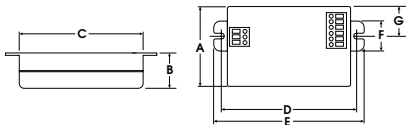
### REFERENCE DRAWING FOR C2



Dwg.	A	B	C	D	E	F
C2	2.34"	1.53"	5.45"	6.00"	6.59"	0.31"

Lead Lengths: Side-12"  
BE/BES-8"

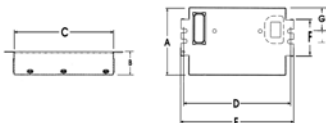
### REFERENCE DRAWING FOR C3



Dwg.	A	B	C	D	E	F	G
C3	2.31"	1.00"	4.25"	4.61"	4.94"	0.98"	1.00"

Leadless-Poke-in wire connection

### REFERENCE DRAWING FOR C4



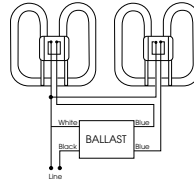
Dwg.	A	B	C	D	E	F	G
C4	2.98"	1.00"	4.25"	4.61"	4.94"	1.55"	1.00"

Leadless-Poke-in wire connection

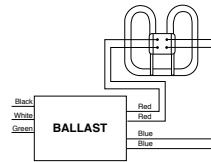
**Note:** Nominal dimensions provided above  
Contact Universal for drawings and/or tolerances

### WIRING DIAGRAMS

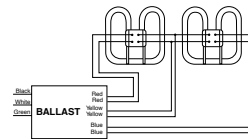
Install in accordance with  
National Electrical Code.



**DIAGRAM 1a**  
Parallel lamp operation



**DIAGRAM 2a**

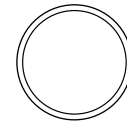


**DIAGRAM 3a**  
Series lamp operation

# ELECTRONIC COMPACT FLUORESCENT BALLASTS

## 22, 40 & 55 WATTS

- Ideal for surface mount fixtures
- Electronic models feature universal input voltage from 120V to 277V. 347V models are also available.
- Electronic models feature rapid and programmed rapid start for excellent lamp performance & auto reset shutdown circuit



# T5 CIRCULAR LAMPS

## 22,40 & 55 WATTS

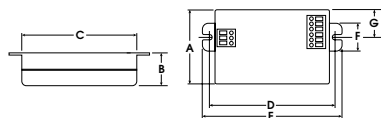
QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog <sup>Ⓞ</sup> Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method <sup>⚡</sup>	Dim	Wir Diag
												Side Exit	Bottom Exit	Bottom Exit Studs			
<b>Lamp Type</b>	<b>Electrical Characteristics - 60 Hz</b>																
<b>22 Watts</b> FC9T5-22W   <b>T5 CIRCULAR</b>	E	1	120	C2642UNV <sup>Ⓞ</sup> ×	25	0.21	—	1.00	0° F	High	<10%	X	X	X	PRS	C3	2b
	E	1	347	C2642/347 <sup>Ⓞ</sup> **	26	0.08	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	2b
	E	2	120	C242UNV <sup>Ⓞ</sup> ◆	50	0.42	—	1.05	0° F	High	<10%	X	X	X	PRS	C4	1b
	E	2	347	C242/347 <sup>Ⓞ</sup> ◆	47	0.14	—	1.05	0° F	High	<10%	X	X	X	PRS	C4	1b
<b>40 Watts</b> FC12T5-40W   <b>T5 CIRCULAR</b>	E	1	120	C2642UNV <sup>Ⓞ</sup> ×	42	0.35	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	2b
	E	1	347	C2642/347 <sup>Ⓞ</sup> **	40	0.12	—	0.98	0° F	High	<10%	X	X	X	PRS	C3	2b
	E	2	120	C242UNV <sup>Ⓞ</sup> ◆	80	0.65	—	0.98	0° F	High	<10%	X	X	X	PRS	C4	1b
	E	2	347	C242/347 <sup>Ⓞ</sup> ◆	71	0.22	—	0.98	0° F	High	<10%	X	X	X	PRS	C4	1b
<b>Lamp Type</b> <b>22 &amp; 40 Watts</b> FC9T5-22W & FC12T5-40W   <b>T5 CIRCULAR</b>	E	2	120	C242UNV <sup>Ⓞ</sup> ◆	66	0.54	—	0.98	0° F	High	<10%	X	X	X	PRS	C4	1b
	E	2	120	C242/347 <sup>Ⓞ</sup> ◆	64	0.24	—	0.98	0° F	High	<10%	X	X	X	PRS	C4	1b
<b>Lamp Type</b> <b>55 Watts</b> FC12T5-55W   <b>T5 CIRCULAR</b>	○ E	1	120	B254PUNV-D	56	0.46	—	0.87	0° F	High	<10%	X	—	—	PRS	-D	2b
	○ E	2	120	B254PUNV-D	106	0.88	—	0.85	0° F	High	<10%	X	—	—	PRS	-D	1b

- ⚡ PRS = Programmed Rapid Start; RS = Rapisd Start
- ◆ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- Ⓞ Add "ME000K" suffix for Mult-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Mult-E Kit. For Distribution only.

The enclosed ballasts listed on this page are available in white (001) or black (000) cans.

All ballasts are UL listed, CSA approved and designated Class P (thermally protected).

### REFERENCE DRAWING FOR C3



Dwg.	A	B	C	D	E	F	G
C3	2.31"	1.00"	4.25"	4.61"	4.94"	0.98"	1.00"

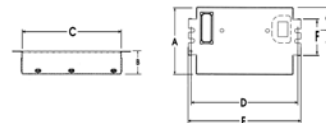
Leadless-Poke-in wire connection

### REFERENCE DRAWING FOR -D



Dwg.	L	W	H	M	X
-D	16.88"	1.16"	1.00"	16.28"	---

### REFERENCE DRAWING FOR C4



Dwg.	A	B	C	D	E	F	G
C4	2.98"	1.00"	4.25"	4.61"	4.94"	1.56"	1.00"

### WIRING DIAGRAMS

Install in accordance with National Electrical Code.

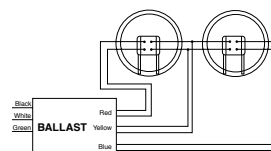


DIAGRAM 1b  
Series lamp operation

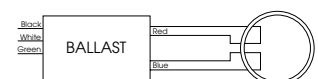


DIAGRAM 2b

# LONG TWIN T5 LAMPS 18, 24/27 WATTS



- Ideal for track light & surface mount fixtures
- Electronic models feature universal input voltage from 120V to 277V. 347V models are also available
- Electronic models feature rapid and programmed rapid start for excellent lamp performance & auto reset shutdown circuit

## ELECTRONIC COMPACT FLUORESCENT BALLASTS FOR LONG TWIN T5 LAMPS 18 AND 24/27 WATTS (BIAX, DULUX L AND PLL)

QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method*	Dim	Wir Diag
												Side Exit	Bottom Exit	Bottom Exit Studs			
<b>Lamp Type</b>																	
<b>18 Watts</b>																	
FT18W/2G11/RS  Long Twin T5, 4-Pin	E	1	120	CT218UNV	23	0.19	---	1.00	0° F	High	<10%	X	---	---	PRS	C3	21
			277			0.07						---	X	---			
	E	2	120	CT218UNV	43	0.37	---	0.98	0° F	High	<10%	X	---	---	PRS	C3	20
			277			0.16						---	X	---			
<b>Lamp Type</b>																	
<b>24/27 Watts</b>																	
FT24W/2G11/RS  Long Twin T5, 4-Pin	○ E	1	120	B224PUNV-C	27	0.23	---	1.05	0° F	High	<10% <15%	X	---	---	PRS	-C	29
			277			0.10						X	---	---			
	○ E	2	120	B224PUNV-C	52	0.43	---	1.00	0° F	High	<10%	X	---	---	PRS	-C	29
			277			0.18						X	---	---			
	E	1	347	C2642/347♦♦	29	0.09	---	0.90	0° F	High	<10%	X	X	X	PRS	C3	21
			120			0.43						X	X	X			
	E	2	120	C242UNV♦	51	0.43	---	1.02	0° F	High	<10%	X	X	X	PRS	C4	20
			277			0.19						X	X	X			
E	2	347	C242/347♦	49	0.14	---	1.02	0° F	High	<10%	X	X	X	PRS	C4	20	
		120			0.22						X	X	X				
E	1	120	C2642UNV×	26	0.10	---	1.01	0° F	High	<10%	X	X	X	PRS	C3	21	
		277			0.10						X	X	X				
E	2	120	C2642UNV×	47	0.40	---	0.98	0° F	High	<10%	X	X	X	PRS	C3	21	
		277			0.18						X	X	X				
<b>Lamp Type</b>																	
<b>24/27 Watts</b>																	
CFM24W/2G10  T5 F-Lamp, 4-Pin	○ E	1	120	B224PUNV-C	24	0.20	---	1.05	0° F	High	<10% <15%	X	---	---	PRS	-C	29
			277			0.09						X	---	---			
○ E	2	120	B224PUNV-C	48	0.40	---	1.00	0° F	High	<10%	X	---	---	PRS	-C	29	
		277			0.17						X	---	---				

- ♦ RS = Rapid Start; PRS = Programmed Rapid Start
- Not approved for use in hazardous locations
- ♦ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- × Add "ME000K" suffix for Mult-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Mult-E Kit. For Distribution only.

The enclosed ballasts listed on this page are available in white (001) or black (000) cans, except CBT's, which are all in white cans.

All ballasts are UL listed, CSA approved and designated Class P (thermally protected).

Compact Fluorescent

See pages 4-19 and 4-20 for  
Dimensions and Wiring Diagrams.




# ELECTRONIC LONG TWIN T5 BALLASTS

## 36/39 AND 40 WATTS (BIAx, DULUX L AND PLL)

- Ideal for track light & surface mount fixtures
- New electronic 1 & 2 lamp models for 24 watt lamps
- Electronic models feature universal input voltage from 120V to 277V. 347V models are also available.
- Electronic models feature programmed rapid start for excellent lamp performance & auto reset shutdown circuit



**LONG TWIN  
T5 LAMPS**  
36/39 & 40  
WATTS

QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method	Dim	Wir Diag
												Side	Bottom Exit	Bottom Exit Studs			
<b>Lamp Type</b>																	
<b>Electrical Characteristics - 60 Hz</b>																	
<b>36/39 Watts</b> FT36W/2G11/RS   <b>Long Twin T5, 4-Pin</b>	○ E	1	120 277	B224PUNV-C•	36	0.30 0.13	---	0.95	0° F	High	<10%	X	--	--	PRS	-C	29
	○ E	2	120 277	B239PUNV-D•	71 70	0.59 0.26	---	0.97	0° F	High	<10%	X	--	--	PRS	-D	29
	○ E	1	120 277	B254PUNV-D•	44	0.37 0.17	---	1.22	0° F	High	<10%	X	--	--	PRS	-D	28
	○ E	2	120 277	B254PUNV-D	90 88	0.75 0.32	---	1.20	0° F	High	<10%	X	--	--	PRS	-D	23
	○ E	1	120 277	C242UNV♦	34	0.29 0.14	---	0.88	0° F	High	<10% <20%	X	X	X	PRS	C3	20
	E	2	120 277	C242UNV♦♦	64	0.43 0.19	---	0.83	0° F	High	<10%	X	X	X	PRS	C3	20
	E	2	347	C242/347♦♦	64	0.19	---	0.90	0° F	High	<10%	X	X	X	PRS	C3	20
	<b>Lamp Type</b>																
<b>36/39 Watts</b> CFM36W/2G10   <b>T5 F-Lamp, 4-Pin</b>	E	1	120 277	B224PUNV-C•	34	0.28 0.12	---	0.95	0° F	High	<10%	X	--	--	PRS	-C	29
	E	1	120 277	C2642UNV♦x	32	0.27 0.12	---	0.98	0° F	High	<10%	X	X	X	PRS	C3	21
	E	1	120 277	C242UNV♦	33	0.28 0.14	---	0.98	0° F	High	<15%	X	X	X	PRS	C4	20
	E	2	120 277	C242UNV♦♦x	68 67	0.57 0.25	---	0.90	0° F	High	<10%	X	X	X	PRS	C4	20
<b>Lamp Type</b>																	
<b>40 Watts</b> FT40W/2G11   <b>Long Twin T5, 4-Pin</b>	○ E	1	120	C240SI120RH	40	0.40	---	1.02	50° F	High	<20%	X	--	--	IS	C6	12+
	○ E	1	277	C240SI277RH	40	0.17	---	1.02	50° F	High	<20%	X	--	--	IS	C6	12+
	E	1	120 277	C240PUNVHP-B•	41 40	0.34 0.15	---	1.00	0° F	High	<10%	X	--	--	PRS	-B	20
	E	2	120 277	C242UNV♦	93 87	0.78 0.34	---	1.00	0° F	High	<10%	X	X	X	PRS	C4	20
	○ E	2	120	C340SI120RH	75	0.68	---	0.99	50° F	High	<20%	X	--	--	IS	C6	14+
	○ E	2	277	C340SI277RH	75	0.30	---	0.99	50° F	High	<20%	X	--	--	IS	C6	14+
	○ E	2	120	C240SI120RH	67	0.61	---	0.88	50° F	High	<20%	X	--	--	IS	C6	12
	○ E	2	277	C240SI277RH	67	0.27	---	0.88	50° F	High	<20%	X	--	--	IS	C6	12
	E	2	120 277	C240PUNVHP-B•	76 73	0.63 0.27	---	0.90	0° F	High	<10%	X	--	--	PRS	-B	20
	E	1	120 277	C242UNV♦	47	0.40 0.18	---	1.08	0° F	High	<10%	X	X	X	PRS	C4	20
	○ E	3	120	C340SI120RH	98	0.88	---	0.88	50° F	High	<20%	X	--	--	IS	C6	14
	○ E	3	277	C340SI277RH	98	0.39	---	0.88	50° F	High	<20%	X	--	--	IS	C6	14

- ♦ PRS = Programmed Rapid Start; IS = Instant Start
- ◆ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- ✕ Add "ME000K" suffix for Multi-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Multi-E Kit. For Distribution only.

The enclosed ballasts listed on this page are available in white (001) or black (000) cans.

All ballasts are UL listed, CSA approved and designated Class P (thermally protected).

See pages 4-19 and 4-20 for  
Dimensions and Wiring Diagrams.

# ELECTRONIC LONG TWIN T5 LAMPS

50, 55 & 80 WATTS



- Ideal for track light & recessed fixtures
- Electronic models for 1, 2, 3 & 4 lamp applications
- Programmed Rapid & Instant Starting Options
- Models feature auto reset shutdown circuit

# ELECTRONIC LONG TWIN T5 BALLASTS

50, 55 AND 80 WATTS  
(BIAX, DULUX L AND PLL)

QUICK REFERENCE Nominal lamp watts and configuration	Mag or Elec	Qty of Lamps	Line Volt	Catalog Number	Input Watts	Line Current Amps	Starting Current Amps	Ballast Factor	Min Start Temp	Power Factor	THD	Lead Configuration			Starting Method	Dim	Wir Diag
												Side Exit	Bottom Exit	Bottom Exit Studs			
<b>Electrical Characteristics - 60 Hz</b>																	
<b>Lamp Type</b> 50 Watts FT50W/2G11	○ E	1	120 277	B254PUNV-D	60 59	0.50 0.22	--	1.12	0° F	High	<10%	X	--	--	PRS	-D	29
 Long Twin T5, 4-Pin	○ E	2	120 277	B254PUNV-D	112 109	1.00 0.43	---	1.10	0° F	High	<10%	X	--	--	PRS	-D	29
	○ E	1	347	B254P347-D	58	0.17	---	1.12	0° F	High	<10%	X	--	--	PRS	-D	27
	○ E	2	347	B254P347-D	106	0.31	---	1.10	0° F	High	<10%	X	--	--	PRS	-D	27
	E	1	347 480	B254PHRVHB-E	65	0.19 0.15	---	1.12	0° F	High	<10% <15%	X	--	--	PRS	-E	42
	E	2	347 480	B254PHRVHB-E	115 114	0.33 0.25	---	1.10	0° F	High	<10%	X	--	--	PRS	-E	41
	E	3	120 277	B454PUNV-E	180 178	1.51 0.65	---	1.13	0° F	High	<10%	X	--	--	PRS	-E	44
	E	4	120 277	B454PUNV-E	233 225	1.87 0.80	---	1.10	0° F	High	<10%	X	--	--	PRS	-E	44
E	4	120 277	B454PUNVHB-E	240 235	1.98 0.84	---	1.10	0° F	High	<10%	X	--	--	PRS	-E	44	
<b>Lamp Type</b> 55 Watts FT55W/2G11	E	1	120 277	B254PUNV-D	58	0.48 0.22	---	0.92	0° F	High	<10%	X	--	--	PRS	-D	29
 Long Twin T5, 4-Pin	E	2	120 277	B254PUNV-D	112 109	0.93 0.40	---	0.90	0° F	High	<10%	X	--	--	PRS	-D	29
	E	1	347	B254P347-D	57	0.17	---	0.92	0° F	High	<10%	X	--	--	PRS	-D	27
	E	2	347	B254P347-D	102	0.30	---	0.90	0° F	High	<10%	X	--	--	PRS	-D	27
	E	1	120 277	C242UNV◆	46	0.38 0.17	---	0.83	0° F	High	<10%	X	X	X	PRS	C4	21
	E	1	347	C242/347◆	43	0.13	---	0.83	0° F	High	<10%	X	X	X	PRS	C4	21
	E	1	347 480	B254PHRVHB-E	61	0.19 0.14	---	0.92	0° F	High	<10% <15%	X	--	--	PRS	-E	42
	E	2	347 480	B254PHRVHB-E	109 108	0.33 0.24	---	0.90	0° F	High	<10%	X	--	--	PRS	-E	41
	E	3	120 277	B454PUNV-E	170 167	1.42 0.62	---	0.93	0° F	High	<10%	X	--	--	PRS	-E	44
	E	4	120 277	B454PUNV-E	223 217	1.87 0.80	---	0.90	0° F	High	<10%	X	--	--	PRS	-E	44
E	4	120 277	B454PUNVHB-E	229 223	1.91 0.80	---	0.90	0° F	High	<10%	X	--	--	PRS	-E	44	
<b>Lamp Type</b> 80 Watts FT80W/2G11	E	1	120 277	ES4515K	88 87	0.74 0.32	---	1.00	0° F	High	<10%	X	--	--	PRS	ESK	43

- ◆ IS = Instant Start; PRS = Programmed Rapid Start
- ◆ Add following suffix for complete catalog #: "BE" for Bottom Exit connectors, "BES" for Bottom Exit connectors with 2" O.C. screw studs, "ME" for Multi Exit connectors, or "MES" for Multi Exit with 2" OC screw studs.
- ✕ Add "ME000K" suffix for Multi-E Kit. For Distribution only.
- \* Add "ME001K" suffix for Multi-E Kit. For Distribution only.

The enclosed ballasts listed on this page are available in white (001) or black (000) cans.

All ballasts are UL listed, CSA approved and designated Class P (thermally protected).

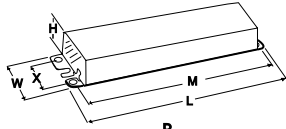
Compact Fluorescent

See pages 4-19 and 4-20 for  
Dimensions and Wiring Diagrams.

# MAGNETIC AND ELECTRONIC COMPACT FLUORESCENT BALLASTS DIMENSIONS

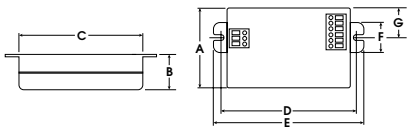
LONG TWIN  
T5 LAMPS

## REFERENCE DRAWING FOR -B



Dwg.	L	W	H	M	X
-B	9.50"	1.50"	1.00"	8.89"	0.88"

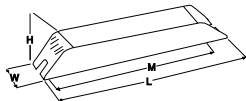
## REFERENCE DRAWING FOR C3



Dwg.	A	B	C	D	E	F	G
C3	2.31"	1.00"	4.25"	4.61"	4.94"	0.98"	1.00"

Leadless-Poke-in wire connection

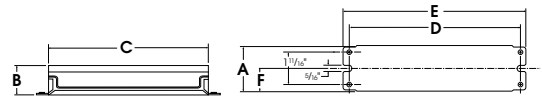
## REFERENCE DRAWING FOR -D, -E, ESK



Dwg.	L	W	H	M	X
-D	16.88"	1.18"	1.00"	16.20"	---
-E	16.88"	1.74"	1.18"	16.28"	---
ESK	16.65"	1.24"	1.00"	16.30"	---

Note: Nominal dimensions provided above  
Contact Universal for drawings and/or tolerances

## REFERENCE DRAWING FOR C6

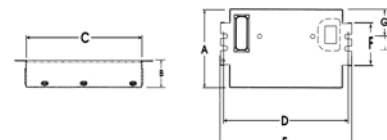


Dwg.	A	B	C	D	E	F
C6	2.40"	1.55"	8.31"	8.89"	9.50"	1.19"

Lead Lengths: Side

- Black/White-11"
- Red/Blue-16"
- Yellow-16"

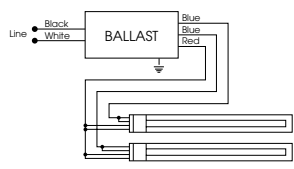
## REFERENCE DRAWING FOR C4



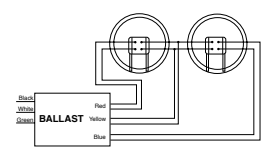
Dwg.	A	B	C	D	E	F	G
C4	2.98"	1.00"	4.25"	4.61"	4.94"	1.56"	1.00"

Leadless-Poke-in wire connection

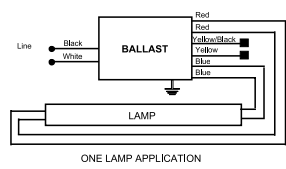
# MAGNETIC AND ELECTRONIC COMPACT FLUORESCENT BALLASTS WIRING DIAGRAMS



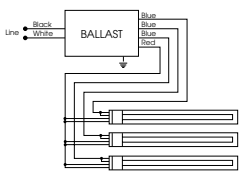
**DIAGRAM 12**  
Parallel lamp operation



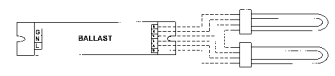
**DIAGRAM 23**  
Series lamp operation



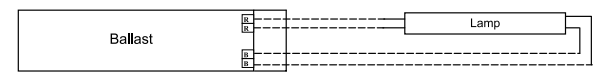
**DIAGRAM 42**  
ONE LAMP APPLICATION  
For one lamp application, individually cap yellow and yellow/black leads, insulate to 600V



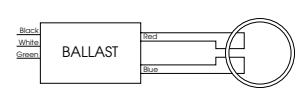
**DIAGRAM 14**  
Parallel lamp operation  
\* Cap unused blue lead; insulate to 600 volts.



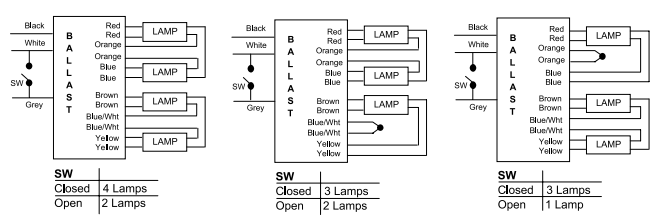
**DIAGRAM 27**  
Series lamp operation



**DIAGRAM 43**



**DIAGRAM 28**



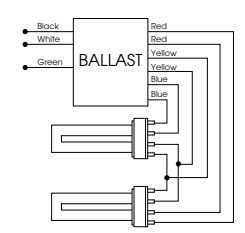
SW	Closed	4 Lamps
	Open	2 Lamps

SW	Closed	3 Lamps
	Open	2 Lamps

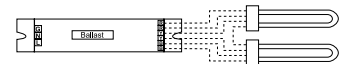
SW	Closed	3 Lamps
	Open	1 Lamp

Application Notes:  
 - 'SW' controls the lamps connected between the Brown and Yellow leads  
 - For lamp switching applications, connect 'SW' between the white and the grey leads as shown in the wiring diagram above OR between the Black and Grey leads. The switch "SW" may be an on-off switch, an occupancy sensor, a relay, etc.  
 - If lamp switching is not required, short the white and grey leads OR the black and the grey leads  
 - A single control device, 'SW', may be connected to control multiple ballasts  
 - For three lamp use: Short Blue/White leads or Orange leads and cap

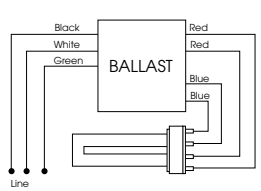
**DIAGRAM 44**



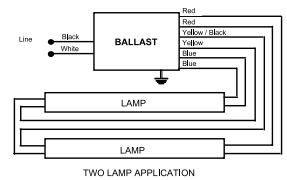
**DIAGRAM 20**  
Series lamp operation



**DIAGRAM 29**



Mount lamp within 1" of grounded metal reflector.  
**DIAGRAM 21**



TWO LAMP APPLICATION  
**DIAGRAM 41**