



Section Three:


Electronic Control Gear


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- i. "TubeSaver" T5 Light Management System
- ii. "TubeSaver" T5 Electronic Ballast EC Series
- iii. "TubeSaver" T5 Electronic Ballast ST Series



i .“TubeSaver”T5 Light Management System

"TubeSaver" T5 Dimmable Series	Product Code	Model Number	Product Description
	12101	TST5/ 14W/ DB	TubeSaver Dimmable Series / 14W
	12102	TST5/ 21W/ DB	TubeSaver Dimmable Series / 21W
	12103	TST5/ 28W/ DB	TubeSaver Dimmable Series / 28W
	12104	TST5/ 35W/ DB	TubeSaver Dimmable Series / 35W

PIR Sensor	Product Code	Model Number	Product Description
	32101	TST5/SE/01	Full Automatic PIR Sensor

Features:

Impressive energy saving:

High frequency operation combined with new generation T5 tubes give proven savings of between 50 and 60%

Effective Lighting Management:

3 luminance levels available to choose from: 80%、100%、110%.

Over 50% Maintenance Reduction:

High frequency ballast's combined with the new generation T5 tube offers 20,000 hours mean average service life, twice that of standard luminaires fitted with conventional tubes.

Compatibility with magnetic and electronic ballast:

The simply plug&save T5 converter can save 45-60% energy irrespective of whether the T8/T10 fluorescent tube is equipped with magnetic ballast or electronic ballast.

Trouble free installation:

Simply plug in, no disruptive installation, hassle free, avoids down time and the need for qualified electrical engineers. (A simple circuit modification is needed if the original fixture is fitted with electronic ballast.)

Your Benefits:

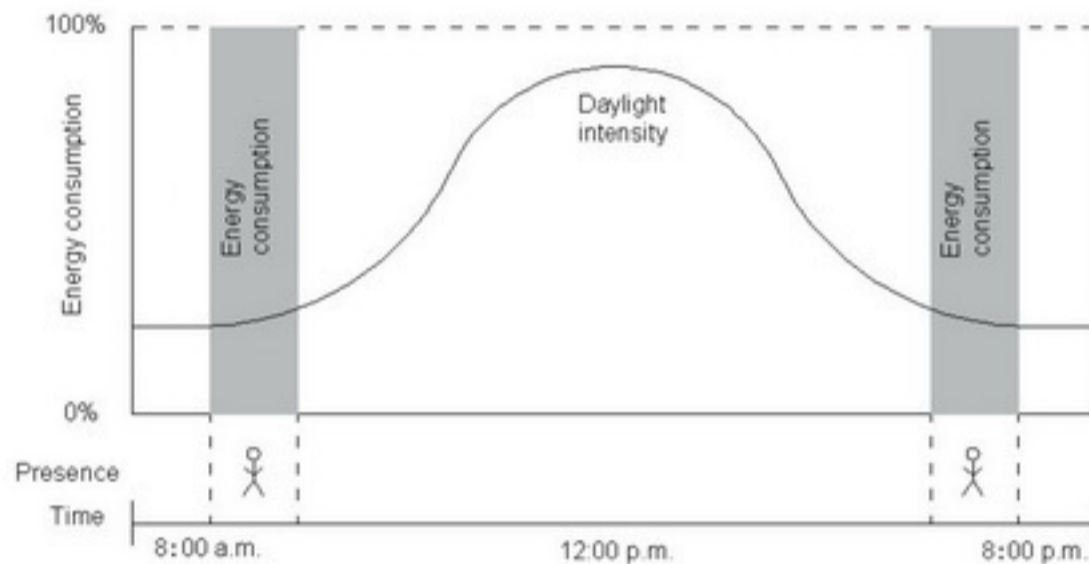
- Simple installation
- Impressive energy saving
- Simple dimming
- Automatic detection
- Reduce maintenance
- Suitable for fluorescent lamps

The greatest savings are achieved by the following steps:

- Simply replacing conventional control gear with TubeSaver electronic control gear can reduce energy consumption by as much as 25%.
- Changing from T8 to T5 lamps will increase the savings to 50%.
- However, energy savings is up to 80% by opting the combination of TubeSaver ECGs and T5 lamp and using TubeSaver light management system.

Presence - Dependent Lighting:

In the fields where there is rarely natural light, with the presence-dependent lighting control, light sensors detect human movement, lamps are off if there is nobody in a room. On the contrary, lamps are on whenever the sensor detects any human movement. Up to 80% energy saving rate is gained.

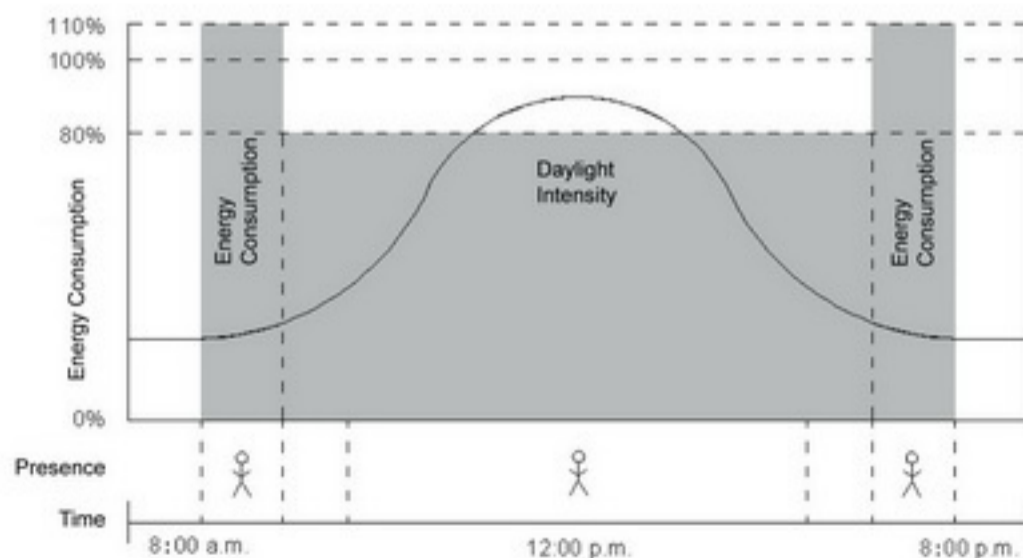


Daylight-Dependent and Presence-Dependent Lighting:

The available daylight in a room is supplemented as required by artificial light from luminaires equipped with dimmable electronic control gear.

With daylight-dependent and presence-dependent lighting control, light sensors detect the lighting level comprising artificial light and natural daylight and human movement. The luminaires are controlled according to their position in a room, the amount of available daylight and human action. Lamps are dimmed(80%) while daylight is intense and nobody is in the room. Otherwise, lamps are brighter(110%) . As a result, three factors complement perfectly.

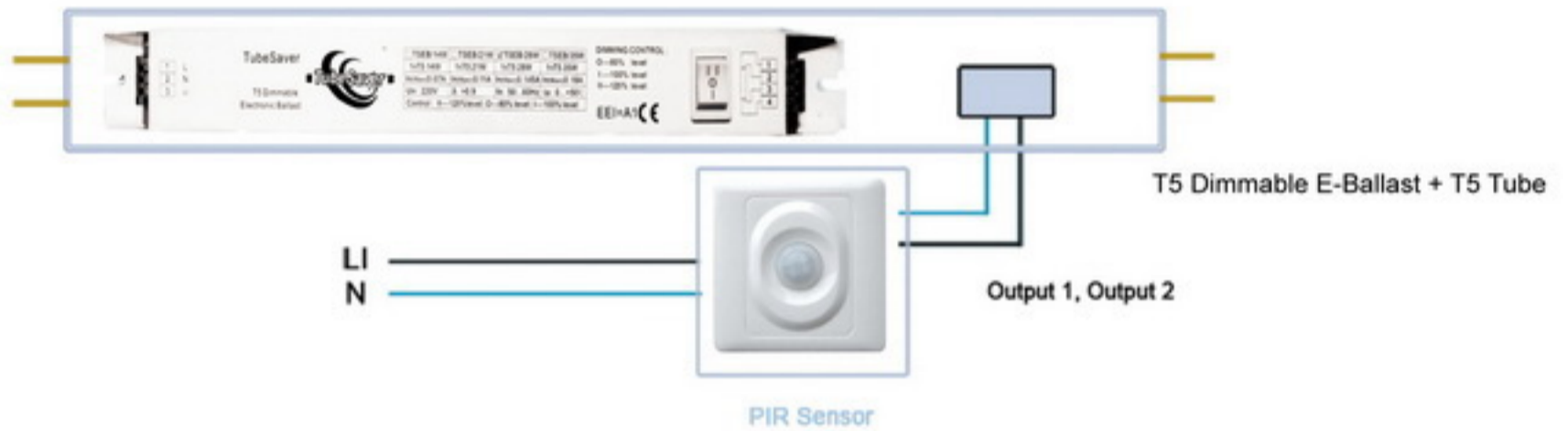
Especially for the sites where no blackout is allowed, the control is satisfied. Energy saving rate of up to 15% is achieved.



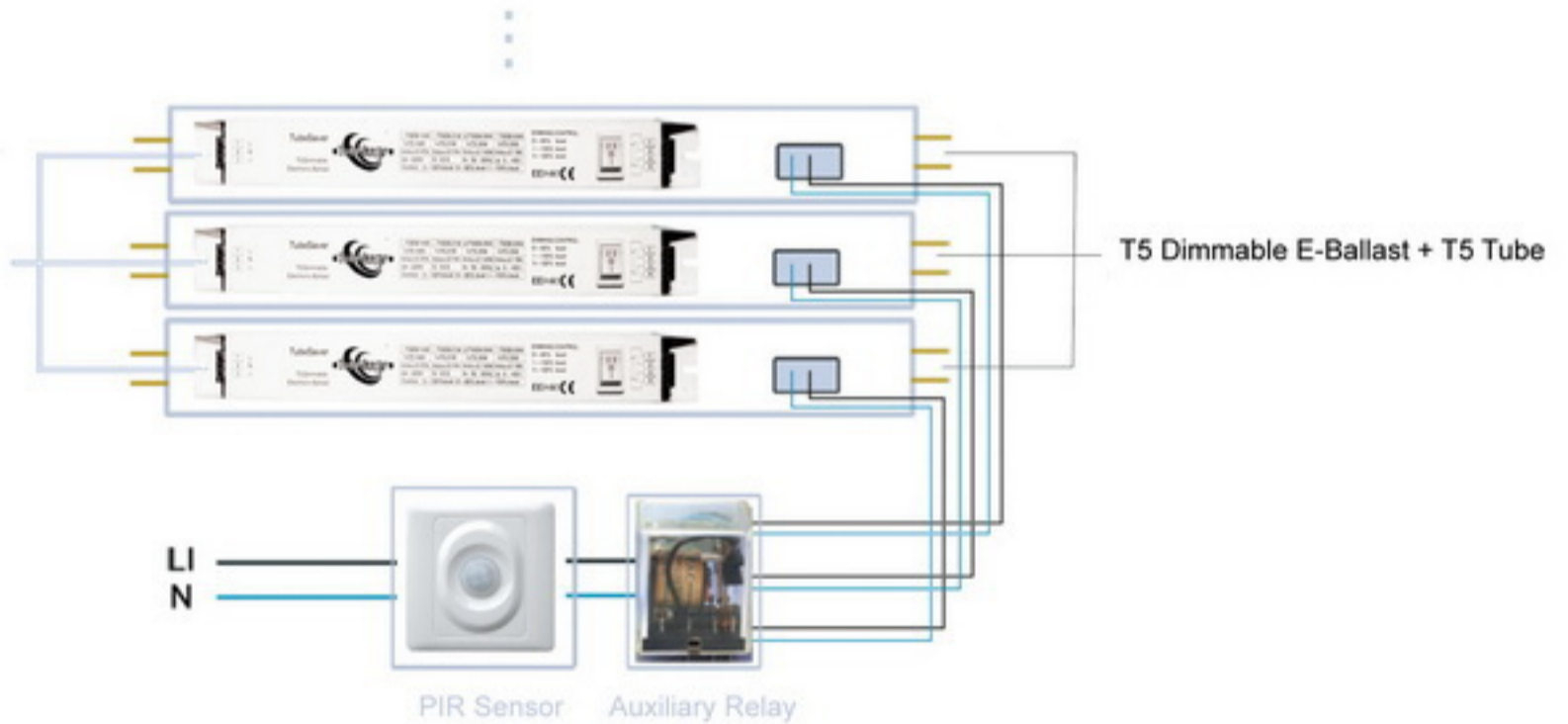
Light Management System Components:

- PIR Sensor + T5 Dimmable Converter
- PIR Sensor + T5 Dimmable E-Ballast

Light Management System with one T5 Dimmable Converter



Light Management System with Multiple T5 Dimmable Converters



Remark: All TubeSaver dimming products have three dimming levels: 80%, 100%, 110% ; Clients may choose any two levels.

TTubeSaver T5 Dimmable E-Ballast :

Model Number	Lamp Type	Rated Voltage (V)	Operating Frequency (kHz)	Rated Frequency (Hz)	Power Factor	Adjusting Range	EEL	Temperature Range	Length (mm)	Width (mm)	Height (mm)	Hole Spacing (mm)	PCs/Box	Weight (g)
TST5/14W/DB	1*2ft T5 (14w)	200-240	30-50	50/60	≥0.90	80%, 100%, 110%	A1	0-50℃	309	30.5	27.5	292	30	200
TST5/21W/DB	1*3ft T5 (21w)	200-240	30-50	50/60	≥0.90	80%, 100%, 110%	A1	0-50℃	309	30.5	27.5	292	30	200
TST5/28W/DB	1*4ft T5 (28w)	200-240	30-50	50/60	≥0.90	80%, 100%, 110%	A1	0-50℃	309	30.5	27.5	292	30	200
TST5/35W/DB	1*5ft T5 (35w)	200-240	30-50	50/60	≥0.90	80%, 100%, 110%	A1	0-50℃	309	30.5	27.5	292	30	200

PIR Sensor:

1. Compact and complete, easy to use for human body & light detection.
2. A slide switch to select the time-delay.
3. Auto motion detection: Through the sensor system, lamp on Dimmable T5 Converter gets brighter or on whenever human motion is detected, and gets dimmer or off otherwise.
4. Auto light detection: Photosensitive control type. Light-detection is not activated during daylight/ sunlight condition under default setting. Yet real time and whole-day detection are both available at your discretion.
5. Auto Delay: When powered-on, lamp remains on higher light level should constant motion be detected, and gets dimmer (after a preset delay period) if no motion is detected. (Every last motion detected will be counted as the beginning of another delay period.)

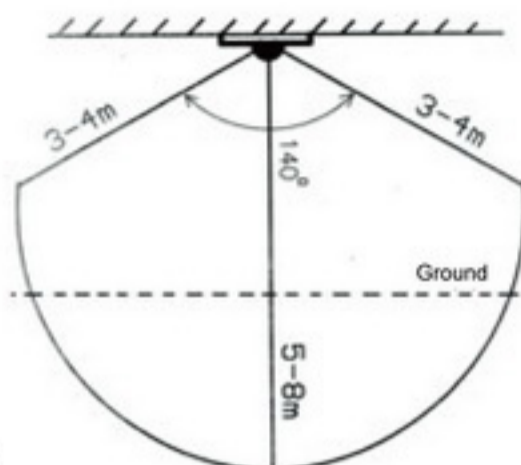
Application:

Corridor, Stairway, Basement, Parking Lot, etc.



Specification:


1. Model Number: TST5/SE/01
2. Product Number: 32101
3. Working voltage: AC180-250V (50/60Hz)
4. Ambient temperature: $-20^{\circ}\text{C} - +50^{\circ}\text{C}$
5. Consumption: less than 0.016W
6. Connection: Dimmable interface.
7. Sensing range (adjustable): 5Lux to $500\text{Lux}\pm 20\%$ (default setting at $5\text{Lux}\pm 20\%$)
8. Dimming delay(adjustable): 16 to $180\text{s}\pm 20\%$ (default setting at $16\text{s}\pm 30\%$)
9. Detecting area: ceiling mounted type with a detecting area of 360 degrees.
See the right diagram.



standard: IEC 61347-2-3:2000
IEC 61347-1:2003
CISPR15:1996
IEC 61000-3-2:2001



ii. “TubeSaver” T5 Electronic Ballast EC Series

“TubeSaver” T5 Electronic Ballast EC Series	Product Code	Model Number	Product Description
	31123	TST5 / 14W /1X1/ ECEB	T5 14W 1*1 Economical Series
	31124	TST5 / 14W /1X2/ ECEB	T5 14W 1*2 Economical Series
	31125	TST5 / 21W /1X1/ ECEB	T5 21W 1*1 Economical Series
	31126	TST5 / 21W /1X2/ ECEB	T5 21W 1*2 Economical Series
	31127	TST5 / 28W /1X1/ ECEB	T5 28W 1*1 Economical Series
	31128	TST5 / 28W /1X2/ ECEB	T5 28W 1*2 Economical Series
	31129	TST5 / 35W /1X1/ ECEB	T5 35W 1*1 Economical Series
	31130	TST5 / 35W /1X2/ ECEB	T5 35W 1*2 Economical Series

Features:

1. Comfortableness: Bring you pleasant and comfortable lighting environment.

- * Instant lit up.
- * No flickering.
- * Low noise design

2. Economical: Save energy; long lifespan; thorough design bringing high efficiency to lighting fixture.

3. Safety:

Thorough safety design, basically solves the problem of abnormal heating which may occur at the life end of tube; also prevent equipments heating or default resulted by ultra harmonics.

- * End of life protection
- * No-load and short-circuit protection
- * Ultra harmonics strategy

Technical Parameters:

Model Number	Lamp Type	Voltage (V)	Operating Frequency (Hz)	Rated Frequency (Hz)	Power Factor	Adjustable Output Range	Efficiency Rank	Operating Temperature	Length (mm)	Width (mm)	Height (mm)	Hole
												Spacing (mm)
TST5 / 14W /1X1/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 14W /1X2/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 21W /1X1/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 21W /1X2/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 28W /1X1/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 28W /1X2/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 35W /1X1/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200
TST5 / 35W /1X2/ ECEB	I	220	50	50	0.95	nonadjustable	2	-10°C+50°C	210	31	21	200

Connection Diagram:




Standard: EN61347-2-3
EN60929
EN61547

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iii. "TubeSaver" T5 Electronic Ballast ST Series

"TubeSaver" T5 Electronic Ballast ST Series	Product Code	Model Number	Product Description
	31131	TST5/14W/ 1X1/STEB	T5 14W 1*1 Standard Series
	31132	TST5/14W/ 1X2/STEB	T5 14W 1*2 Standard Series
	31133	TST5/21W/ 1X1/STEB	T5 21W 1*1 Standard Series
	31134	TST5/21W/ 1X2/STEB	T5 21W 1*2 Standard Series
	31135	TST5/28W/ 1X1/STEB	T5 28W 1*1 Standard Series
	31136	TST5/28W/ 1X2/STEB	T5 28W 1*2 Standard Series
	31137	TST5/35W/ 1X1/STEB	T5 35W 1*1 Standard Series
	31138	TST5/35W/ 1X2/STEB	T5 35W 1*2 Standard Series

Features:

1. Comfortableness: Bring you pleasant and comfortable lighting environment.

- * Instant lit up.
- * No flickering.
- * Low noise design

2. Safety: Thorough safety design, basically solves the problem of abnormal heating which may occur at the life end of tube; also prevent equipments heating or default resulted by ultra harmonics.

- * End of life protection
- * Zero load inspection
- * Impulse current strategy
- * Ultra harmonics strategy

3. Preheat start; continuously preheat the filament; increase the tube switching frequency.

Technical Parameters:

Model Number	Lamp Type	Voltage (V)	Operating Frequency (Hz)	Rated Frequency (Hz)	Power Factor	Adjustable Output Range	Efficiency Rank	Operating Temperature	Length (mm)	Width (mm)	Height (mm)	Hole
												Spacing (mm)
TST5/14W/ 1X1/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	302	26	21	292
TST5/14W/ 1X2/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	284	30	26	276
TST5/21W/ 1X1/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	302	26	21	292
TST5/21W/ 1X2/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	284	30	26	276
TST5/28W/ 1X1/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	302	26	21	292
TST5/28W/ 1X2/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	284	30	26	276
TST5/35W/ 1X1/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	302	26	21	292
TST5/35W/ 1X2/STEB	I	220	50	50	0.98	nonadjustable	2	-10°C+50°C	284	30	26	276

Connection Diagram:



Standard: EN61347-2-3
EN60929
EN55015
EN61000-3-2
EN61547

