For 49 - 80W Lamps

HIGH POWER FACTOR SOUND RATED A

Mark 7 0-10V Electronic Dimming Ballast

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Max/Min Input Power ANSI (Watts)	Max/Min Ballast Factor	Full Light Output THD %	Full Light Output Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F54T5/HO/ES (49W)											
1	120	PS	Mark 7 *0-10V*	RZT-154	59/13	1.00/0.03	10	0.49	50/10	D	55A
	277			VZT-154				0.21			
2	120			RZT-2S54	117/24			0.98			56A
	277			VZT-2S54				0.42			
F54T5/HO (54W)											
1	120	PS	Mark 7 *0-10V*	RZT-154	63/13	1.00/0.03	10	0.53	50/10	D	55A
	277			VZT-154				0.23			
2	120			RZT-2S54	125/24			1.05			56A
	277			VZT-2S54				0.45			
F80T5/HO (80W)											
1	120-277	PS	Mark 7 *0-10V*	IZT-180-D	94/18	1.00/0.03	10	0.73-0.30	50/10	D	55A
FC12T5/HO (55W)											
1	120	PS	Mark 7 *0-10V*	RZT-154	59/13	0.90/0.03	10	0.50	50/10	D	55A
	277			VZT-154				0.22			
2	120			RZT-2S54	114/24			0.96			56A
	277			VZT-2S54				0.42			

Some lamp manufacturers recommend burning in new lamps 100 hours at full light output before dimming. Consult lamp manufacturer.
Ballasts utilizing poke-in connectors can accept wire gauges from AWG 16 - 20.

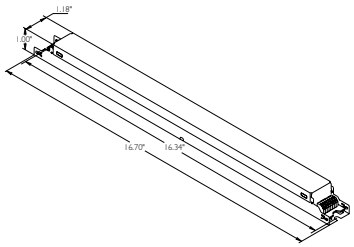
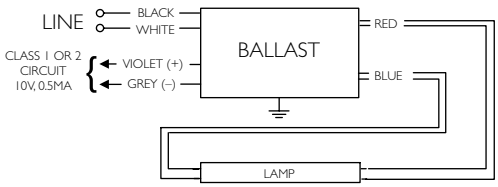


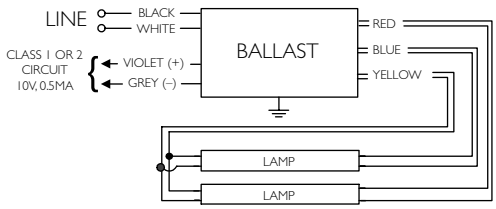
Fig. D
Includes connectors with no leads



Diag. 55A

Mark 7 *0-10V* Control Wiring (Grey and Violet)

Wire Size	Maximum Length (Ft.)
AWG-16	800
AWG-18	500
AWG-20	320



Diag. 56A

ONLY USE RAPID-START SOCKETS

Refer to pages 1-15 to 1-19 for information on remote/tandem wiring and lead length extension
Refer to pages 2-32 & 2-33 for compatible low voltage controls
Refer to pages 9-23 to 9-27 for lead lengths and shipping data

ELECTRONIC FLUORESCENT CONTROLLABLE BALLASTS

Fluorescent Ballasts - Dimming - Mark 7 *0-10V*

0-10V Electronic Dimming Ballasts for Linear Fluorescent and 4-Pin Compact Fluorescent Lamps

The Mark 7 *0–10V* series of dimmable electronic ballasts offer maximum versatility by incorporating separate control leads for use with a wide array of controllers, including occupancy sensors, daylight harvesting controls, and building management systems from more than 30 manufacturers.

When paired with linear fluorescent and 4-pin compact fluorescent lamps, Mark 7 *0–10V* ballasts optimize the benefits of such popular sustainable lighting techniques as daylight harvesting, occupancy sensors, and load shedding to satisfy the need for an affordable, flexible and versatile controllable lighting solution

Available in linear fluorescent and 4-pin compact fluorescent models
Making this ideal for a variety of applications

Full range continuous dimming (100% light output down to 5% - T5/HO to 1%)
Provides task appropriate comfort only where necessary to increase potential energy savings while supporting LEED performance standards

Programmed start operation
Potentially extends lamp life in frequent switching applications such as occupancy sensors and daylight harvesting

IntelliVolt technology (120 - 277V, 50/60Hz)
Enhances accuracy and ease of ordering while reducing stocking/SKU requirements

NEMA Premium

The following ballasts meet NEMA Premium®:
IZT-132-SC, IZT-2S32-SC, IZT-3S32-SC,
IZT-4S32, VZT-4S32-HL, VZT-4S32-G, VZT-4PSP32-G

As a licensee in the NEMA Premium Ballast Program, Philips Lighting Electronics N.A. has determined that these products meet the NEMA Premium specification for premium energy efficiency.

Note: Easy way to test dimming functionality of 0-10V dimming ballasts is to 'short' together the violet and grey control wires. If the lamps go to full dim, then the ballast is dimming fine.

ELECTRONIC FLUORESCENT BALLASTS

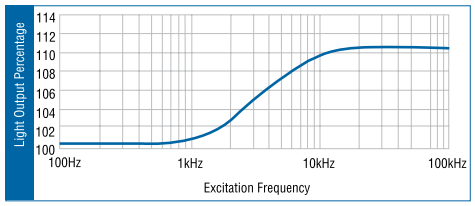
Ballast Life

Philips Advance fluorescent electronic and magnetic ballasts are designed and manufactured to engineering standards correlating to an average life expectancy of 50,000 hours of operation at maximum rated case temperature. Since Philips Advance ballasts operate below their maximum case temperature in the majority of applications, increased ballast life can be expected. As a rule of thumb, ballast life may be doubled for every 10°C reduction in ballast case operating temperature. However, there are many variables, such as input voltage, ambient temperature, etc. which affect ballast operating temperatures, and therefore ballast life.

Lamp Operating Frequency

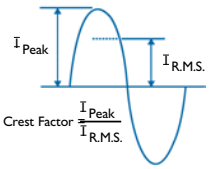
Electromagnetic ballasts and the lamps connected to them operate at an input voltage frequency of 60 Hertz (Hz), 60 cycles per second — which is the standard alternating voltage/current frequency provided in North America. Electronic ballasts, on the other hand, convert this 60 Hz input to operate lamps at much higher frequencies above 20 Kilohertz (kHz), 20,000 cycles per second. Philips Advance ballasts operate above 20 kHz, but avoid certain ranges such as 30-40 kHz (infrared) and 54-62 kHz (theft deterrent systems) due to interference issues.

Because electronic ballasts function at high frequency, the fluorescent lighting systems that they operate can convert power to light more efficiently than systems operated by electromagnetic ballasts (See chart below). For example, lamps operated on electronic ballasts can produce over 10 percent more light then if operated on electromagnetic ballasts at the same power levels. In effect, today's electronic ballasts provide additional energy savings by matching the light output from electromagnetic ballasts while operating the lamps at lower power. This is the main reason why electronic ballast systems are more efficient than magnetic ballast system.



Crest Factor

Lamp manufacturers use crest factor to determine ballast performance as it relates to lamp life. Lamp Current Crest Factor is a measurement of current supplied by a ballast to start and operate the lamp. It is basically the ratio of peak current to RMS (average) current. High crest factor currents may cause the lamp electrodes to wear out faster, reducing lamp life. Crest factor requirements are regulated by ANSI (American National Standards Institute) standards and specified by lamp manufacturers. For rapid start and instant start T8 lamps the ratio is 1.7 maximum, and for instant start slimline lamps, it is 1 .85 maximum.



Weight and Size Advantages

Since electronic components in electronic ballasts are smaller and lighter than the core-and-coil assembly in electromagnetic ballasts, electronic ballasts can weigh less than half as much as comparable electromagnetic models. Almost all Philips Advance electronic ballasts have a smaller cross-section than electromagnetic ballasts but maintain the same mounting dimensions. This means that they can fit into all new fixture designs and can be easily retrofitted into existing fluorescent lighting systems.

Controllability

The ability of a building's occupants to control how they light their space is becoming an increasingly important factor for organizations in determining what real estate they will lease, buy or invest in. The ability to dim the lights or easily shut them off completely is a trend fueled not just by a desire to help the environment, but also by significant economic benefits. These benefits include greater energy efficiency — in terms of reduced HVAC costs as well as energy savings for lighting — more comfortable and productive working environments, and compliance with ever tighter energy efficiency regulations. Philips Advance offers five families of electronic controllable ballasts — ROVR, Mark 7 *0-10V*, Mark 10 *Powerline,* PowerSpec HDF, EssentiaLine *0-10V* and EssentiaLine *Powerline*.

Compatibility With Powerline Carrier Systems

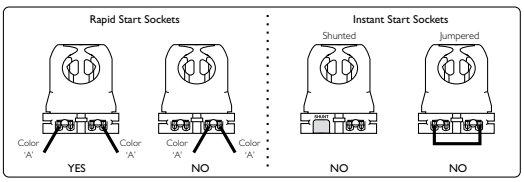
A powerline carrier system (PLC) uses electronic wiring devices to send information via a high frequency signal over the 120V or 277V electrical power distribution system of a building. For example, PLC systems are used in automatic clock systems (master time systems) to synchronize all of the clocks in a building or reset the time after a power outage. They eliminate the need for maintenance personnel to reset hundreds of clocks throughout a facility.

In a PLC system, a generator is used to impose a 1 to 4V high frequency signal on top of the existing voltage sine wave (60 Hz). This signal is generally in the 2500 to 9500Hz range, with some older systems operating at 19,500Hz or higher. Some electronic ballasts which are capacitive can absorb the signal from a PLC system. As a result, the signal becomes too weak to be "heard" by the receiver (like a timeclock) connected to the powerline.

Instant Start vs. Rapid Start Sockets for Dimming

When using dimming ballasts in fixtures, sockets must be of the Rapid Start type. Many fixtures with T-8 Instant Start electronic ballasts use jumpered or "shunted" Instant Start sockets. Controllable ballasts require two distinctly separate wires for each lamp socket. If you encounter shunted or jumpered sockets in a retrofit application, they must be removed and replaced with Rapid Start sockets.

Improper socket application will damage the ballast and void the ballast warranty.
Refer to ballast wiring diagram for proper installation.



Fluorescent Lamp Burn-In

Today, most lamp manufacturers do not require the burn-in of linear fluorescent lamps prior to dimming in order to attain rated lamp life and stable electrical measurements. However, some manufacturers of compact fluorescent lamp sources do require a 100 hour burn-in prior to dimming. Consult your lamp manufacturer for their latest requirements.

Notes

For nominal input voltage and 25°C ambient temperature.

Notes:
1. For Tandem or Through wiring, any lamp can be remote mounted.
2. For Tandem or Through wiring, BLUE lamp must be in same fixture as ballast.
3. For Tandem or Through wiring, RED lamp must be in same fixture as ballast.
4. No Tandem or Through wiring allowed.
5. No Remote, Tandem or Through wiring allowed.
6. For Tandem or Through wiring, RED lamp and BLUE lamp must be in same fixture as ballast.
7. For Tandem or Through wiring, RED lamp and YELLOW lamp must be in same fixture as ballast.
(a) Ballast can be Remote, Tandem or Through wired farther than 20'. Consult factory.
(b) Ballast can be Remote, Tandem or Through wired to a maximum 12 feet between ballast and lampholder for (2)F96T8/HO lamps or 20 feet for all other T8/HO lamps.
(c) Ballast can be Remote, Tandem or Through wired to a maximum 6 feet between ballast and lampholder for energy-saving lamps or 8 feet for standard lamps.
(d) For tandem wiring, lamp leads from multiple ballast cannot be run in same conduit. Separate conduit must be used for each ballast.
(e) Ballast can be Remote, Tandem, or Through wired to a maximum of 20' for standard lamps and 6' for energy-saving lamps

Use 18 AWG wire or larger