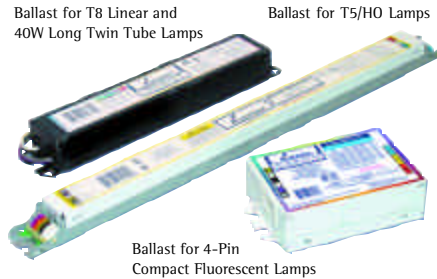




Mark 7™ 0-10V Electronic Fluorescent Dimming Ballasts

for Linear Fluorescent and 4-Pin CFL Lamps



Product Profile

Advance's Mark 7 0-10V controllable electronic ballasts are designed to operate both linear fluorescent and 4-pin compact fluorescent lamps. The Mark 7 family of dimmable electronic ballasts satisfies the need for an affordable, flexible and versatile dimming solution.

Applications

New construction and retrofit installations

- Auditoriums and Training Areas
- Conference Rooms and Boardrooms
- Department Stores and Specialty Stores
- Educational Facilities
- Healthcare Facilities
- Hotels
- Houses of Worship
- Private and Executive Offices
- Restaurants

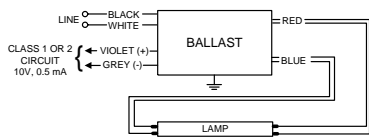
Ideally suited for energy management systems



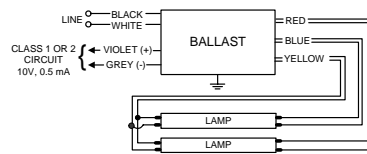
Design Highlights

- 100% - 3% full range continuous dimming (T5/HO to 1%)
 - Adds flexibility to system
 - Improves visual comfort
- Energy efficient
 - Provides up to 65% energy savings over standard fixed output T8 ballasts
- Programmed Start operation
 - Optimizes lamp life in frequent starting conditions
- Operates directly from 0-10V DC control signal
 - Reduces the number of controls needed
 - Allows for regulating multiple branch circuits from a single controller
 - Allows for direct use of Daylight Harvesting and other low voltage controls
- Operates above 42 kHz
 - Minimizes risk of interference with infrared devices
 - Provides continuous flicker-free dimming
- IntelliVolt® Technology (120 through 277V - 50/60Hz)
 - Ensures shipment of correct voltage ballast or fixture for each application
 - Reduces SKU's required in inventory
- Lamp EOL protection circuit (Except 1, 2, 3 lamp T8)
 - Safely removes power from the lamp at end of life
 - Prevents lamp overheating
- Color coded, poke-in connectors for CFL, T5/HO and 4 lamp T8
 - Ensures wiring accuracy
 - Minimizes fixture assembly and ballast installation time

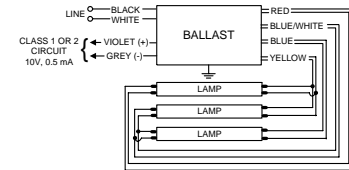
1-Lamp T8 & T5/HO Ballast - Fig. 55A



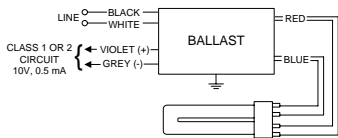
2-Lamp T8 & T5/HO Ballast - Fig. 56A



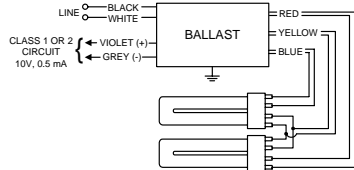
3-Lamp T8 Ballast - Fig. 57A



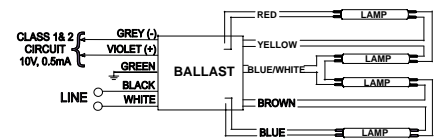
1-Lamp Long Twin Tube Ballast - Fig. 58A



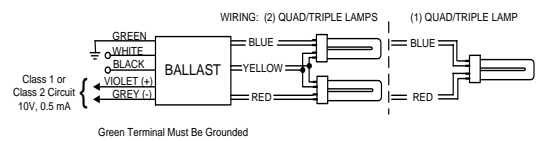
2-Lamp Long Twin Tube Ballast - Fig. 59A



4-Lamp T8 Ballast - Fig. 16A



1 & 2 -Lamp CFL Ballast - Fig. 166



Ballast Dimensions

Fig. A

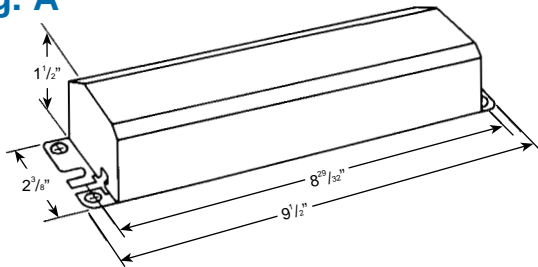
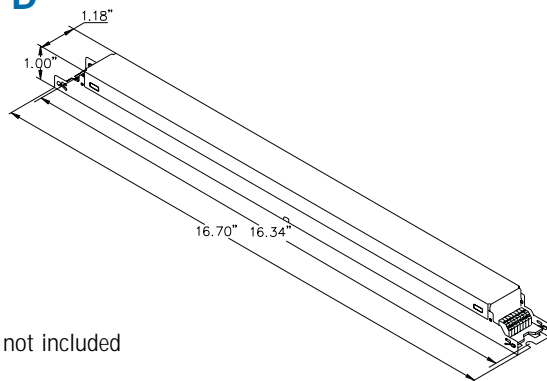


Fig. D*



* Leads not included

Control Types

The desired light level can be controlled using the following:

- Wallbox Dimmer
- Wallbox/Occupancy Dimmer
- Architectural Dimmer
- Occupancy Sensor
- Total Building Lighting Control System
- Theatrical Control Panel
- Remote Control via Computer

T8 Linear



Long Twin Tube



T5/HO



Triple Tube 4-Pin CFL



Quad Tube 4-Pin CFL



Fig. M5*

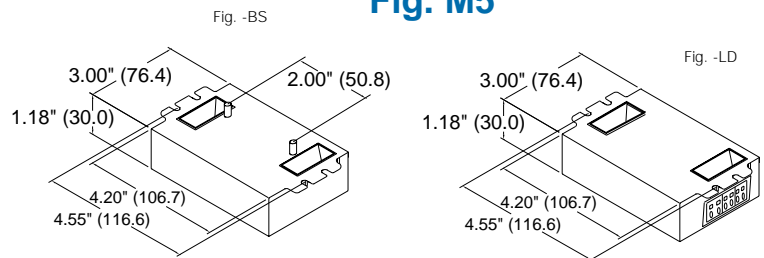
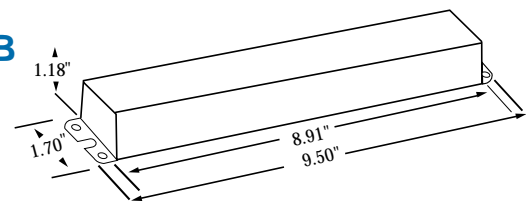


Fig. B



T8 Lamp Guide

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Certifications		Line Current (Amps)	Input Power ANSI (Watts) max/min	Ballast Factor max/min	Max. THD % (at full light output)	Min. Power Factor	Dim./ Wiring Diagram	
Number	Watts				UL	SP							
F17T8, FBO16T8													
New	1	17	50/10	120	IZT-132-SC	✓	✓	0.16	20/7	1.00/0.03	10	0.99	Fig. B/55A
				277	IZT-132-SC	✓	✓	0.07					
New	2	17	50/10	120	IZT-2S32-SC	✓	✓	0.30	36/11	1.00/0.03	10	0.99	Fig. B/56A
				277	IZT-2S32-SC	✓	✓	0.13					
New	3	17	50/10	120	IZT-3S32-SC**	✓	✓	0.45	54/16	1.00/0.03	10	0.99	Fig. B/57A
				277	IZT-3S32-SC**	✓	✓	0.20					
F25T8, FBO24T8													
New	1	25	50/10	120	IZT-132-SC	✓	✓	0.24	28/8	1.00/0.03	10	0.99	Fig. B/55A
				277	IZT-132-SC	✓	✓	0.11					
New	2	25	50/10	120	IZT-2S32-SC	✓	✓	0.43	52/12	1.00/0.03	10	0.99	Fig. B/56A
				277	IZT-2S32-SC	✓	✓	0.19					
New	3	25	50/10	120	RZT-3S32* / IZT-3S32-SC**	✓	✓	0.66	76/16	0.94/0.03	10	0.99	Fig. B/57A
				277	VZT-3S32* / IZT-3S32-SC**	✓	✓	0.28					
New	4	25	50/10	120	IZT-4S32	✓	✓	0.77	96/22	0.88/0.03	10	0.99	Fig. D/16A
				277	IZT-4S32	✓	✓	0.35					
F32T8, FBO31T8, F32T8/U6													
New	1	32	50/10	120	IZT-132-SC	✓	✓	0.30	36/8	1.00/0.03	10	0.99	Fig. B/55A
				277	IZT-132-SC	✓	✓	0.13					
New	2	32	50/10	120	IZT-2S32-SC	✓	✓	0.57	68/13	1.00/0.03	10	0.99	Fig. B/56A
				277	IZT-2S32-SC	✓	✓	0.24					
New	3	32	50/10	120	RZT-3S32* / IZT-3S32-SC**	✓	✓	0.79	93/18	0.88/0.03	10	0.99	Fig. B/57A
				277	VZT-3S32* / IZT-3S32-SC**	✓	✓	0.34					
New	4	32	50/10	120	IZT-4S32	✓	✓	0.98	116/25	0.88/0.03	10	0.99	Fig. D/16A
				277	IZT-4S32	✓	✓	0.42					

T5/HO Lamp Guide

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Certifications		Line Current (Amps)	Input Power ANSI (Watts) max/min	Ballast Factor max/min	Max. THD % (at full light output)	Min. Power Factor	Dim./ Wiring Diagram	
Number	Watts				UL	SP							
F54T5/HO													
	1	54	50/10	120	RZT-154	✓	✓	0.53	63/12.5	1.00/0.03	10	0.98	Fig. D/55A
				277	VZT-154	✓	✓	0.23					
	2	54	50/10	120	RZT-2S54	✓	✓	1.05	125/24	1.00/0.03	10	0.98	Fig. D/56A
				277	VZT-2S54	✓	✓	0.45					
F80T5/HO													
	1	80	50/10	277	VZT-180	✓	✓	0.34	94/18	1.00/0.03	10	0.99	Fig. D/55A
FC12T5/HO (55W Circline)													
	1	55	50/10	120	RZT-154	✓	✓	0.50	59/12.5	0.90/0.03	10	0.98	Fig. D/55A
				277	VZT-154	✓	✓	0.22					
	2	55	50/10	120	RZT-2S54	✓	✓	0.96	114/24	0.90/0.03	10	0.98	Fig. D/56A
				277	VZT-2S54	✓	✓	0.42					

* To be replaced with -SC 1Q 2004

** To replace large can units 1Q 2004

Compact Fluorescent Lamp Guide

Lamp Data		Min. Starting Temp. (°F/°C)	Input Volts	Catalog Number	Certifications		Line Current (Amps)	Input Power ANSI (Watts) max/min	Ballast Factor max/min	Max. THD % (at full light output)	Min. Power Factor	Dim./ Wiring Diagram	
Number	Watts				UL	SF							
CFQ13W/G24q - 13W CFL Quad Tube Lamp (PL-C13W/4P, F13DBX/4P, CF13DD/E)													
CFTR13W/GX24q - 13W CFL Triple Tube Lamp (F13TBX/4P, CF13DT/E)													
New	1	13	50/10	120	IZT-2S26-M5-①	✓	✓	0.14	18/6	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.07						
New	2	13	50/10	120	IZT-2S26-M5-①	✓	✓	0.26	32/9	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.12						
CFQ18W/G24q - 18W CFL Quad Tube Lamp (PL-C18W/4P, F18DBX/4P, CF18DD/E)													
CFTR18W/GX24q - 18W CFL Triple Tube Lamp (PL-T18W, F18TBX/4P, CF18DT/E)													
New	1	18	50/10	120	IZT-2S26-M5-①	✓	✓	0.15	20/7	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.08						
New	2	18	50/10	120	IZT-2S26-M5-①	✓	✓	0.32	41/11	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.15						
CFQ26W/G24q - 26W CFL Quad Tube Lamp (PL-C26W/4P, F26DBX/4P, CF26DD/E)													
CFTR26W/GX24q - 26W CFL Triple Tube Lamp (PL-T26W, F26TBX/4P, CF26DT/E)													
New	1	26	50/10	120	IZT-2S26-M5-①	✓	✓	0.22	28/8	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.10						
New	2	26	50/10	120	IZT-2S26-M5-①	✓	✓	0.41	49/13	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.18						
CFTR32W/GX24q - 32W CFL Triple Tube Lamp (PL-T32W, F32TBX/4P, CF32DT/E)													
New	1	32	50/10	120	IZT-2S26-M5-①	✓	✓	0.28	34/9	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.13						
New	2	32	50/10	120	IZT-2T42-M3-①*/IZT-2T42-M5-①**	✓	✓	0.63	75/19	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.21						
CFTR42W/GX24q - 42W CFL Triple Tube Lamp (PL-T42W, F42TBX/4P, CF42DT/E)													
New	1	42	50/10	120	IZT-2S26-M5-①	✓	✓	0.38	46/9	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.17						
New	2	42	50/10	120	IZT-2T42-M3-①*/IZT-2T42-M5-①**	✓	✓	0.82	98/18	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.36						
CFTR57W/GX24q - 57W CFL Triple Tube Lamp (F57QBX/4P, CF57DT/E)													
New	1	57	50/10	120	IZT-2T42-M3-①*/IZT-2T42-M5-①**	✓	✓	0.55	65/16	1.00/0.03	10	0.98	Fig. M5/166
			277	✓		✓	0.24						
CFTR70W/GX24q - 70W CFL Triple Tube Lamp (F70QBX/4P, CF70DT/E)													
New	1	70	50/10	120	IZT-2T42-M3-①*/IZT-2T42-M5-①**	✓	✓	0.63	75/16	1.00/0.03	10	0.99	Fig. M5/166
			277	✓		✓	0.27						
FT36W/2G11 - 36W Long Twin Tube Lamp (PL-L36W, F39/36BX, FT36DL)													
New	1	36	50/10	120	IZT-1TTS40-SC**	✓	✓	0.32	38/9	1.00/0.03	10	0.99	Fig. A/58A
			277	IZT-1TTS40-SC**		✓	✓	0.14					
New	2	36	50/10	120	IZT-2TTS40-SC**	✓	✓	0.64	75/16	1.00/0.03	10	0.99	Fig. A/59A
			277	IZT-2TTS40-SC**		✓	✓	0.27					
FT40W/2G11/RS - 40W Long Twin Tube Lamp (PL-L40W, F40/30BX, FT40DL)													
New	1	40	50/10	120	RZT-1TTS40*/IZT-1TTS40-SC**	✓	✓	0.32	38/11	1.00/0.03	10	0.99	Fig. A/58A
			277	VZT-1TTS40*/IZT-1TTS40-SC**		✓	✓	0.14					
New	2	40	50/10	120	RZT-2TTS40*/IZT-2TTS40-SC**	✓	✓	0.64	76/16	1.00/0.03	10	0.99	Fig. A/59A
			277	RZT-2TTS40*/IZT-2TTS40-SC**		✓	✓	0.28					
FT55W/2G11 - 55W Long Twin Tube Lamp (F55BX, FT55DL)													
	1	55	50/10	120	RZT-154	✓	✓	0.50	59/13	0.90/0.03	10	0.98	Fig. D/58A
			277	VZT-154		✓	✓	0.22					
	2	55	50/10	120	RZT-2S54	✓	✓	0.96	114/24	0.90/0.03	10	0.98	Fig. D/59A
			277	VZT-2S54		✓	✓	0.42					
FT80W/2G11 - 80W Long Twin Tube Lamp (PL-L80W, FT80DL)													
New	1	80	50/10	277	VZT-180	✓	✓	0.34	94/16	1.00/0.03	10	0.99	Fig. D/58A

* To be replaced with -SC 1Q 2004

** To replace large can units 1Q 2004

Advance Mark 7 0-10V Ballast Specifications

Section I – Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with comparable standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with color coded poke-in wire trap connectors or color coded integral leads as per C82.11.
- 1.3 Ballast shall be available in a plastic/metal can or all metal can construction to meet all plenum requirements.

Section II – Performance Requirements

- 2.1 Ballast shall be Programmed Start
- 2.2 Ballast shall have a minimum ballast factor of 1.00 at minimum light output for primary lamp application.
- 2.3 Ballast shall maintain constant light output, for line voltage variations of $\pm 10\%$ of rated supply voltage.
- 2.4 Ballast shall control lamp light output from 100% - 3% relative light output for T8 and CFL lamps and 100 - 1% relative light output for T5/HO lamps.
- 2.5 Ballast shall ignite the lamps at any light output setting selected without first going to another output setting.
- 2.6 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.7 Ballast shall have a Power Factor greater than 0.98 at full light output and greater than 0.90 throughout the dimming range for primary lamp.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less throughout the dimming range in accordance with lamp manufacturer recommendation.
- 2.9 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.
- 2.10 Ballast shall have a Class A sound rating.
- 2.11 Ballast shall be a high frequency electronic type and operate lamps above 42kHz to avoid interference with infrared devices and eliminate visible flicker.
- 2.12 Ballast shall be controlled by a Class 1 or Class 2 low-voltage 0-10V circuit.
- 2.13 Ballast shall be provided with integral protection circuitry to withstand connection of low voltage control leads to mains power supply. In this event, ballast shall default to the maximum light output level.

- 2.14 Ballast shall provide Lamp (EOL) protection circuit for all T5, T5/HO, and CFL lamps.
- 2.15 Ballast shall operate from 50/60 Hz input source of 120V or 277V with sustained variations of $\pm 10\%$ (voltage and frequency) with no damage to the ballast. IntelliVolt models shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of $\pm 10\%$ (voltage and frequency) with no damage to the ballast.
- 2.16 Ballast shall have a minimum starting temperature of 10°C (50°F).
- 2.17 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10%, when operated at nominal line voltage with primary lamp.

Section III – Regulatory Requirements

- 3.1 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR Part 18, Non-Consumer (Class A) for EMI/RFI (Conducted and Radiated).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P, Type 1 Outdoor and Canadian Standards Association (CSA) Certified, where applicable.
- 3.3 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.4 Ballast shall comply with ANSI C82.11, where applicable.
- 3.5 Ballast shall comply with ANSI C62.41 category A for transient protection.

Section IV – Other

- 4.1 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.
- 4.2 Ballast shall be manufactured in a factory certified to ISO 9002 Quality System Standards.
- 4.3 Ballast shall be controlled by a Class 1 or Class 2 low voltage 0-10VDC controller.
- 4.4 Ballast shall be connected to rapid-start sockets only. Shunted or jumpered sockets are not to be used.
- 4.5 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship including replacement, for operation at a maximum case temperature of 70°C.

Use Mark 7 0-10V when you're looking for...

- Total lighting control
- Building management systems compatibility
 - Emergency lighting systems
 - Cleaning schedules
 - Daylight harvesting
 - High/low occupancy and safety applications
 - Places control in energy manager's hands, not individuals
- Unlimited flexibility in lighting controls
- Energy management applications
- Remote controllability
 - Internet-based control schemes
- Retail applications where skylights are utilized

Control Manufacturers for Advance

MANUFACTURER

Alerton Technologies, Inc.
ALM Systems, Inc.
AMX Corporation
Automated Logic Corp.
Avab America
Blackbird
Colortran, Inc.
Crestron Electronics
Cutler-Hammer
Digital Lighting Systems
Douglas Lighting Controls
Electronic Theatre Controls
Electronics Diversified, Inc.
Honeywell, Inc.
Hubbell Building Automation
Hunt Dimming
Johnson Controls
Leax Controls
Lehigh Electronic Products Co.
Leviton Lighting Control Division

MANUFACTURER

Lighting Control and Design
Lightolier Controls
Lithonia Controls
Lutron
Marlin Controls
NexLight
Novar Controls
Novitas
Payne Sparkman
PDM Electrical Products
PLC Multipoint
Sensor Switch, Inc
Sternor Controls
Strand Lighting
Touch-Plate Lighting
Triatek Lighting
Vantage Lighting Control and Automation
Vara-Light / Dimatronics / HUB
Watt Stopper, Inc.

