www.sylvania.com

QUICKTRONIC® POWERSENSE® T5 Dimming UNV Systems

RoHS compliant

Fluorescent Controllable Lighting Systems

High Efficiency Series

POWERSENSE T5 DIM

Lamp / Ballast Guide

28W T5 - PENTRON® lamps
1-lamp QHE1x28T5/UNV DIM
2-lamp QHE2x28T5/UNV DIM
Primary Lamp Type
FP28
Also operates:
FP35, FP21, FP14

Key System Features

- **Industry's first ballast that combines dimming inputs from 0-10V and/ or two-wire AC dimming providing maximum flexibility**
- POWERSENSE compatibility with low voltage and power line dimmers
- High Efficiency
- Lamp Detection Technology
- Universal voltage (120-277V)
- 100-1% Dimming Range
- PROStart® programmed rapid start
- Anti-flash circuitry – turns on in dimmed mode
- Lightweight and low profile
- Operates at >42kHz
- QUICKSENSE ballast technology (end-of-lamp-life sensing)
- QUICK 60+ ballast and lamp warranty
- RoHS compliant
- Lead-free solder and manufacturing process

Application Information

SYLVANIA QUICKTRONIC POWERSENSE ballasts are ideally suited for:

- Occupancy sensors
- Daylight harvesting
- Energy management
- Load shedding
- Commercial
- Retail
- Hospitality
- Institutional
- Schools
- New construction
- Retrofit

SYLVANIA QUICKTRONIC High Efficiency POWERSENSE T5 electronic ballasts offer several advantages:

- **Wide Dimming Range:** operate linear fluorescent T5 PENTRON lamps over a 100-1% dimming range and provide true versatility in controls selection.
- **Industry's Most Adaptable Dimming Ballast:** ballasts feature micro-controller technology for compatibility with:
  - low voltage controls
  - power line fluorescent dimmers
  - any line voltage from 120V to 277V
- **Unmatched Performance with Patented Lamp Detection Technology:**
  - Eliminates variations in brightness from lamp-to-lamp
  - Provides uniform lighting throughout the dimming range
  - Eases installation and trouble-shooting by recognizing failed lamps, faulty wiring or loose connections and shutting down.

When the problem is corrected, the system restarts automatically.

RoHS Compliant: QUICKTRONIC POWERSENSE T5 ballasts are RoHS compliant and feature lead-free solder and manufacturing process

QUICK60+® Warranty: Setting the standard for quality, QUICKTRONIC POWERSENSE T5 ballasts are covered by a QUICK60+® warranty, the first comprehensive system warranty in the industry

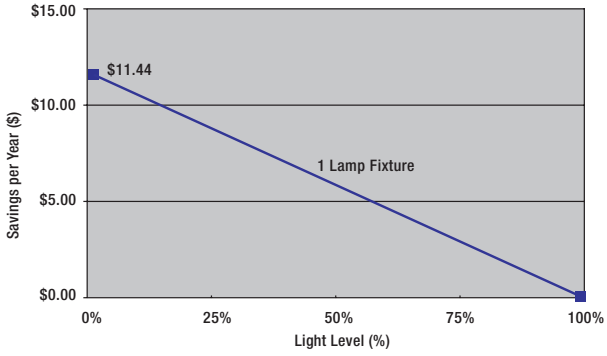
System Information

QUICKTRONIC POWERSENSE ballasts operate from standard low voltage (0-10VDC) fluorescent controllers or compatible 2-wire power line fluorescent dimmers, making them ideal for individual office lighting or automated building applications, both in new construction and retrofit projects.

For the individual office or conference room, installation can be streamlined by using a 2-wire power line dimmer; eliminating the need for additional control wires.

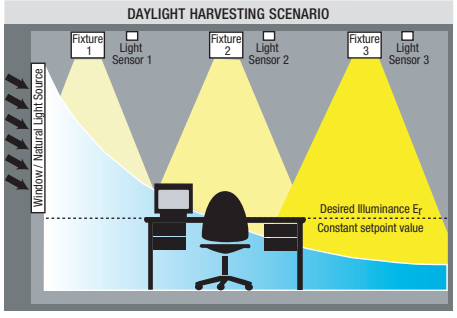
For more advanced systems, such as daylight harvesting or building automation applications, standard low voltage devices (0-10VDC, Class 1 or 2) are used to control the lighting system. In this daylight harvesting example, each lighting fixture (or fixture row) is controlled by it's own photosensor; regulating the light output to compensate for changes in natural daylight. Depending upon the specific application, energy savings of up to 60% compared to fixed output electronic systems can be realized.

SAVINGS PER YEAR* vs LIGHT LEVEL
(QHE T5 POWERSENSE Ballast)



* FP28 lamps with QUICKTRONIC QHE T5 POWERSENSE ballast
* Based on 4000 hrs/yr, $0.11/kWh, and 120V operation
* Savings per Year (@Light Level) = Cost of operation (100% Light Level) - Cost of operation (@Light Level)

All QUICKTRONIC POWERSENSE ballasts include a line voltage protection circuit, which protects the ballast in the event that line voltage is inadvertently applied to the low voltage control inputs.



SEE THE WORLD IN A NEW LIGHT SYLVANIA

POWERSENSE CONTROLS

SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

QUICKTRONIC® POWERSENSE® Controls Information

RoHS compliant

Controls Manufacturer	Fluorescent Powerline Controllers	0-10 VDC Controllers	Photo Cells	Occupancy Sensors	Building Management Systems
SYLVANIA www.sylvania.com/controls	X	X	X	X	X
Acuity Brand Controls www.acuitybrandscontrols.com	X	X	X	X	X
Blue Ridge Technologies www.brtint.com	X	X	X	X	X
Cooper Greengate http://greengate.coopercontrol.com		X	X	X	X
Hunt Dimming www.huntdimming.com	X	X			X
Lehigh Electric Products www.lehighdim.com	X	X			X
Leviton www.leviton.com	X	X	X	X	
Sensor Switch www.sensorswitch.com			X	X	
Siemens Building Technology http://sbt.siemens.com					X
Starfield Controls www.starfieldcorp.com		X	X	X	X
Watt Stopper www.wattstopper.com	X	X	X	X	X

Please contact controls manfacturer to order/specify controls. For the latest controls list go to www.sylvania.com.
Also, for more information, refer to the LCA (Lighting Controls Association) site: http://lightingcontrolsassociation.org.

WARNING:

Install and wire these ballast and controls in accordance with the National Electrical Code (NEC), all applicable Federal, State and local electrical codes, as well as the specific instructions provided with the compatible control that you purchased. Installation should be performed by qualified personnel only.

These instructions are guidelines only. Installation may vary for different controls/fixtures/applications. Be sure to follow the control instructions and all applicable codes and standards when installing dimming systems.

Please contact controls manufacturer listed in the OSRAM SYLVANIA Inc. controls cross reference for compatible controls and instruction wiring

NOTES: 1. Dimming ballasts source < 0.5mA (0-10VDC control input).
2. Powerline controls must be rated for the type (e.g. Fluorescent Phase-control) and size (e.g. 600W, 1000W, 1500W & 2000W etc.) of the connected load. Do NOT use incandescent powerline controls; incandescent dimmers are not rated for fluorescent loads and are NOT compatible with POWERSENSE ballasts.

Control Specifications/model numbers may change.
Please consult manufacturers listed for their latest control models and to order their controls.

T5 POWERSENSE
High Efficiency
Controls Guide

Contact the companies listed for their 2-wire Fluorescent/Powerline controls and/or 0-10V controls information.

T5 POWERSENSE Dimming Ballast
50725 QHE1x28T5/UNV DIM-TC
50726 QHE2x28T5/UNV DIM-TCL

OSRAM SYLVANIA
National Customer
Service and Sales Center
1-800-LIGHTBULB
(1-800-544-4828)
www.sylvania.com

QUICKTRONIC® POWERSENSE® T5 Dimming UNV - Dimming Control Wiring Examples

RoHS compliant

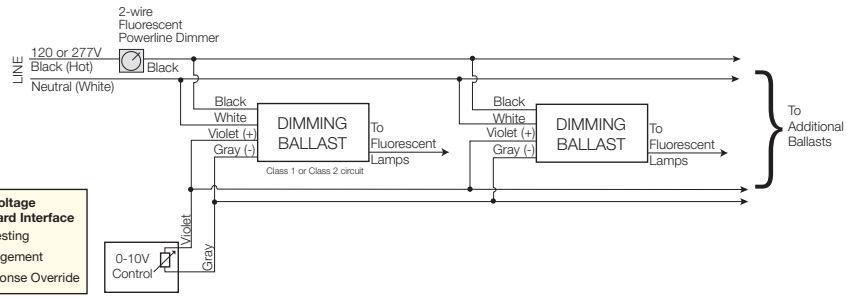
Industry's 1st Ballast That Allows POWERLINE Fluorescent Control *AND* 0-10Vdc Control Input Simultaneously

2-wire Powerline *AND* 0-10Vdc Control with POWERSENSE Ballasts

Fluorescent AC Dimming No Control Wires
- Occupant Wallbox Dimming
- Lighting Panel Dimming
- Excellent for Retrofit

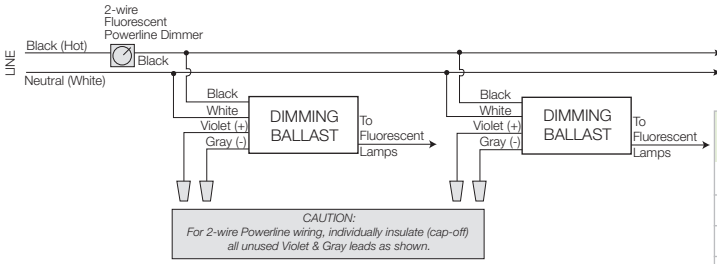
Lowest Setting Wins

0-10Vdc Low Voltage Industry Standard Interface
- Daylight Harvesting
- Building Management
- Demand Response Override



Wallbox Style 2-wire Powerline Control Wiring Example

2-wire Powerline Control with POWERSENSE Ballasts



Powerline Control Specs:
Specification-grade controls are available for 120V or 277V operation of controllable analog electronic fluorescent ballasts. Controls must be suitably rated for both the type (e.g. Fluorescent Phase-control) and size (e.g. 600W of the connected load.

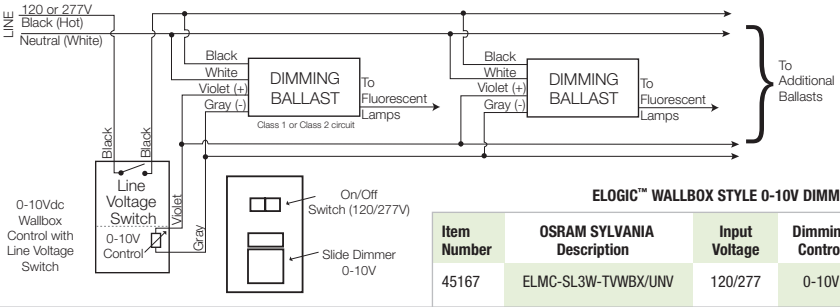
ELOGIC™ MANUAL CONTROL SLIDE FLUORESCENT PHASE CUT DIMMER

Item Number	OSRAM SYLVANIA Description	Voltage Rating	Rating	Type	Wiring
45165	ELMC-SL3WHP-FLPCWBX120	120 VAC	1000VA	Fluorescent Phase cut	Single Pole or 3-way
45166	ELMC-SL3WHP-FLPCWBX277	277 VAC	1200VA		
45163	ELMC-SL3WSP-FLPCWBX120	120 VAC	600VA		
45164	ELMC-SL3WSP-FLPCWBX277	277 VAC	600VA		

**For additional information refer to ELOGIC™ Lighting Controls product information bulletins LMS068.*

Wallbox Style 0-10V Control with Power Switch Wiring Example

0-10V DC Control with POWERSENSE Ballasts



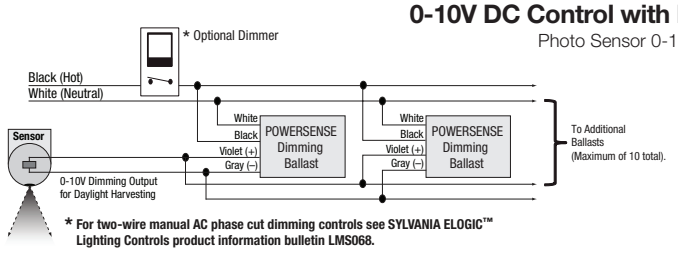
ELOGIC™ WALLBOX STYLE 0-10V DIMMER WITH POWER SWITCH

Item Number	OSRAM SYLVANIA Description	Input Voltage	Dimming Control	Maximum Power Rating	Wiring	Color
45167	ELMC-SL3W-TVWBX/UNV	120/277	0-10V	1200VA @120V 1500VA @277V	Single Pole or 3-way	White

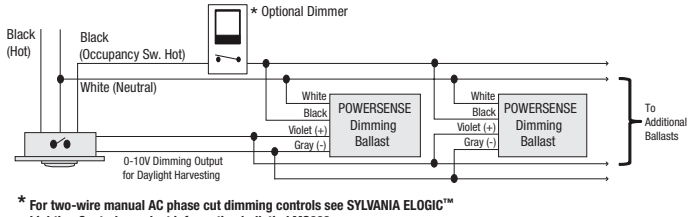
Daylight Harvesting and Occupancy Control Wiring Example

0-10V DC Control with POWERSENSE Ballasts

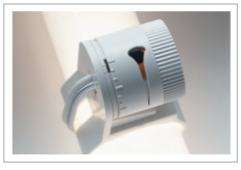
Photo Sensor 0-10V Wiring Example



*** For two-wire manual AC phase cut dimming controls see SYLVANIA ELOGIC™ Lighting Controls product information bulletin LMS068.**



*** For two-wire manual AC phase cut dimming controls see SYLVANIA ELOGIC™ Lighting Controls product information bulletin LMS068.**



ELOGIC™ DAYLIGHT HARVESTING AND OCCUPANCY CONTROLS ORDERING INFORMATION

Item Number	OSRAM SYLVANIA Description	Function	Occupancy Sensing Method	Control Method	Sensor Power	Mounting Method
45030	ELSC-DLH-TVLAMP/BUS	Daylight Harvesting	N/A	0-10V	From Ballast	To Lamp
45032	ELSC-DLOCIRM-TV1RCEIL/UNV	Daylight Harvesting + Occupancy Sensing	Passive Infrared + Microphonics™	0-10V + Power ON/OFF switch	Line voltage 120/277AC	Ceiling
45033	ELSC-DLOCIR-TV1RCEIL/UNV		Passive Infrared			
45034	ELSC-DLOCIRM-TV1RREC/UNV		Passive Infrared + Microphonics™		No power pack required	Recessed
45035	ELSC-DLOCIR-TV1RREC/UNV		Passive Infrared			

**For additional information refer to ELOGIC™ Lighting Controls product information bulletins ECS101 and ECS106.*

POWERSENSE T5 DIM

SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

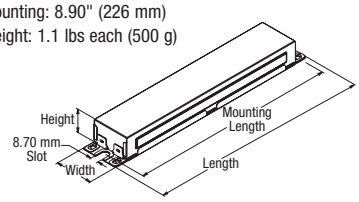
High Efficiency Electronic T5 Fluorescent Controllable Lighting Systems

RoHS compliant

Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp[1] Type	Rated[1] Lumens (lm)	No. of Lamps	Ballast[1] Factor (BF)	System[1] Lumens	Input[1] Mean[1] Lumens	System[3] Power (W) 120V	System[3] Power (W) 277V	Efficacy (lm/W)	BEF[2]
50725	QHE 1x28T5/UNV DIM-TC	0.27/0.12	FP28T5	2900	1	1.00 0.01	2900 29	2695 27	32 6	31 6	94	3.23
		0.34/0.14	FP35T5	3650	1	1.00 0.01	3650 37	3395 34	41 6	40 6	91	2.50
		0.21/0.09	FP21T5	2100	1	1.00 0.01	2100 21	1955 20	25 6	25 6	84	4.00
		0.14/0.06	FP14T5	1350	1	1.00 0.01	1350 14	1255 13	17 5	17 5	79	5.88
50726	QHE 2x28T5/UNV DIM-TCL *Formally: QTP 2x28T5/UNV DIM-TCL*	0.53/0.23	FP28	2900	2	1.00 0.01	5800 58		64 10	62	91/93	1.61
		0.67/0.29	FP35	3650	2	1.00 0.01	7300 73		81 10	79	90/92	1.27
		0.40/0.18	FP21	2100	2	1.00 0.01	4200 42		49 9		86	2.04
		0.29/0.13	FP14	1350	2	1.00 0.01	2700 27		34 8		79	2.94

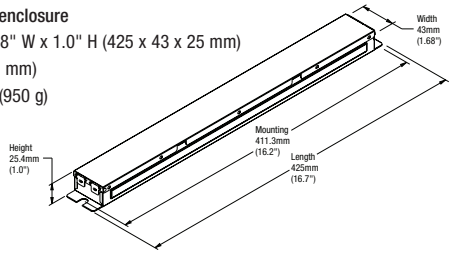
1: Rated lamp lumens and performance data based on PENTRON lamps.
2: At 35°C lamp ambient temperature.
3: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (note: calculation based on lowest wattage value)

Dimensions: 1 lamp enclosure
Overall: 9.5" L x 1.68" W x 1.0" H (241 x 43 x 25 mm)
Mounting: 8.90" (226 mm)
Weight: 1.1 lbs each (500 g)



Dimensions: 2 lamp enclosure
Overall: 16.7" L x 1.68" W x 1.0" H (425 x 43 x 25 mm)
Mounting: 16.2" (411 mm)
Weight: 2.1 lbs each (950 g)

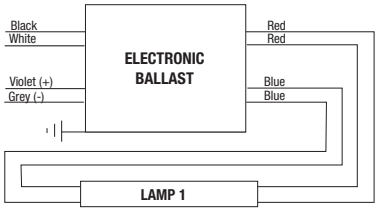
Wiring:
Leads Only



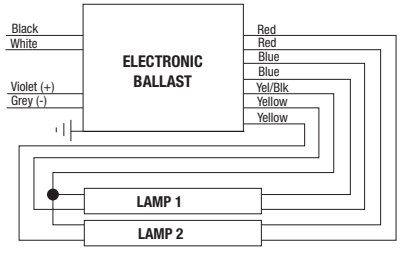
Installation Notes

Output Wiring: Lamp wiring for dimming ballasts can differ significantly from non-dimming ballasts and from other manufacturers dimming ballasts. Take care to connect lamp lead wires as shown on the applicable ballast diagram. **Lamp Seasoning:** For optimal performance, fluorescent lamps may require seasoning for up to 12 hours prior to low temperature starting & low level dimming. Refer to NEMA LSD 23-2002 Lighting Systems Division: Recommended Practice - Lamp Seasoning for Fluorescent Dimming Systems

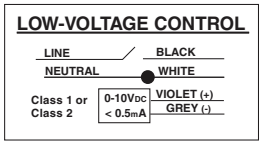
1 lamp

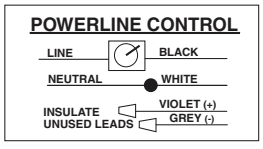


2 lamp



Input & Control Wiring Options:





Item Number — **50726 QHE 2 x 28T5 / UNV DIM-TCL** — System Type - DIMMING/Case Size
QUICKTRONIC High Efficiency — Line Voltage (120-277V)
Number of Lamps (2) — Primary Lamp Wattage

T5 POWERSENSE®
High Efficiency

Performance Guide

Data shown based upon SYLVANIA PENTRON® lamp(s). QUICKTRONIC® POWERSENSE ballasts are also compatible with other lamp manufacturers equivalent lamp types that meet ANSI specifications.

Specifications
Data based on FP28

Starting Method: Programmed Rapid Start
Circuit Type: Series
Lamp Frequency: >40kHz
Lamp CCF: Less than 1.7
Starting Temp: 50°F/10°C minimum[5]
Input Voltage: 120-277V, ±10%
Input Frequency: 50/60 Hz
THD: <10% @ Full Output
Power Factor: >98% @ Full Output

UL Listed Class P, Type 1 Outdoor
CSA or C/UL Certified
70°C Max Case Temperature
FCC 47CFR Part 18 Non-Consumer
Class A Sound Rating
RoHS Compliant[4]
ANSI C62.41 Cat. A Transient Protection
No Remote or Tandem Wiring

4 Complies with European Union Restriction of Hazardous Substances Directive.

5 FP14 lamp starting temperature 60°F/16°C

Control Information

QUICKTRONIC POWERSENSE ballasts are compatible with a wide range of low voltage (0-10VDC) and power line fluorescent controllers available from various manufacturers.

Low Voltage Control Specs: Ballast will source up to 0.5mA for 0-10VDC control purposes. May be wired as a Class 1 or Class 2 circuit-consult Local and National Electrical Codes.

Power Line Control Specs: Specification-grade fluorescent controls are available for 120V or 277V operation of controllable analog electronic fluorescent ballasts. Controls must be suitably rated for both the type (e.g. Fluorescent Phase-control) and size (e.g. 600W) of the connected load.

System Life / Warranty

QUICKTRONIC products are covered by the QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to the QUICK 60+ warranty bulletin.

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Specifications subject to change without notice.