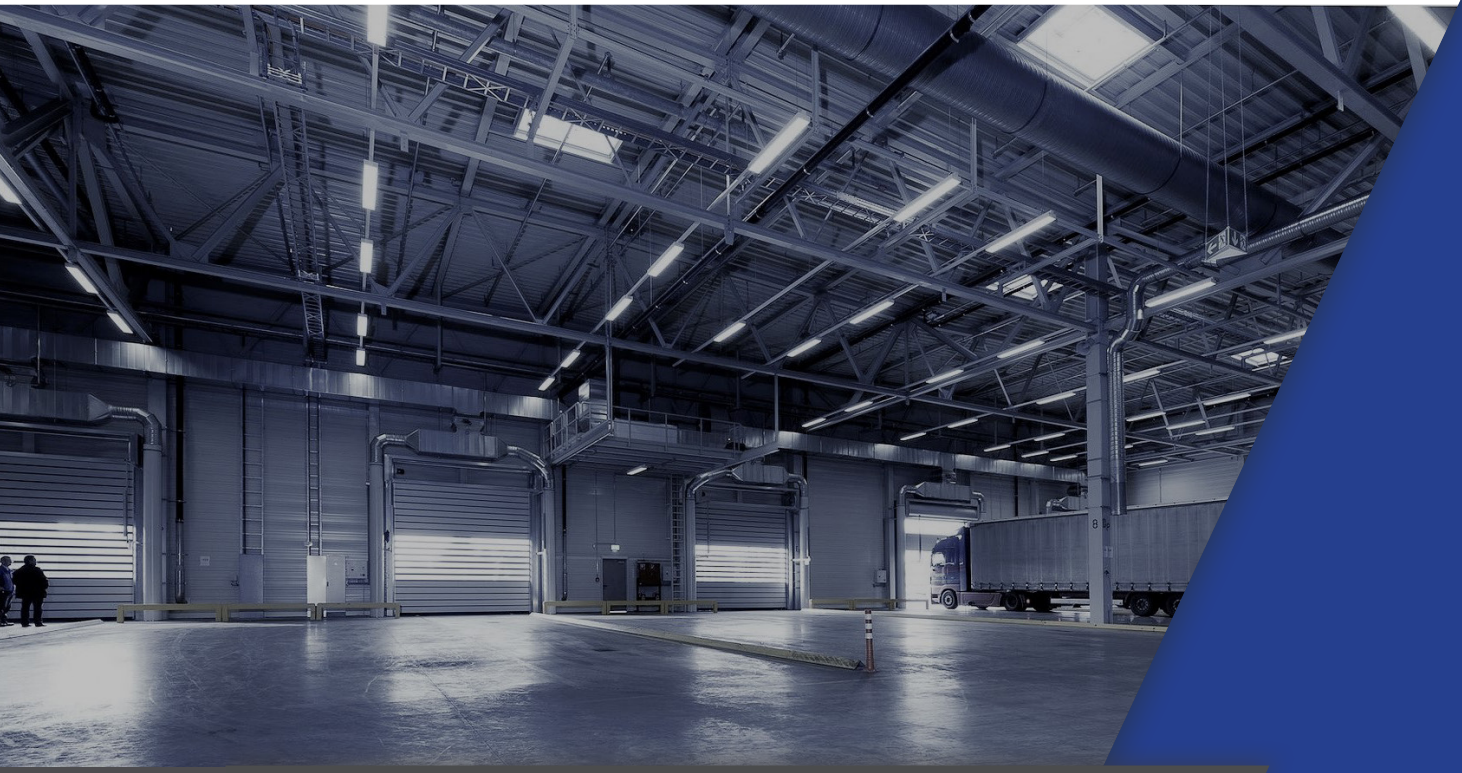
COSINE DEVELOPMENTS
LEADERS IN LIGHTING TECHNOLOGY



PRODUCT CATALOGUE
2023

TOP SERVICE ★ TOP SERVICE ★ TOP SERVICE
26 YEARS
TOP SERVICE ★ TOP SERVICE ★ TOP SERVICE

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COSINE DEVELOPMENTS
LEADERS IN LIGHTING TECHNOLOGY

ABOUT US

COSINE DEVELOPMENTS which was established in 1997 – has led the lighting market with its locally designed and manufactured lighting related electronics. All products are designed to meet the stringent South African Bureau of Standards (SABS) requirements in terms of performance, reliability and safety (SABS Standards are based on international IEC Standards).

We have designed a comprehensive range of emergency control gear that will satisfy a of variety industrial and commercial requirements.

PRODUCT OVERVIEW

- **High bay emergency packs**
- **Complete home/industrial emergency lighting solutions.**
- **Energy saving products for lighting.**
- **UPS systems.**
- **HVAC products.**
- **DALI addressable lighting products.**
- **Basic industrial 1 hour and 3 hour emergency kits for LED's, fluorescent and halogen lamps.**
- **Self-testing emergency kits.**
- **Electronic ballasts and inverters.**
- **Photocells (Day/night switches).**
- **Batteries**
- **Railway Inverters**

For any sales enquiries, please contact our sales team:
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For any other enquiries, please contact:
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SABS

Permit to Apply Certification Mark

Subject to the provisions of the Standards Act, 2008 (Act 8 of 2008), the relevant regulations made thereunder and the permit conditions contained in the under mentioned schedules, this permit authorizes

COSINE DEVELOPMENTS
Co Reg. IT 1637/97
DURBAN

to apply the certification mark

SABS APPROVED

in respect of the mark specification

SANS 1464-22:2016
TO: SAFETY OF LUMINAIRES
PART 22: LUMINAIRES FOR EMERGENCY LIGHTING

This permit, including the schedules 1 to 3 which form an integral part thereof:
- is issued without alteration;
- is identified by the applicable permit number;
- is subject to any condition or limitation contained therein;
- is valid subject to ongoing compliance with permit conditions;
- bears the embossed SABS Commercial seal. In the absence of the seal, the permit and the schedules shall be invalid; and
- the permit may be authenticated by referring to the register of "Certified Clients" on the SABS Commercial website (www.sabs.co.za)
- Scheme Type 5 permit applies to products that have been tested.

Permit Number	**8634/13636**
Effective Date	**23 April 2020**
Expiry Date	**01 July 2023**
Date of Original Registration	**02 July 2008**
Chief Executive Officer	

sanas Product Certification Body
CO7a

SABS COMMERCIAL

SABS COMMERCIAL SOC Ltd.
1 Dr Lategan Rd, Groenkloof, Pretoria,
Republic of South Africa

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OCCUPANCY SENSORS

MOVEMENT SENSOR TECHNOLOGY

With the ability to enter and leave a room without having to flick a switch on and off is not only hassle-free but also saves energy by optomizing usage only when a room is occupied. Our variety of occupancy sensors can be used in any required application to suit the customers needs. With customisable settings, the Cosine Developments occupancy sensors are number one in the market.

Occupancy sensors use different technologies to sense movements. Below will contain a brief description on the technologies along with their benefits and negative aspects

MICROWAVE TECHNOLOGY

Microwave sensors function by creating a bubble of energy, the sensor is triggered when there is a disturbance within that bubble. The microwave sensor is very sensitive to radial movement – movement back and forth from the sensor; and less sensitive to tangential movement – which is movement circling around the sensor.

The benefit of using a microwave sensor is that it can sense through soft furnishings such as that of glass and wood. An ideal application would be within a public restroom, in which the sensor is required to detect occupants within the cubicles – therefore keeping the lights on even if there is no one in the line of sight. There are no blind spots to this sensor. This sensor is immune to air turbulence, which means the movement of cold and hot air around the sensor will not trigger it – making it ideal for placements around air-conditioning units and heaters.

The negative side of the microwave sensor is that it detects movements in adjacent rooms and behind doors. For example, it would not be ideal to use this product within a compact office block, where there are multiple rooms next to one another, the sensor in one room will detect movement in the room next door - even though the room in which it is placed has no occupants.

INFRA-RED TECHNOLOGY

Infra-red occupancy sensors are triggered through the movement of passing heat sources between the segments of its lens. These sensors by nature are less sensitive to radial movement – back and forth from the sensor; but are more susceptible to tangential movement – movement around the sensor.

The benefit of using an infra-red occupancy sensor is that it cannot detect through soft furnishings, and is limited to sensing in line of sight. One such scenario is that if it were to be placed inside a building with multiple rooms next to one another, it will not detect occupants within the room next door – whereas the microwave sensor would. Therefore this sensor is highly beneficial in scenarios where one would only like the detection to be within the room it is placed.

INFRA-RED & ACCOUSTIC TECHNOLOGY

The dual technology sensor has the standard perks and negatives of infra-red technology with the added benefit of re-triggering the timer with noise picked up within the room or surrounding environment.

The sensor cannot be triggered solely with noise, it has to detect movement first and then only the acoustic sensor is engaged – this is so that the lights do not turn on every time there is a thunder storm or a car hoots nearby.

The benefit of using such technology is that people don't necessarily move around when they are working at their computers, therefore a normal sensor could turn off because there is no movement. With the acoustic function added to the sensor it just needs an initial movement to trigger it, then it remains on so long as there is any noise source.

CD-IR28B

SURFACE MOUNT INFRA-RED OCCUPANCY SENSOR

OVERVIEW:

- Three-sensor configuration
- Detection diameter of up to 12m
- Unsurpassed relay contact rating of 30A
- 30 minutes maximum time setting
- 2-year warranty

PRODUCT DESCRIPTION:

The CD-IR28B is an active infra-red motion detector. It senses changes in heat via its Fresnel lens to detect human movement. The sensor detects even the slightest movement in the detection zone. The unit is designed to be fitted onto ceilings and walls. 360° sensing is assured via its three heat sensors. A 30 Amp relay enables the switching of many fittings from one sensor. A long (30 minutes) maximum time setting will reduce the possibility of the lights being extinguished when somebody is present. A built-in light sensor facilitates daylight harvesting.

3 adjustments are provided:

- Sense range
- Daylight harvesting lux adjustment
- Delay time

SPECIFICATIONS	
Daylight Harvesting	<3 lux to daylight
Detection Angle	360°
Detection Speed	0.6 - 1.5m/s
Detection Range	Up to 12m
Dimensions	120 x 60mm
Installation Height	Up to 3m high
Nominal Input Voltage	230Vac
Power Consumption	0.45W (static 0.1W)
Rated Load	1200W
Time Delay	10 seconds (minimum setting) to 30 minutes (maximum setting)
Weight	202g

CD-IR28B (CONTINUED)

SURFACE MOUNT INFRA-RED OCCUPANCY SENSOR

OVERVIEW:

- Three-sensor configuration
- Detection diameter of up to 12m
- Unsurpassed relay contact rating of 30A
- 30 minutes maximum time setting
- 2-year warranty

INSTALLATION GUIDE:

Please take note of important points below which could cause false on/off triggering:

- Install sensors within their mounting height rating. This will ensure that the sensor functions at its full potential.
- Because it is sensitive to body heat, it is also sensitive to any rapid change in temperature within its detection range. Do not mount sensor close to any heater or cooling systems. The recommended distance away from these HVAC systems is 1.5m.
- There must be no obstructions from the sensor to the occupants as the sensor is a line-of-sight device.
- There are blind spots - the further the distance the larger the blind spots. Will be less sensitive to small movements. Keep sensor close to desired detection zone. Use more sensors to cover area efficiently.
- Less sensitive against hot backgrounds. Movement in front of hot backgrounds may not be detected.
- High levels of vibration can cause false triggering, avoid positioning sensor close to heavy duty motors (lift motors, aircon duct system or heavy duty-fans) that may cause the ceiling to vibrate.

CD-MV360S

MICROWAVE OCCUPANCY SENSOR

OVERVIEW:

- Load Capacity of 600W
- Detection radius of up to 8m
- 30 minutes maximum time setting
- Microwave sensor can be seen through boundaries etc.
- 2 year warranty

PRODUCT DESCRIPTION:

The CD-MV360S is an active microwave motion detector. It emits a high frequency electro-magnetic wave of 5.8GHz and receives the Doppler echo. The sensor detects the change in the Doppler echo even from the slightest movement in the detection zone. The unit is designed to fit into the luminaries or behind ceiling boards. There are no blind spots. Detection is possible through doors, panes of glass and thin walls and soft furnishings. A built-in light sensor facilitates daylight harvesting.

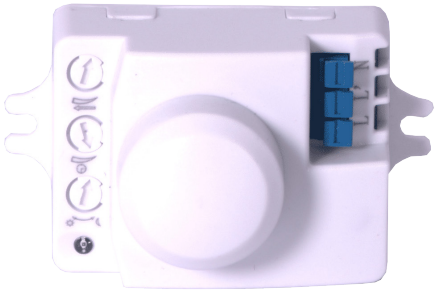
3 adjustments are provided:

- Sense range
- Daylight harvesting lux adjustment
- Delay time

SPECIFICATIONS	
Daylight Harvesting	30 lux (minimum setting) to daylight (maximum setting) (300 lux at 75% setting)
Detection Angle	360°
Detection Range	1 to 8 meters
Dimensions	70 x 41 x 40mm
HF System	5.8GHz CW radar (ISM brand)
Installation Height	Up to 3.5m
Power Consumption	0.9W
Power Frequency	50 - 60 Hz
Power Source	220 - 240Vac
Rated Load	600W
Time Delay	8 seconds to 30 minutes
Weight	67g

CD-MV36OS (CONTINUED)

MICROWAVE OCCUPANCY SENSOR



OVERVIEW:

- Three-sensor configuration
- Detection diameter of up to 12m
- Unsurpassed relay contact rating of 30A
- 30 minutes maximum time setting
- 2-year warranty

INSTALLATION GUIDE:

Please take note of important points below which could cause false on/off triggering:

- Install sensors within their mounting height rating. This will ensure that the sensor functions at its full potential.
- Can sense through glass, dry walls so can be prone to false triggering by detecting occupants in an adjacent room or corridor. Positioning and detection range setup must be taken into consideration.
- The microwave sensor cannot sense through metal. Ensure there is no metal obstructions between sensor and detection zone.
- High levels of vibration can cause false triggering, avoid positioning sensor close to heavy duty motors (lift motors, aircon duct system or heavy-duty fans) that may cause the ceiling to vibrate.

CD-Y41

RECESSED (FLUSH) - MOUNT INFRA-RED OCCUPANCY SENSOR

OVERVIEW:

- Detection diameter of up to 6m
- Three-sensor configuration
- 300W rated load
- 15 minutes maximum time setting
- 2 year warranty

PRODUCT DESCRIPTION:

The CD-Y41 is an active infra-red motion detector. It senses changes in heat via its Fresnel lens to detect human movement. The sensor can detect even the slightest movement in the detection zone.

The unit is designed to be fitted flush into ceilings. 360° sensing is assured via its three heat sensors. A minute maximum time setting will reduce the possibility of the lights being extinguished when somebody is present. A built-in light sensor facilitates daylight harvesting.

2 adjustments are provided:

- Daylight harvesting lux adjustment
- Delay time

SPECIFICATIONS	
Daylight Harvesting	3 to 2000 lux
Detection Angle	360°
Detection Range	6 metres
Detection Speed	0.6 - 1.5ms
Dimensions	Cut Out: 62mm Rim: 76mm
Installation Height	2.2m - 4m
Mains Voltage	230Vac +/- 10% 50Hz
Maximum Ambient Temperature	+70°C
Power Consumption	0.45W (work) 0.1W (static)
Rated Load	1200W (incandescent lamp) 300W (energy saving lamp)
Time Delay	40 seconds (minimum setting) to 15 minutes (maximum setting)

CD-Y41 (CONTINUED)

RECESSED (FLUSH) - MOUNT INFRA-RED OCCUPANCY SENSOR

OVERVIEW:

- Detection diameter of up to 6m
- Three-sensor configuration
- 300W rated load
- 15 minutes maximum time setting
- 2 year warranty

INSTALLATION GUIDE

Please take note of important points below which could cause false on/off triggering:

- Install sensors within their mounting height rating. This will ensure that the sensor function is at its full potential.
- Due to sensitivity to heat, it is sensitive to rapid change in temperature within detection range. Avoid mounting the sensor near any heating or cooling systems. The recommended distance from HVAC systems is 1.5m.
- There must be no obstructions from the sensor to the occupants as the sensor is a line-of-sight device.
- Blind spots- the further the distance the larger the blind spot which will be less sensitive to small movements. Keep sensor to close to the desired sensor zone and use more sensor to cover the area effeciently.
- Less sensitivity in hotter environments which may affect detection.
- High levels of vibration may cause false triggering. Avoid placing sensors close to heavy duty motors that may cause the ceiling to vibrate.

CD-MV16

RECESSED (FLUSH) - MOUNT MICROWAVE OCCUPANCY SENSOR

OVERVIEW:

- Detection radius of up to 10m
- Load capacity of up to 1200W
- DIP selection for rapid and easy setup
- 30 minutes maximum time delay setting
- Microwave sensor can be seen through boundaries etc.
- 2 year warranty

PRODUCT DESCRIPTION:

The CD-MV16 is an active microwave motion detector. It emits a high frequency electro-magnetic wave of 5.8GHz and receives the Doppler echo. The sensor detects the change in the Doppler echo even from the slightest movement in the detection zone. There are no blind spots. Detection is possible through doors, panes of glass and thin walls and soft furnishings. A built-in light sensor facilitates daylight harvesting.

3 adjustments are provided:

- Sense range
- Daylight harvesting lux adjustment
- Delay time

SPECIFICATIONS	
Daylight Harvesting	10 to 500 lux
Detection Angle	360°
Detection Range	2 to 10 metres
Dimensions	Cut Out: 65mm Rim: 97mm
HF System	5.8GHz CW Radar - ISM Band
Installation Height	Up to 2.5m
Power Consumption	0.9W
Power Frequency	50 - 60Hz
Power Source	220 - 240Vac
Rated Load	1200W
Time Delay	10 seconds - 30 minutes
Transmission Power	<10mW

CD-MV16 (CONTINUED)

RECESSED (FLUSH) - MOUNT MICROWAVE OCCUPANCY SENSOR

OVERVIEW:

- Detection radius of up to 10m
- Load capacity of up to 1200W
- DIP selection for rapid and easy setup
- 30 minutes maximum time delay setting
- Microwave sensor can be seen through boundaries etc.
- 2 year warranty

INSTALLATION GUIDE

Please take note of important points below which could cause false on/off triggering:

- Install sensors within their mounting height rating. This will ensure that the sensor functions at its full potential.
- Can sense through glass, dry walls so can be prone to false triggering by detecting occupants in an adjacent room or corridor. Positioning and detection range setup must be taken into consideration.
- The microwave sensor cannot sense through metal. Ensure there is no metal obstructions between sensor and detection zone.
- High levels of vibration can cause false triggering, avoid positioning sensor close to heavy duty motors (lift motors, aircon duct system or heavy-duty fans) that may cause the ceiling to vibrate.

CD-IR-DT

DUAL TECHNOLOGY (PIR + SOUND) SENSOR

OVERVIEW:

- Detection diameter of up to 10m
- 600W Rated Load
- 30 minutes maximum time setting
- 2 year warranty

PRODUCT DESCRIPTION:

This is a dual technology occupancy sensor with both passive infra-red (PIR) detection and noise (sound) detection. Lighting will be activated after movement is detected. The delay timer will then begin counting. If either noise or movement is thereafter detected, the timer will be reset and begin timing again. The PIR detector can detect movement up to 10 metres. The microphone can detect normal conversation up to about four metres distance. The lighting will be switched off if neither motion nor sound is detected during the timer period. Noise cannot activate the lighting - movement must be detected first to enable the microphone.

Daylight harvesting can be gained by adjusting the 'lux' switching threshold. Lighting with then only be activated if the ambient light in the room is below the 'lux' threshold. The unit has full 360° motion and noise sensing.

SPECIFICATIONS	
Ambient Light Harvesting	10 to 2000 lux (measured at sensor)
Delay Time Setting	10 second to 30 minutes
Detection Angle	360°
Detection Motion Speed	0.6 to 1.5 ms-1
Detection Range	approx. 10 metres
Mains Voltage	230Vac
Installation Height	Up to 3.5m
Rated Load	1000W incadescent lighting 600W total fluorescent ballast lighting 600W total LED driver lighting
Standby Power Usage	10 seconds - 30 minutes
Working Temperature	-10 to +40°C

CD-IR-DT (CONTINUED)

DUAL TECHNOLOGY (PIR + SOUND) SENSOR

OVERVIEW:

- Detection diameter of up to 10m
- 600W Rated Load
- 30 minutes maximum time setting
- 2 year warranty

INSTALLATION GUIDE:

Please take note of important points below which could cause false on/off triggering:

- Install sensors within their mounting height rating. This will ensure that the sensor function is at its full potential.
- Due to sensitivity to heat, it is sensitive to rapid change in temperature within detection range. Avoid mounting the sensor near any heating or cooling systems. The recommended distance from HVAC systems is 1.5m.
- There must be no obstructions from the sensor to the occupants as the sensor is a line-of-sight device.
- Blind spots- the further the distance the larger the blind spot which will be less sensitive to small movements. Keep sensor to close to the desired sensor zone and use more sensor to cover the area effeciently.
- Less sensitivity in hotter environments which may affect detection.
- High levels of vibration may cause false triggering. Avoid placing sensors close to heavy duty motors that may cause the ceiling to vibrate.
- Once the Occupancy sensor senses movement, the acoustic sensing will be sensitive to outside noises. These noises may be from nearby offices or even traffic if the building is close to traffic. The external noises will reset the clock which means the sensor will be prone to false triggering. This must be taken into consideration as the sound sensitivity cannot be adjusted.

CD-IR-WP

FIXTURE EXTERNAL ON/OFF PIR SENSOR WITH IP65

OVERVIEW:

- Detection radius range of up to 8m
- 450W Rated Load
- 30 minutes maximum time setting
- Remote control setup
- 2 year warranty

PRODUCT DESCRIPTION:

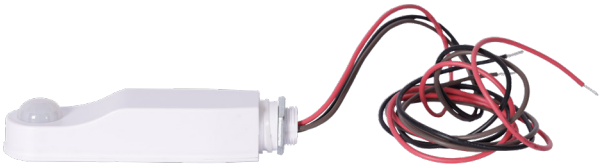
The miniature PIR (passive infrared) presence detector provides automatic control of lighting loads. It is specifically designed for mounting onto a batten style luminaire. The detector will switch incandescent, fluorescent, compact fluorescent and LED lighting.

The unit detects movement using PIR sensor and turns the load on. When an area load is no longer occupied the load will switch off after 10 minutes. A selection of fixing washers are supplied to aid fixing to a variety of luminaires.

SPECIFICATIONS	
Cable Specification	220 - 240Vac
Frequency	50/60Hz
Humidty	5 to 95% non-condensing
IP Rating	IP65
Material	Flame retardent ABS/PC
Maximum Switching Load	450W fluorescent and incadescent lighting 450W compact fluorescent lighting 450W low energy lighting 450W low voltage lighting
Power Consumption	On 799mW Off 807mW
Supply Voltage	220-240V
Temperature	-10°C

CD-IR-WP (CONTINUED)

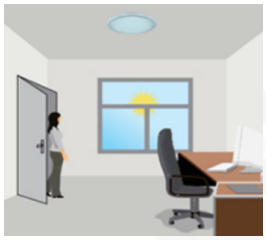
FIXTURE EXTERNAL ON/OFF PIR SENSOR WITH IP65



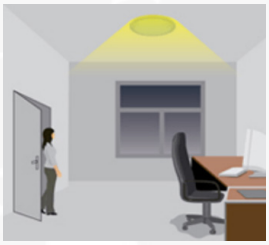
OVERVIEW:

- Detection radius range of up to 8m
- 450W Rated Load
- 30 minutes maximum time setting
- Remote control setup
- 2 year warranty

PRODUCT DESCRIPTION:

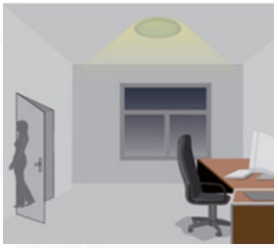


With sufficient natural light, the light does not switch on when presence is detected.



With insufficient natural light, the sensor switches on the light automatically when presence is detected.

After hold-time, the light dims to stand-by level if the surrounding natural light is below the daylight threshold.



Light switches off automatically after the stand-by period elapses.

INSTALLATION GUIDE:

Please take note of important points below which could cause false on/off triggering:

- Install sensors within their mounting height rating. This will ensure that the sensor function is at its full potential.
- Due to sensitivity to heat, it is sensitive to rapid change in temperature within detection range. Avoid mounting the sensor near any heating or cooling systems. The recommended distance from HVAC systems is 1.5m.
- There must be no obstructions from the sensor to the occupants as the sensor is a line-of-sight device.
- Blind spots- the further the distance the larger the blind spot which will be less sensitive to small movements. Keep sensor to close to the desired sensor zone and use more sensor to cover the area effeciently.
- Less sensitivity in hotter environments which may affect detection.
- High levels of vibration may cause false triggering. Avoid placing sensors close to heavy duty motors that may cause the ceiling to vibrate.

CD-IR-HB

INFRA-RED FIXTURE INTEGRATED FOR HIGH BAY LIGHT

OVERVIEW:

- Detection radius range of up to 9m
- 1200W Rated Load
- 30 minutes maximum time setting
- DIP switch settings
- 2 year warranty

PRODUCT DESCRIPTION:

The product is a new energy-saving switch, it adopts good sensitivity detector, integrated circuit and SMT. It gathers automatism, convenient safe, energy-saving and practical functions.It utilises the infra-red energy from humans as control-signal source, it can start the load at once when one enters detection field.

SPECIFICATIONS	
Humidity	Max 95% RH
Light Control	10 - 300 Lux (adjustable)
Maximum Load (-40°C ~ +75°C)	Resistive Load = 1200W Electronic Ballast = 800W
PIR Len L1	9m @ 7m height / 360
PIR Len L2	9m @ 12m height / 360
Power Supply	120/277 Vac 50/60Hz
Temperature	-40°C ~ +75°C
Time Setting	220-240V

INSTALLATION GUIDE:

- Install sensors within their mounting height rating. This will ensure that the sensor function is at its full potential.
- Due to sensitivity to heat, it is sensitive to rapid change in temperature within detection range. Avoid mounting the sensor near any heating or cooling systems. The recommended distance from HVAC systems is 1.5m.
- There must be no obstructions from the sensor to the occupants as the sensor is a line-of-sight device.
- Blind spots- the further the distance the larger the blind spot which will be less sensitive to small movements. Keep sensor to close to the desired sensor zone and use more sensor to cover the area effeciently.
- Less sensitivity in hotter environments which may affect detection.
- High levels of vibration may cause false triggering. Avoid placing sensors close to heavy duty motors that may cause the ceiling to vibrate.

HVAC - CONTROL SWITCH

OVERVIEW:

- Connects to occupancy sensor
- Enables switching of lights and aircon
- Uncommitted contact for HVAC switch
- Separate timer provided for HVAC switch

PRODUCT DESCRIPTION:

Normal occupancy sensors only switch the lights off, leaving the air-conditioner running. The HVAC facilitates the switching of both lighting and HVAC circuits greatly increasing energy saving. The HVAC control gear is connected to any occupancy sensor, the lighting load and the air-conditioner. A separate timer is provided to enable the air-conditioner to switch off long after the lights are extinguished thereby preserving the room temperature.

The user can specify the delay which air conditioners etc will remain on after the occupancy sensor has switched the lights off. A buzzer will sound 3 minutes before the HVAC controller is about to switch the appliance off. Once the HVAC unit has switched the air-conditioner off, it will wait for movement to be detected by the occupancy sensor, if movement was detected it will restore power to the appliance.

SPECIFICATIONS	
Dimensions (L x W x H)	170 x 45 x 35mm
Mains Voltage	230Vac 50Hz +/- 10%
Maximum Switching Load	10 Amps
Maximum Ambient Temperature	+70°C
Switchable HVAC Display	30 / 60 / 90 / 120 minutes

UPS SYSTEMS

INTRODUCTION

The wide variety of Cosine Developments ES emergency lighting products are a rising product range unrivalled within the marketplace. It is the primary choice for lighting applications where full brightness is required on emergency for long durations of time. The lower wattage range (10W to 85W) are most used to power LED panels and other lighting systems off of battery backup. The high wattage ES range (100W to 200W) are most used on high power LED Hi-bays and LED Floods.

Our ES product range covers vast wattage ratings, ensuring that we have covered all possible customer requirements – wattages are as follows;

- ES10W
- 25W
- 40W
- 85W
- 100W
- 125W
- 150W
- 200W

The output voltage on the ES10W, 25W, 40W and 85W can be altered to either 230VAC (modified sine wave) or 300VDC – depending on the customers requirement. The ES100W, ES125W, 150W and 200W on the other hand are set at a 230VAC modified sine-wave output.

Upon ordering ES units ranging from 10W to 85W, it is required that the customer states what lamp or load they will be using. The decision will then be made as to whether we should supply a DC output or

ES10Wdc

EMERGENCY KIT FOR 230VAC LAMPS UP TO 10W

OVERVIEW:

- Emergency lighting for 230Vac lamps up to 10W
- 45 minutes to 3 hours emergency duration
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The ES-10W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 10W. Please note, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load-active circuitry varies from each brand, which could interfere with this emergency product. The 7.2V battery provides the power to the unit. A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries.

A red pilot light indicates that the batteries are being charged. The unit is housed in a self-extinguishing polycarbonate case, which includes a label of the wiring connection diagram. This unit can be supplied in a remote box as per customer requirement.

The batteries that are compatible with this unit are the 6x2 Ahr, and for longer duration the 6x4 Ahr- both being strictly nickel cadmium. Also compatible with 7.4V lithium-ion battery.

SPECIFICATIONS	
Battery Discharge Current	Up to 2A
Battery Type	7.2V Ni-cad / 7.4V Li-ion
Charging Current	200mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	170 x 45 x 35mm
Emergency Lighting Duration	45 minutes - 3 hours
Lamp Type	Certain ES or LED lamps up to 10W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Mains Voltage Range	110 to 250Vac
Maximum Ambient Temperature	+70°C

ES10Wac

EMERGENCY KIT FOR 230VAC LAMPS UP TO 10W

OVERVIEW:

- 100% emergency light output
- Emergency lighting for 230Vac lamps up to 10W
- 45 minutes to 3 hours emergency duration
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The ES-10W provides emergency operation for most 230V LED, ES lamp or any 230Vac device up to 10W. Lamps will deliver 100% light output in emergency mode.

The ES10Wac works in conjunction with a 7.2V NiCad battery or 7.4V lithium-ion battery. A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the batteries. A red pilot light indicates that the batteries are being charged. The unit is housed in a plastic case, which includes a wiring connection diagram. This unit can be supplied in a remote box as per customer requirement.

SPECIFICATIONS	
Battery Discharge Current	Up to 2A
Battery Type	7.2V Ni-cad / 7.4V Li-ion
Charging Current	200mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	250 x 45 x 35mm
Emergency Lighting Duration	45 minutes - 3 hours
Lamp Type	Certain ES or LED lamps up to 10W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Mains Voltage Range	110 to 250Vac
Maximum Ambient Temperature	+70°C

ES CONVERSION KIT

UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 25W

OVERVIEW:

- Emergency lighting for 230Vac devices up to 25W
- Emergency lighting for 1 hour
- Plastic enclosure with end caps
- Maintained or non-maintained
- 2 year warranty
- SABS approved

PRODUCT DESCRIPTION:

The ES Conversion Kit is now available with a plastic enclosure and end caps for easy and safe installations. The lithium-ion battery will provide a minimum of 1- hour emergency for 230Vac loads up to 25-watts. The ES Conversion kit is suitable for GU10, LED Tubes or 230Vac LED modules. This is an all-in-one solution so no remote box is necessary.

SPECIFICATIONS	
Battery Discharge Current	2A
Battery Type	11.1V Li-ion
Charging Current	200mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	215 x 42 x 28mm
Emergency Lighting Duration	1 hour
Lamp Type	Any ES, LED lamps or loads up to 25W
Mains Power Consumption	6VA
Mains Voltage	100 - 253Vac 50/60Hz
Mains Voltage Range	110 to 250Vac
Maximum Ambient Temperature	+45°C

ES25Wac | ES25Wdc

UPS SYSTEM FOR 230V DEVICES OR LAMPS UP TO 25W

OVERVIEW:

- Emergency power for 230 Vac devices up to 25W
- 1 to 3 hours emergency duration
- 100% emergency light output
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The ES-25W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 25W. Please note, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load - active circuitry varies from each brand, which could interfere with this emergency product. A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries. A red pilot light indicates that the batteries are being charged. The unit includes a label of the wiring connection diagram. This unit can be supplied in a remote box as per customer requirement.

The batteries that may be used with this unit are any 12V lead acid battery; or a 10x2Ahr or 10x4Ahr ni-cad battery, or 11.1V Lithium-ion, therefore please specify which battery type you will be using prior to ordering so that it may be modified accordingly.

SPECIFICATIONS	
Battery Discharge Current	Up to 3.5A
Battery Type	12V lead-acid, 10 x 2 or 10.28 Ahr, Ni-Cad, 11.1V Li-ion
Charging Current	>300mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	ES25Wac: 250 x 45 x 35mm ES25Wdc: 140 x 30 x 23mm
Emergency Lighting Duration	1 - 3 hours
Emergency Light Output	100%
Lamp Type	Any ES, LED lamps or loads up to 10W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	+70°C

ES40W

UPS SYSTEM FOR 230V DEVICES OR LAMPS UP TO 40W

OVERVIEW:

- 5 year warranty on inverter
- Provides emergency power for 230 Vac devices up to 40W (cellphone chargers, laptop chargers etc.)
- Emergency lighting for any ES or LED lamps up to 40W
- 1 to 3 hours emergency duration
- 100% emergency light output
- 220VAc modified output

PRODUCT DESCRIPTION:

The ES-40W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 40W. Please note, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load - active circuitry varies from each brand, which could interfere with this emergency product. A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries. A red pilot light indicates that the batteries are being charged.

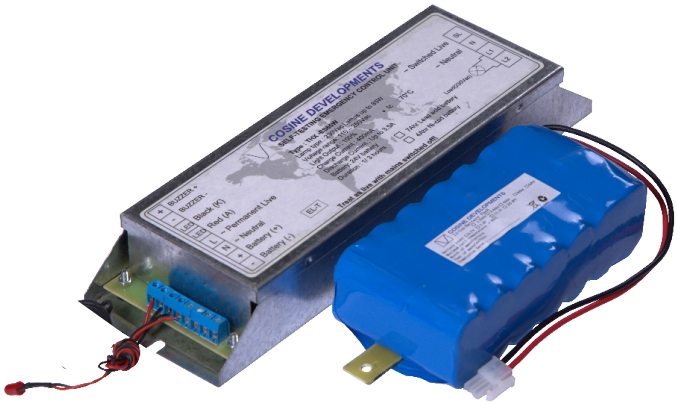
The unit is housed in an alu-zinc case, which includes a label of the wiring connection diagram. This unit can be supplied in a remote box as per customer requirement. The battery with this unit is a 11.1V Lithium-ion battery.

SPECIFICATIONS	
Battery Discharge Current	Up to 4A
Battery Type	11.1V Li-ion
Charging Current	>200mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	340 x 100 x 43mm
Emergency Lighting Duration	1 - 3 hours
Emergency Light Output	100%
Lamp Type	Any ES, LED lamps or loads up to 40W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	+70°C
Plug & Play Dimensions (L x W x H)	360 x 165 x 110mm

*Discharge currents may vary depending on lamp brands used.

ES85W

UPS SYSTEM FOR ANY 230VAC DEVICE OR LAMPS UP TO 85W



OVERVIEW:

- Emergency power for 230 Vac 85W device/lamps
- 1 to 3 hours emergency duration
- 100% emergency light output
- 230Vac modified output
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The ES-85W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 85W. Please note, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load - active circuitry varies from each brand, which could interfere with this emergency product.

The 24V battery provides the power to the unit. A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries. A red pilot light indicates that the batteries are being charged. The unit is housed in an alu-zinc case, which includes a label of the wiring connection diagram.

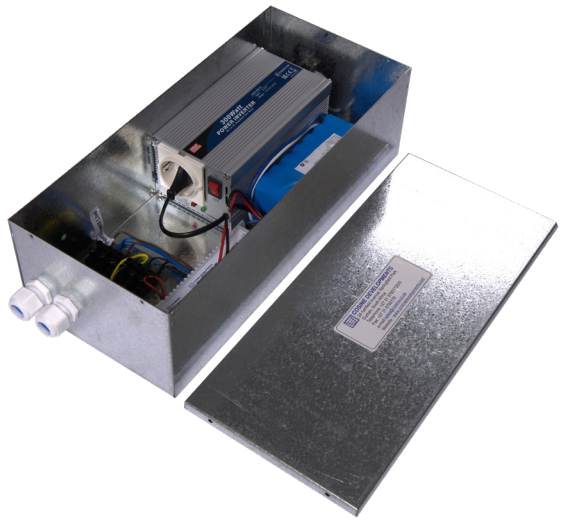
This unit can be supplied in a remote box as per customer requirement. This unit can either work off lead acid or li-ion batteries, therefore please specify which battery type you will be using prior to ordering so that it may be modified accordingly.

SPECIFICATIONS	
Battery Discharge Current	Up to 3.5A
Battery Type	24V lead -acid | 25.9V Li-ion
Charging Current	>300mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	250 x 78 x 40mm
Emergency Lighting Duration	1 - 3 hours
Emergency Light Output	100%
Lamp Type	Any ES, LED lamps or loads up to 85W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	+70°C
Plug & Play Dimensions (L x W x H)	360 x 165 x 110mm

*Discharge currents may vary depending on lamp brands used.

ES100W | ES125W PACK

UPS SYSTEM FOR ANY 230VAC DEVICE OR LAMPS UP TO 100W | 125W



OVERVIEW:

- Emergency power for 230 Vac 100W|125W device/lamps
- 1 hour emergency duration
- 100% emergency light output
- Perfectly suitable for LED Hi-Bays / LED Floods
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The ES-100W | 125W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 100W | 125W. Please note, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load - active circuitry varies from each brand, which could interfere with this emergency product. A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries. The unit is housed in an alu-zinc case.

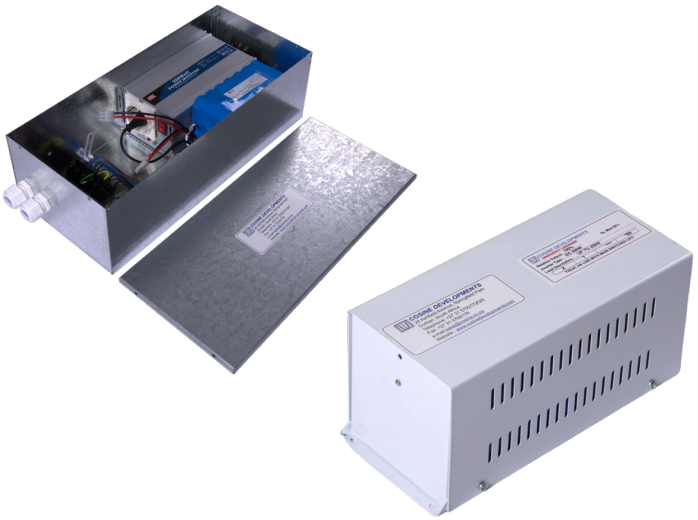
The batteries that are used with this unit are 2x12V 9Ahr Lead acid batteries or 25.9V Li-ion. The batteries that may be used with this unit are any 24V lead acid battery or 20x4Ahr Ni-Cad battery or 25.9V Li-ion. Please Note, it is recommended to use 2 x 12V lead acid batteries in series.

SPECIFICATIONS	
Battery Discharge Current	5A for the ES100W 6.5A for the ES125W
Battery Type	24V lead-acid, 25.9 Li-ion
Charging Current	>550mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	340 x 100 x 43mm
Emergency Lighting Duration	1 hour
Emergency Light Output	100%
Lamp Type	Any loads up tp 100W for ES100W Any loads up to 125W for ES125W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	+70°C
Plug & Play Dimensions (L x W x H)	360 x 165 x 110mm
Weight	6.6kg

*Discharge currents may vary depending on lamp brands used.

ES150W | ES200W PACK

UPS SYSTEM FOR ANY 230VAC DEVICE OR LAMPS UP TO 150W | 200W



OVERVIEW:

- Emergency power for 230 Vac 150W|200W device/lamps
- 1 hour emergency duration
- 100% emergency light output
- Perfectly suitable for LED Hi-Bays / LED Floods
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The ES-150W | 200W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 150W | 200W. Please note, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load - active circuitry varies from each brand, which could interfere with this emergency product.

A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries. The unit is housed in an alu-zinc case.

The batteries that must be used with this unit are 2x12V 12Ahr Lead acid batteries or 29.9V Lithium-ion.

SPECIFICATIONS	
Battery Discharge Current	8A for ES150W 10A for the ES200W
Battery Type	24V lead-acid, 29.9 Li-ion
Charging Current	>550mA
Charging Indication	Provided
Dimensions: Unit (L x W x H)	340 x 100 x 43mm
Emergency Lighting Duration	1 hour
Emergency Light Output	100%
Lamp Type	Any loads up to 150W for ES150W Any loads up to 200W fo ES200W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	+70°C
Plug & Play Dimensions (L x W x H)	AC (silver): 360 x 165 x 110mm DC (white): 260 x 110 x 115mm

*Discharge currents may vary depending on lamp brands used.

SWITCH LIVE ADAPTER

UPS SYSTEM FOR ANY 230VAC DEVICE OR LAMPS

PRODUCT DESCRIPTION:

The Switch Live Adapter is a device that allows you to switch off a load when there is only an unswitched live available. The most common use of the Switch live adapter comes when an Uninterruptable Power Supply is being used. Most UPS's are in-line inverters and do not have a switched live function which will enable you to switch your load off and on as required.

The Switch Live Adapter is wired up to the UPS and the associated load and has provision for a switch live connection. This meaning that you won't have to switch your load onto emergency whenever you switch off your device because your unswitched live will still be connected to the UPS.

SPECIFICATIONS	
Dimensions (L x W x H)	170 x 45 x 35mm
Mains Voltage	230V +/- 10%
Maximum Ambient Temperature	70°C
Maximum Load	50A

OMEGA CONVERSION KIT

CONSTANT CURRENT KIT

OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting kit for current driven LEDs with external drivers
- Percentage light output on emergency for 3 hours
- Built-in lithium-ion battery
- Easy installation - Plug and play
- 2 year warranty

PRODUCT DESCRIPTION:

The all in one OMEGA Conversion Kit provides constant current to any LED module or panel that requires a voltage between 10 - 300Vdc. It is housed in a plastic enclosure with male and female plugs for easy installation when using external drivers. The plastic enclosure has endcaps which means that a remote box is not required.

The OMEGA Conversion Kit is perfect when using down lights and panels. It has built-in lithium-ion cells to provide the emergency illumination.

Please note - the light output on emergency will vary depending on the wattage of lamps used. This unit may only be used in situations where the LED panel/module makes use of an external driver.

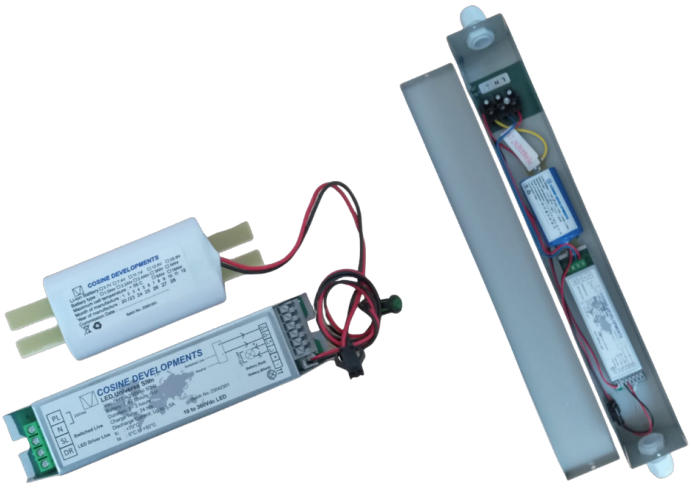
SPECIFICATIONS	
Battery Type	7.4V Li-ion
Dimensions (L x W x H)	215 x 42 x 28mm
Emergency Lighting Duration	Minimum 1 hour
Lamp Type	10 - 300Vdc LED
Mains Voltage	100 - 230Vac 50/60Hz
Maximum Ambient Temperature	+55°C
Output Voltage	10 - 300Vac

The OMEGA Conversion Kit complies with SANS 1464-22.

SABS APPROVED

LED UNIVERSE

CONSTANT CURRENT (2 CELL) KIT



OVERVIEW:

- 5 year warranty
- Emergency kit for modules/panels with external drivers
- Ni-cad and lithium-ion battery compatible

PRODUCT DESCRIPTION:

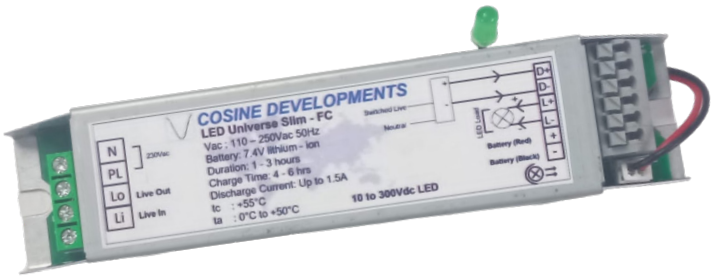
The LED Universe is used for modules or panels with external LED drivers. It can operate any LED's that has a forward voltage of 10 to 300V dc. The LED Universe is compatible with both, ni-cad and lithium-ion batteries. Lithium-ion Batteries offer better efficiency for emergency lighting. The batteries are smaller in size with higher capacity.

The LED Universe with lithium-ion batteries can offer longer duration during emergency mode with an added advantage of being costefficient. The emergency control gear can be installed into the luminaire providing the case temperature does not exceed 70°C when using ni-cad batteries or 55°C when using lithium-ion batteries. If the emergency control gear cannot fit into the luminaire, due to size or temperature, the emergency control gear can be supplied in a remote box.

SPECIFICATIONS	
Ambient Temperature ta	+55°C
Battery Charging Time	24 hours
Dimensions (L x W x H)	170 x 45 x 35mm
Mains Frequency	50Hz
Maximum Casing Temperature tc	70°C
Output Current	2A (max)
Output Forward Voltage Range	10 - 300V
Rated Supply Voltage	110 - 250Vac
Type of Protection	IP20

LED UNIVERSE FC

CONSTANT CURRENT (2 CELL) KIT



OVERVIEW:

- Designed and tested according to SANS 1464-22
- LED lamps [10-300Vdc] constant voltage
- Smaller compact design SMT
- 2 year warranty
- Fast charging

PRODUCT DESCRIPTION:

The LED Universe FC is designed to charge the battery within 3 – 6 hours depending on the capacity used. The unit provides constant current to any LED module or panel that requires a voltage between 10 – 300 Vdc. It must be used in conjunction with a 7.4V li-ion battery to provide the emergency illumination. Please note, the light output and duration on emergency will vary depending on the wattage of lamps used, as well as Ahr of the battery.

Please note, this unit may only be used in situations where the LED panel/module makes use of an external driver.

Due to the existence and continuation of load shedding within South Africa, of intervals as short as every 6 hours, Cosine Developments have designed an emergency gear range that ensures the batteries are charged within 6 hours. This is vital to ensure that the safe escape of building occupants is guaranteed by always ensuring there is sufficient emergency lighting during power failures.

SPECIFICATIONS	
Battery Type	7.4V Li-ion
Charge Time	3 - 6 hours
Dimensions (L x W x H)	140 x 30 x 23mm
Load Type	10 - 300Vdc LED
Rated Supply Voltage	230Vac 50/60Hz
Temperature Rating including battery	55°C
Type	LED Universe FC

LED UNIVERSE DELTA

CONSTANT CURRENT (2 CELL) KIT

OVERVIEW:

- LED lamps [10-300Vdc] constant voltage
- Designed and tested according to SANS 1464-22
- Smaller and compact design SMT
- 5 year warranty

PRODUCT DESCRIPTION:

The LED Universe Delta is used for modules or panels or LED tubes with onboard LED drivers. It can operate LED's that has a forward voltage of 10 to 300Vdc with internal circuits using low currents. Please note that loads must be testedfor compatibility before use.

The LED Universe Delta is compatible with both, ni-cad and lithium-ion batteries. Lithium-ion batteries offer better efficiency for emergency lighting. The batteries are smaller in size with higher capacity. The LED Universe with lithium-ion batteries can offer longer duration emergency mode with an added advantage of being cost-efficient. The emergency control gear can be installed into the luminaire providing the case temperature does not exceed 70°C when using ni-cad batteries or 55°C when using lithium-ion batteries. If the emergency control gear cannot fit into the Luminaire, due to size or temperature, the emergency control gear can be supplied in a remote box.

SPECIFICATIONS	
Ambient Temperature ta	+55°C
Battery Charging Time	24 hours
Dimensions (L x W x H)	170 x 45 x 35mm
Mains Frequency	50Hz
Maximum Casing Temperature tc	70°C
Output Current	2A (max)
Output Forward Voltage Range	10 - 300V
Rated Supply Voltage	110 - 253Vac
Type of Protection	IP20

LED HYDRA

CONSTANT CURRENT KIT

OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting kit for current driven LEDs
- High light output
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

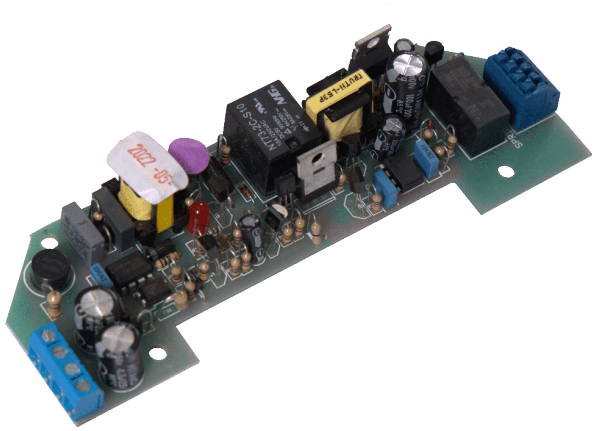
The LED Hydra emergency pack provides a constant current of 400mA - 500mA to any LED requiring a voltage from 30 to 56Vdc.

It uses a 24V 1Ahr nickel-cadmium or 25.9V Lithium-ion battery pack to provide a minimum of 1 hour emergency lighting duration - depending on the wattage of the lamp. The light output will vary depending on the wattage of lamps used. The unit complies with SANS-1464-22. This unit can only be used on LED lamps that have external constant current drivers.

SPECIFICATIONS	
Battery Type	24V Ni-Cad 25.9V Li-ion
Emergency Lighting Duration	Minimum 1 hour
Inverter Dimensions (L x W x H)	171 x 46 x 36mm
Lamp Type	LED 30 -56V
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	70°C
Output Current	400 - 500mA constant current from 30 - 56V

LED ORBIT

CONSTANT CURRENT (6 CELL) KIT



OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting kit for current driven LEDs
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The LED Orbit provides constant current to any LED module or panel that requires a voltage between 10 – 100V. It has to be used in conjunction with either a 6x2Ahr or 6x4Ahr ni-cad battery to provide the emergency illumination.

Designed for bulkhead applications. Also compatible with 7.4V lithium-ion battery. Please note, the light output on emergency will vary depending on the wattage of lamps used, as well as Ahr of the battery. The unit complies with SANS1464-22.

This unit may only be used in situations where the LED panel/module makes use of an integrated driver.

SPECIFICATIONS	
Battery Type	7.2V Ni-Cad | 7.4V Li-ion
Emergency Lighting Duration	Minimum 1 hour
Inverter Dimensions (L x W x H)	145 x 50 x 25mm
Lamp Type	Any LED 10 - 100V
Mains Voltage	100 - 253Vac 50/60Hz
Maximum Ambient Temperature	70°C
Output Current	10 -100 Volts

*Ranges from 20 – 200mA out (depending on the voltage of panel)

LED 20W CC

CONSTANT CURRENT KIT

OVERVIEW:

- Compatible with luminaires with external drivers and may work on internal drivers (if DOB is compatible)
- Provides up to 50% light output (depending on load applied)
- Wide voltage range
- 5 year warranty

PRODUCT DESCRIPTION:

The unit is housed in either a plastic or explosion proof housing upon request. A safety start circuit is provided which prevents emergency operation until the mains is connected and disconnected. This emergency control gear can also be supplied in a remote box format for easy installation.

The emergency control gear requires a 12V battery of either Ni-Cad, Lead-Acid or 11.1V Li-ion- dependent on request. A visible red pilot light indicates when the batteries are being charged.

SPECIFICATIONS	
Battery Discharge Current	Up to 2A
Battery Type	12V sealed Lead-Acid | Ni-Cad 10 cell | 11.1V Li-ion
Charging Current	>300mA
Charging Indication	Provided
Dimensions (L x W x H)	244 x 45 x 35mm
Emergency Lighting Duration	1 hour
Emergency Lighting Output	Up to 50% depending on load
Emergency Voltage Range	90 -300Vdc
Lamp Type	LED modules with drivers
Mains Power Consumption	10VA
Mains Voltage	230Vac +/- 10% 50Hz
Maximum Ambient Temperature	+70°C
Voltage Range	110 to 250Vac

LED 40W CC

CONSTANT CURRENT KIT

OVERVIEW:

- Compatible with luminaires with external drivers and may work on internal drivers (if DOB is compatible)
- Provides up to 50% light output (depending on load applied)
- Offers output voltage ranges from 90 to 320Vdc on emergency mode, which makes it compatible to most LED drivers
- 5 year warranty

PRODUCT DESCRIPTION:

The emergency control gear uses a 12V battery , Li-ion or NiCad battery types . A red pilot light shows that the batteries are being charged.

The unit is housed in an Aluzinc enclosure or Explosion proof housing if requested. A safety start circuit is provided which prevents emergency operation until the mains is disconnected. This emergency control gear can also be supplied in a remote box for easy installation.

SPECIFICATIONS	
Battery Discharge Current	Up to 4A
Battery Type	Ni-Cad 10 cell | 11.1V Li-ion
Charging Current	>300mA
Charging Indication	Provided
Dimensions (L x W x H)	275 x 50 x 40mm
Emergency Lighting Duration	1 hour
Emergency Lighting Output	Up to 50% depending on load
Lamp Type	LED modules with forward voltage of 90 to 320Vdc
Mains Power Consumption	10VA
Mains Voltage	230Vac +/- 10% 50Hz
Maximum Ambient Temperature	45°C
Voltage Range	110 to 253Vac

LED STAR

CONSTANT CURRENT KIT

OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting kit for current driven LEDs with external drivers
- Percentage light output on emergency for 3 hours
- Built-in lithium-ion battery
- 5 year warranty

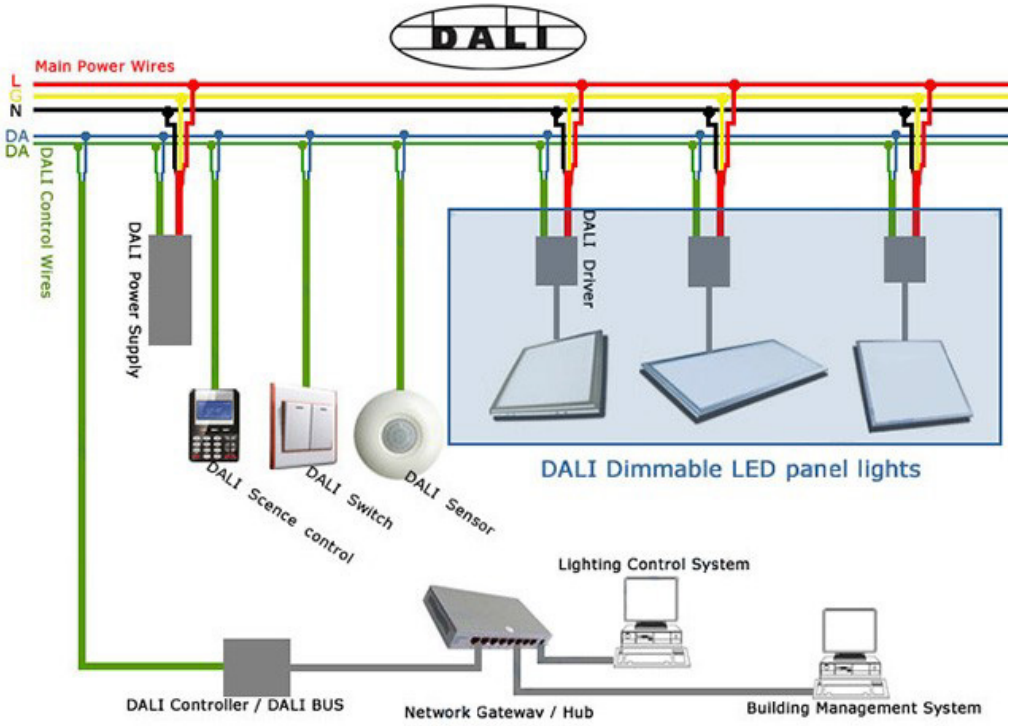
PRODUCT DESCRIPTION:

The LED Star provides constant current to LED modules, strips or panels that requires a voltage between 10 - 150 Vdc. It has a built-in single cell lithium-ion battery to provide the emergency duration.

The light output will vary depending on the wattage of load that is used. The LED Star is small in size which makes it ideal for bulkhead emergency control gears.

The unit also has a Delta version available which is compatible to most GU10 lamps or 230Vac modules and LED tubes.

SPECIFICATIONS	
Battery Type	3.7V Li-ion
Dimensions (L x W x H)	150 x 40 x 30mm
Emergency Lighting Duration	Minimum 1 hour
Lamp Type	Any LED between 10 -150 Volts
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Ambient Temperature	+45°C
Output Voltage	170V



INTRODUCTION

One of the most important factors regarding business growth is time management, this is applied in all aspects but can it be applied in the lighting field? According to the Occupational Health and Safety Act: Act 95 of 1993, emergency lighting must be provided in any workplace where there is an absence of natural light, and that these emergency units are systematically inspected once in at least 3 months.

This can hinder productivity while performing these tests due to its time consuming nature, as well as dangerous if not abided. Consider a business in an office block that has 60 light fittings installed. Every 3 months the legal requirement states that each and every one of those fittings must be left in emergency mode for the full duration, and all results must be recorded regarding the functionality of each fitting. This leads to massive amounts of time wasted watching and awaiting for the batteries to drain, which could take up to 4 hours on some units. Smart Products are the answer to the previously mentioned inconvenience and a solution to increase time management.

How do the Smart Products work? Smart Products [Digitally Addressable Lighting Interface] allow for the light operation to be controlled via a computer through a DALI link. Once software is installed, the user will then have full control at his/her disposal over the function of the lighting. Also, this allows for the functionality tests every 3 months to be no less than a breeze. Once the "test" button is clicked, all of the light fittings connected to the Smart Products link will then switch over to emergency mode and start the duration test. Once the test has completed, the user will then view a list of recorded results containing the statuses of each individual light fitting - this will indicate which light fittings passed or failed. There is an e-mail function available which instantaneously sends the list of results to any desired e-mail address upon completion of the test. We have a variety of Smart Products products ranging from exit signs to regular fluorescent emergency units.

SMART SWITCH

DALI CONTROLLED 8-AMP SWITCH

OVERVIEW:

- Provides uncommitted 230 Vac 8A contacts
- Enables switching of any load via the DALI link
- Can be addressed via automatic addressing
- Configurable via most DALI BMS systems
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The SMART SWITCH is a DALI compatible digitally addressable lighting interface switch control unit.

The SMART SWITCH is able to switch a maximum load of 8A. The unit complies with the Digital Addressable Lighting Interface (DALI) Standard IEC 62386 and is therefore compatible with all international interfaces. Its bi-directional bus uses standard protocol and can therefore be addressed by all reputable bridges.

This unit can be used to switch various items such as:

- Air-conditioner switching
- HID lamp control
- Security gates operation
- General lighting switching

SPECIFICATIONS	
DALI Line Loading	2mA (= one address)
Dimensions (L x W x H)	170 x 45 x 35mm
Mains Current Consumption	8mA
Mains Voltage	230V +/- 10%
Maximum Ambient Temperature	70°C
Maximum Load	8A

DIN SMART SWITCH

DALI CONTROLLED 8-AMP SWITCH

OVERVIEW:

- Provides uncommitted 230 Vac 8A contacts
- Enables switching of any load via the DALI link
- Can be addressed via automatic addressing
- Configurable via most DALI BMS systems
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The DIN SMART SWITCH is a DALI compatible digitally addressable lighting interface switch control unit. The DIN SMART SWITCH can switch a maximum load of 8A.

The unit complies with the Digital Addressable Lighting Interface (DALI) Standard IEC 62386 and is therefore compatible with all international interfaces. Its bi-directional bus uses standard protocol and can therefore be addressed by all reputable bridges.

This unit can be used to switch various items such as:

- Air-conditioner switching
- HID lamp control
- Security gates operation
- General lighting switching

SPECIFICATIONS	
DALI Line Loading	2mA (= one address)
Dimensions (L x W x H)	88 x 72 x 62mm
Mains Current Consumption	8mA
Mains Voltage	230V +/- 10%
Maximum Ambient Temperature	70°C
Maximum Load	8A

SMART TLX EMERGENCY PACK

A DALI ADDRESSABLE EMERGENCY KIT FOR FLUORESCENT LAMPS

OVERVIEW:

- Can be addressed via automatic addressing
- Configurable via most DALI BMS systems
- 1 hour emergency duration
- Provides emergency lighting for fluorescent lamps
- Controllable via the DALI link
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The SMART TLX is a DALI compatible digitally addressable lighting interface emergency control unit. The SMART TLX operates seamlessly like a TLX unit i.e. provides 20% light output for one hour with T8, T5 and Compact Fluorescent lamps. There are no functional differences from ordinary emergency lighting control units, so no special training is required for installation. The unit complies with the Digitally Addressable Lighting Interface (DALI) Standard IEC 62386 and is therefore compatible with all international interfaces. Its bi-directional bus uses standard protocol and can therefore be addressed by all reputable bridges.

The emergency function and system status can be addressed from a computer to perform tests to check system integrity. The SMART TLX uses a standard 5 x 2 Ahr high temperature nickel-cadmium battery pack and complies with SANS 1464-22 in terms of emergency performance, electrical safety and battery charging.

When performing a test and a fault is detected, the unit will end the test and record the fault, it will only report the fault once it is queried with various commands.

SPECIFICATIONS	
Ballast Output Protection	Yes, provided by mains/lamps switching delay
Battery	5 x 2 Ahr Ni-Cad
Charge Current	200mA
Charge Indication	Provided
Cut-Off Voltage	4.8V
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Duration	1 hour
Lamp Types	T8 6 - 58W | PL-C 9W | T5 54W
Mains Voltage	230V +/- 10%
Maximum Ambient Temperature	70°C

SMART TLX EMERGENCY PACK

A DALI ADDRESSABLE EMERGENCY KIT FOR FLUORESCENT LAMPS

OVERVIEW:

- Can be addressed via automatic addressing
- Configurable via most DALI BMS systems
- 1 hour emergency duration
- Provides emergency lighting for fluorescent lamps
- Controllable via the DALI link
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The Smart TLX has 2 types of test modes:

- A short function test that checks the functionality of the unit and checks the lamp and battery, the test lasts for 1 minute and 50 seconds.
- A long duration test, which lasts for 40 minutes and will help remove battery memory. This test also checks the lamp and battery for faults.

When performing a test and a fault is detected, the unit will end the test and record the fault, it will only report the fault once it is queried with various commands.

SMART LED UNIVERSE

A DALI ADDRESSABLE EMERGENCY KIT FOR LED FITTINGS

OVERVIEW:

- Provides emergency power for any constant current driven LED
- 1 hour emergency duration
- Controllable via the DALI link
- Configurable via most DALI BMS systems
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The LED SMART EMERGENCY PACK is a DALI compatible digitally addressable lighting interface emergency control unit. The LED SMART operates seamlessly like an LED Universe unit i.e providing emergency light output for one hour with any constant current driven LED string. There are no functional differences from ordinary emergency lighting control units, so no special training is required for installation. The unit complies with the Digitally Addressable Lighting Interface (DALI) Standard IEC 62386 and is therefore compatible with all international interfaces. Its bi-directional bus uses standard protocol and can therefore be addressed by all reputable bridges. The emergency function and system status can be addressed from a computer to perform tests to check system integrity.

The LED SMART EMERGENCY PACK uses a standard 7.2V Nicad Battery or 7.4V li-ion batteries and complies with SANS 1464-22 in terms of emergency performance, electrical safety and battery charging.

SPECIFICATIONS	
Battery Type	7.2V Ni-Cad | 7.4V Li-ion
Charge Current	200mA
Charge Indication	Provided
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Duration	1 hour
Lamp Types	10 - 100V constant current LED
Mains Voltage	230V +/- 10% 50 Hz
Mains Power Consumption	10VA
Maximum Ambient Temperature	70°C

SMART LED UNIVERSE (CONTINUED)

A DALI ADDRESSABLE EMERGENCY KIT FOR LED FITTINGS

OVERVIEW:

- Provides emergency power for any constant current driven LED
- 1 hour emergency duration
- Controllable via the DALI link
- Configurable via most DALI BMS systems
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The Smart TLX has 2 types of test modes:

- A short function test that checks the functionality of the unit and checks the lamp and battery, the test lasts for 1 minute and 50 seconds.
- A long duration test, which lasts for 40 minutes and will help remove battery memory. This test also checks the lamp and battery for faults.

When performing a test and a fault is detected, the unit will end the test and record the fault, it will only report the fault once it is queried with various commands.

LED 20W SMART

A DALI CONTROLLABLE LED EMERGENCY KIT

OVERVIEW:

- Emergency power for any constant current driven LED
- 1 hour emergency duration
- Controllable via the DALI link
- Configurable via most DALI BMS systems

PRODUCT DESCRIPTION:

The LED 20W SMART is a DALI compatible digitally addressable lighting interface emergency control unit. The LED 20W SMART operates seamlessly like a TLX unit i.e providing emergency light output for one hour with any constant current driven LED string. There are no functional differences from ordinary emergency lighting control units, so no special training is required for installation. The unit complies with the Digitally Addressable Lighting Interface (DALI) Standard IEC 62386 and is therefore compatible with all international interfaces. Its bi-directional bus uses standard protocol and can therefore be addressed by all reputable bridges. The emergency function and system status can be addressed from a computer to perform tests to check system integrity.

SPECIFICATIONS	
Battery Discharge Current	Up to 2.5A
Battery Type	11.1V Li-ion
Charging Current	200mA
Charging Indication	Provided
Dimensions (L x W x H)	320 x 48 x 44mm
Emergency Lighting Duration	1 hour
Emergency Lighting Output	Up to 50%
Lamp Type	90 - 300V Constant Current LED
Mains Power Consumption	10VA
Mains Voltage	230Vac +/- 10% 50Hz
Maximum Ambient Temperature	+70°C
Voltage Range	110 to 250Vac

LED 20W SMART (CONTINUED)

A DALI CONTROLLABLE LED EMERGENCY KIT

OVERVIEW:

- Emergency power for any constant current driven LED
- 1 hour emergency duration
- Controllable via the DALI link
- Configurable via most DALI BMS systems

PRODUCT DESCRIPTION:

The LED 20W SMART uses an 11.1V li-ion battery and complies with SANS 1464-22 in terms of emergency performance, electrical safety and battery charging. The LED 20W SMART offers 20-watts output on emergency mode with an output voltage of 90 - 300vdc. The LED 20W SMART has 2 types of test modes:

- A short function test that checks the functionality of the unit and checks the lamp and battery, the test lasts for 1 minute and 50 seconds.
- A long duration test, which lasts for 40 minutes and will help remove battery memory. This test also checks the lamp and battery for faults.

When performing a test and a fault is detected, the unit will end the test and record the fault, it will only report the fault once it is queried with various commands.

LED 40W SMART

A DALI CONTROLLABLE LED EMERGENCY KIT

OVERVIEW:

- Emergency power for any constant current driven LED
- 1 hour emergency duration
- Controllable via the DALI link
- Configurable via most DALI BMS systems

PRODUCT DESCRIPTION:

The LED 40W SMART is a DALI compatible digitally addressable lighting interface emergency control unit. The LED 40W SMART operates seamlessly like a TLX unit i.e providing emergency light output for one hour with any constant current driven LED string. There are no functional differences from ordinary emergency lighting control units, so no special training is required for installation. The unit complies with the Digitally Addressable Lighting Interface (DALI) Standard IEC 62386 and is therefore compatible with all international interfaces. Its bi-directional bus uses standard protocol and can therefore be addressed by all reputable bridges. The emergency function and system status can be addressed from a computer to perform tests to check system integrity.

SPECIFICATIONS	
Battery Discharge Current	Up to 4A
Battery Type	11.1V Li-ion
Charging Current	200mA
Charging Indication	Provided
Dimensions (L x W x H)	320 x 48 x 44mm
Emergency Lighting Duration	1 hour
Emergency Lighting Output	Up to 50%
Lamp Type	90 - 300V Constant Current LED
Mains Power Consumption	10VA
Mains Voltage	230Vac +/- 10% 50Hz
Maximum Ambient Temperature	+70°C
Voltage Range	110 to 250Vac

LED 40W SMART (CONTINUED)

A DALI CONTROLLABLE LED EMERGENCY KIT

OVERVIEW:

- Emergency power for any constant current driven LED
- 1 hour emergency duration
- Controllable via the DALI link
- Configurable via most DALI BMS systems

PRODUCT DESCRIPTION:

The LED 40W SMART uses an 11.1V li-ion battery and complies with SANS 1464-22 in terms of emergency performance, electrical safety and battery charging. The LED 40W SMART offers 40-watts output on emergency mode with an output voltage of 90 - 300vdc. The LED 40W SMART has 2 types of test modes:

- A short function test that checks the functionality of the unit and checks the lamp and battery, the test lasts for 1 minute and 50 seconds.
- A long duration test, which lasts for 40 minutes and will help remove battery memory. This test also checks the lamp and battery for faults.

When performing a test and a fault is detected, the unit will end the test and record the fault, it will only report the fault once it is queried with various commands.

FLUORESCENT LAMP EMERGENCY KITS

INTRODUCTION

With a variety of ballast and lamp choices, we have them all covered. There is an emergency option for lamps ranging from 6Watts to 80Watts, with light outputs ranging from 5% to 100% and durations lasting as long as 4 hours and above if needed.

EMERGENCY CONTROL BALLASTS DISCLAIMER

Warnings and Important Information Regarding Fluorescent Emergency Gear

It is important to note that excessive switching of the fitting from mains to emergency will accelerate the blackening of the ends of the fluorescent lamps - this is even further exacerbated when the lamp is cold and forced onto emergency.

Please take note of important points below which could cause rapid lamp failure:

Lamps will fail at a higher rate when there are frequentpower outages.

No permanent live wire connection, the input power for the emergency ballast is connected to the switched live. This will result in the luminaire switching to emergency mode every time the switched live power is turned off – as at the end of work day.

Failures on new building construction sites are usually due to the main distribution board being turned off at end of work day or frequently turned off due to other electrical installations. Therefore, it is advised to only switch the permanent live “on” when the building is complete.

TLX

FLUORESCENT LAMP EMERGENCY KIT

OVERVIEW:

- Maintained or non-maintained operation
- Approx. 20% emergency lighting for 1 - 3 hours
- Emergency lighting kit for fluorescent lamps from 6 to 65 Watts
- Slim version for narrow light fittings
- Potted version for explosion proof fittings
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The TLX range of emergency control units cover all axial fluorescent lamps as well as four pin compact types from 6 to 65 Watts.

The following versions provide an emergency lighting duration of either one or three hours:

VERSION	BALLAST TYPES	DURATION	BATTERY PACK [Ni-Cad/Li-ion]	FLUORESCENT LAMPS
TLX5/1hr	Switch Start	1 hour	5 x 2 Ahr cells	up to 65 Watts
TLX5/1hr	Switch Start	1 hour	7.4W 2400mA Li-ion	up to 65 Watts
TLX5/3hr	Switch Start	3 hours	5 x 4 Ahr cells	up to 65 Watts
TLX5/3hr	Switch Start	3 hours	7.4V 4800mA	up to 65 Watts
TLX5/1hr/E	All	1 hour	5 x 2 Ahr cells	up to 65 Watts
TLX5/3hr/E	All	3 hours	5 x 4 Ahr cells	up to 65 Watts

The TLX range of emergency control units cover all axial fluorescent lamps as well as four pin compact types from 6 to 65 Watts.

The units comply with BS EN 60598-2-22, BS EN 60924 and SABS 1464: Part 22. Either maintained or nonmaintained mode can be used. A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the batteries.

A red light indicates that the batteries are being charged. The unit is housed in a high quality glass sphere reinforced polyamide polymer. This material has excellent high heat resistance and impact strength properties. The emergency light output is sufficient to satisfy most escape route and anti-panic area lighting requirements. The unit can be used with conventional switch start, electronic or dimming ballasts.

Note 1: The emergency lighting duration and light output may vary due to ambient temperature, cell type and lamp manufacturer.

Note 2: Any unit may be ordered in an explosion proof, potted housing (Zone 2 fitting).

TL40/65 50%

HIGH LIGHT OUTPUT EMERGENCY KIT

OVERVIEW:

- Emergency lighting kit for fluorescent lamps from 6 to 65 Watts
- Maintained or non-maintained operation
- 1 hour emergency lighting duration
- High emergency light output - 50%
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

The TL40 (TL65) emergency control unit provides 50% light output for one hour using either a 36 Watt or 40 Watt (58 Watt or 65Watt) fluorescent lamp. The unit complies with SABS 1464 Part 22 and therefore provides all necessary battery charging, low voltage cut-off, protection and performance criteria. A battery pack of 5 x 4 Ahr (8 x 4 Ahr) nickel-cadmium or li-ion cells is required.

The unit provides an output of 20 Watts (30 Watts) and could therefore be factory set to drive other lamps. For example: 100% emergency light output could be provided using a 20 Watt (30 Watt) fluorescent lamp. The light output may vary depending upon lamp type, ambient temperature, mains voltage and ballast, and so the light output must be measured to ensure compliance to SABS 1464 Part 22. A 10% variation must also be allowed for production spread in control units.

Either maintained or non-maintained mode can be used. A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the batteries. A red pilot light indicates that the batteries are being charged. The case material has excellent high heat resistance and impact strength properties and includes a wiring connection diagram.

The TL40_1/E and TL65_1/E can be used with any ballast type (switch start, electronic control gear or dimming circuits) to provide 50% light output with either a 36 Watt or 58 Watt lamp. The unit incorporates a ballast switching relay to ensure proper lamp re-ignition in instances where only the permanent mains supply is interrupted to test the emergency lighting system.

Note 1: Any version can be ordered with a standby switch option. This feature enables the emergency light function to be inhibited during a power failure thereby conserving battery energy. The standby switch cable must be no longer than two metres.

Note 2: Any version can be ordered in an explosion proof, potted housing (Zone 1 / 2 fitting).

TL4O/65 5O% (CONTINUED)

HIGH LIGHT OUTPUT EMERGENCY KIT

OVERVIEW:

- Emergency lighting kit for fluorescent lamps from 6 to 65 Watts
- Maintained or non-maintained operation
- 1 hour emergency lighting duration
- High emergency light output - 50%
- 5 year warranty on inverter

SPECIFICATIONS	
Battery Current Consumption	7.2V Ni-Cad | 7.4V Li-ion
Battery Requirements	7.4V (11.1V) Li-ion 6V (9.6V) nickel-cadium cells
Battery Short Circuit Tolerance	Indefinite
Charging Current	190mA
Charging Indication	Provided
Deep Discharge Protection	4V (7V)
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Lighting Duration	> 1 hour
Lamp Types	36 or 40W (58 or 65W) fluorescent lamps (also T5/lamps)
Light Output Relative to Mains	50%
Mains Voltage	100 - 253Vac 50/60 Hz
Mains Power Consumption	<4VA
Maximum Operating Temperature	+70°C
Queiscent Current	<1µA
Weight	326g

PLX

EMERGENCY KIT FOR 2 PIN COMPACT FLUORESCENT LAMPS

OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting kit for 2 pin CFL's from 5W - 2D16W
- 40-100% emergency lighting for 1 or 3 hours
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

This maintained inverter can be used for two pin compact fluorescent lamps from 5 to 16W. It is possible to use this unit where two 9W lamps are powered from one ballast. One hour or three hours of emergency lighting is provided. 6V ni-cad or 7.4V li-ion batteries can be used with the 5, 9, 11, 13 and 2D16W lamps. No changes to the inverter are necessary for any of the above combinations. The inverter's small external dimensions make it suitable for small luminaires.

A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or unnecessarily depleting the batteries. A red light is provided to indicate that the batteries are being charged and that they are in a healthy condition. Deep discharge protection is provided. The unit is available in both covered and open circuit board configurations. A remote box option is available if high temperatures or small dimensions within the proposed luminaire will result in poor reliability or an illegal installation (i.e., in contravention of SABS Specifications) but wiring between inverter and lamp must be less than three metres.

SPECIFICATIONS	
Battery Type	7.2V Ni-Cad | 7.4V Li-ion
Charging Current	(200mA) 100mA
Cold Lamp Starting (all amps)	>5V
Current Consumption	1 - 1.4 A
Dimensions (L x W x H)	154 x 53 x 30mm
Lamp Types	5, 9, 11, 13 and 2D 16W (2 pin CFL's)
Lighting Duration	(3 hours) 1 hour
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Operating Temperature	+70°C
Power Conversion Efficiency	>5V
Queiscent Current	<20µA
Weight	150g

PLX (CONTINUED)

EMERGENCY KIT FOR 2 PIN COMPACT FLUORESCENT LAMPS

OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting kit for 2 pin CFL's from 5W - 2D16W
- 40-100% emergency lighting for 1 or 3 hours
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

Note 1:

Luminaire/emergency gear compatibility must be ascertained before use. Lamp starting must be tested in non-maintained mode (i.e., lamp off whilst charging) using a fresh battery pack. All metal surfaces in the luminaire must be connected to the "EARTH" terminal to assist starting. For best operation only bulkhead type fittings, where the lamp is parallel to a metal surface, should be used for both maintained and non-maintained modes. No restrictions apply to sustained operation (i.e., where the lamp is permanently on).

Note 2:

The emergency lighting duration may vary due to cell temperature and lamp type as well as cell manufacturer.

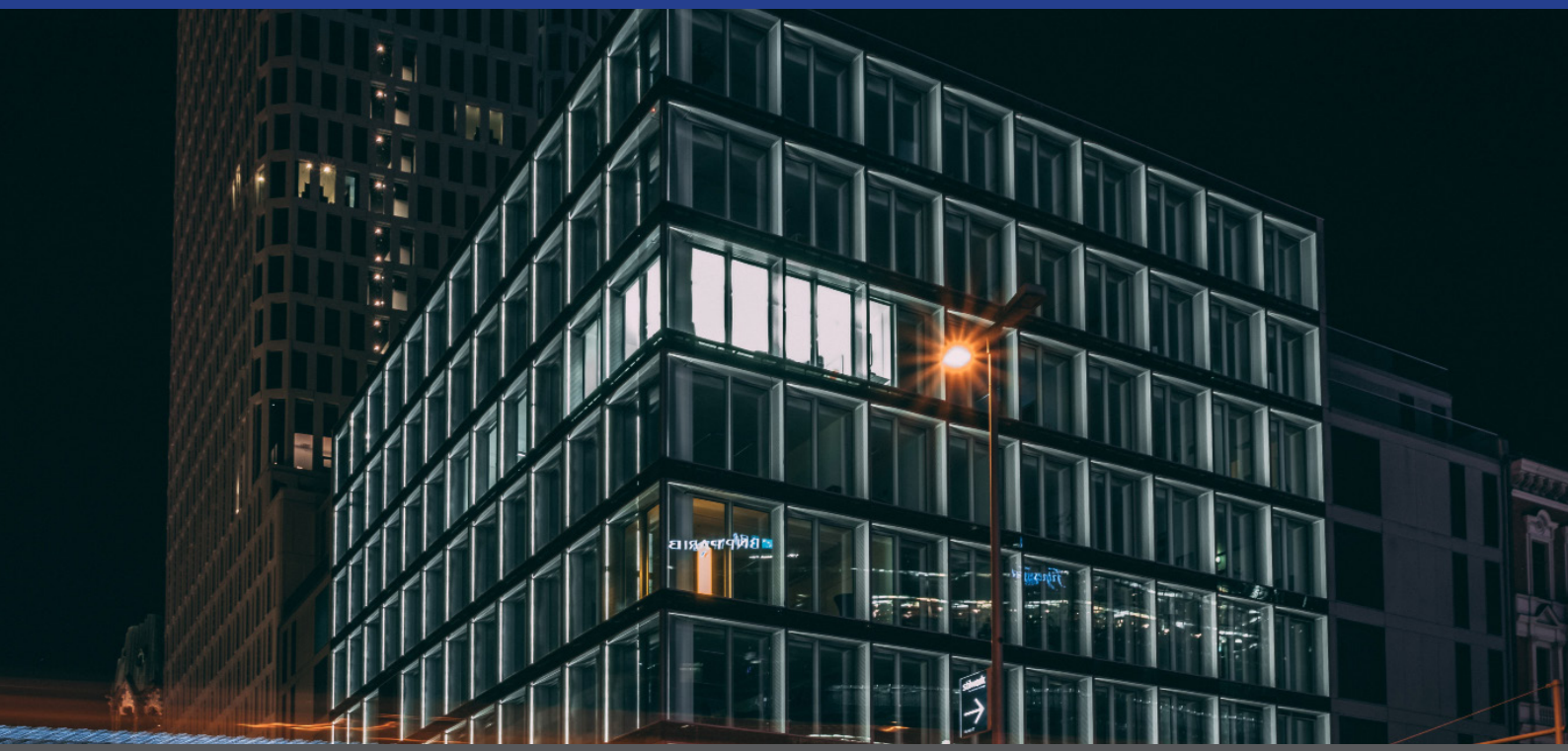
Note 3:

Any version can be ordered with a standby switch option. This feature enables the emergency light function to be inhibited during a power failure thereby conserving battery energy. The standby switch cable must be no longer than two metres.

Often it is not possible to cram the emergency gear into the light fitting. It is also not desirable to expose the electronics and batteries to the high temperatures inside small luminaries. In these cases the remote box (above) should be used. The remote box houses the electronics and batteries and is positioned near to the luminaire. Two 20mm cable entry holes are provided.

PERFORMANCE:			
LAMP TYPE	LIGHT OUTPUT	BATTERY CURRENT	APPROX. DURATION
2D16W	40%	1.1A	1.8 hours
13W	60%	1.1A	1.8 hours
11W	70%	1.1A	1.8 hours
9W	80%	1.0A	1.8 hours

SELF-TESTING EMERGENCY LIGHTING



INTRODUCTION

Do you know that the OHS Act (Act 85:1993) makes it illegal not to have emergency lighting and requires testing, at least every three months, of all emergency lighting? Do you know that the VC 8055 states that it is illegal to use emergency lighting that does not comply with SANS 1464:22? How can you possibly test every emergency light without seriously disrupting your business?

COSINE DEVELOPMENTS self-testing emergency lighting gear. Designed specifically for South African conditions (i.e., tough and simple to use), a built-in computer chip automatically conducts regular tests and reports faults, if any, thereby saving hours of unnecessary maintenance. Our products have proven their effectiveness after successful installation of many thousands of units over many years.

We have the widest range of self-testing emergency lighting products designed specifically to satisfy the new SABS specification (SANS 62034:2006). Self-testing gear can be fitted into most fluorescent lamp or LED luminaries in partnership with almost any ballast type to satisfy SANS 1464:22. Emergency light outputs can be factory set from 20% to 100%.

The self-testing facility exercises the batteries and establishes lamp condition on a regular basis. Automatic tests are conducted on a monthly basis with full functional tests every 6 months. The monthly tests, of two minutes duration, establish battery and lamp condition whilst the 6 monthly tests last 40 minutes in order to remove battery memory effects. System faults are reported via both audible and visual means.

The COSINE DEVELOPMENTS self-testing systems offer the most cost effective method of establishing system preparedness. Only the centralized Digital Addressable Lighting Interface products offered by COSINE DEVELOPMENTS offer easier system monitoring. The lamp indication codes and buzzer sounds are given below:

FAULT TYPE	LED CODE		BUZZER
Mains is on and the system is OK	No flashing, LED continuously burning	●●●●●●●●	Off
Battery voltage low	Continuous flashing	●○●○●○●○ 🔊	Beep every hour
Low capacity battery	Two flashes followed by a pause	●○●○○○○○ 🔊	Beep every hour
Lamp fault	One flash followed by a pause	●○○○○○○○ 🔊	Beep every hour
No mains	LED off	○○○○○○○○	Off

THX LED UNIVERSE

SELF-TESTING EMERGENCY FOR LED PANELS/STRIPS

OVERVIEW:

- Maintained or non-maintained operation
- Auto. self-testing feature with audible and visual tactics
- Emergency lighting kit for 10 to 300Vdc LEDs
- Emergency lighting for 1 - 3 hours
- 5 year warranty

PRODUCT DESCRIPTION:

The THX LED Universe provides emergency operation for LED panels, strips, modules that uses an external LED driver with an output current of lower than 2Amps (2000mA). Any load with a forward voltage of 10 to 300Vdc may be driven on emergency mode. The output power of the THX LED Universe ranges from 6 to 8 watts. The THX LED Universe provides a percentage light output on emergency mode. The percentage output on emergency mode will be determined by the wattage of the load connected. The THX LED Universe provides a minimum of 1-hour emergency operation.

The THX LED Universe has a self-testing function that will cycle the battery every month and perform automatic tests. These tests will check the status of the battery and the load connected to the emergency control unit and signal any faults via the LED and the buzzer.The monthly tests, of two-minute durations, establish lamp condition whilst the 6th month tests last 40 minutes to check battery capacity. System faults are reported via both audible and visual means. A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the battery . A red pilot light indicates that the batteries are being charged. The unit is housed in a plastic case, which includes a wiring diagram.

SPECIFICATIONS	
Battery Type	7.4V Li-ion
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Lighting Duration	Minimum 1 hour
Lamp Type	10 to 300Vdc LED modules
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Ambient Temperature	+45°C
Output Voltage	10 - 300Vdc

THX LED UNIVERSE (CONTINUED)

SELF-TESTING EMERGENCY FOR LED PANELS/STRIPS

OVERVIEW:

- Maintained or non-maintained operation
- Auto. self-testing feature with audible and visual tactics
- Emergency lighting kit for 10 to 300Vdc LEDs
- Emergency lighting for 1 - 3 hours
- 5 year warranty

PRODUCT DESCRIPTION:

The indicating lamp reports the status of the batteries and the lamp by flashing at different intervals. An audible alarm emits a beep every hour of a five seconds duration if a system fault is detected. The built-in computer establishes whether the lamp is faulty, the if batteries have lost capacity due to ageing. The user can now be aware on any problems with the emergency lighting system before power failures and not during them. The built-in computer prohibits deep discharging of the batteries.

This type of inverter is now becoming mandatory in Europe because users need to guarantee that the emergency lighting is always fully functional. The inverter satisfies the requirements as defined in SABS 598-1 (Luminaires: General requirements and tests) and will satisfy SABS 1464 PART 22 (Safety of luminaires: Luminaires for emergency lighting).

FAULT TYPE	LED CODE		BUZZER
Mains is on and the system is OK	No flashing, LED continuously burning	●●●●●●●●	Off
Battery voltage low	Continuous flashing	●○●○●○●○	Beep every hour
Low capacity battery	Two flashes followed by a pause	●○●○○○○○	Beep every hour
Lamp fault	One flash followed by a pause	●○○○○○○○	Beep every hour
No mains	LED off	○○○○○○○○	Off

NOTES:

The unit may be installed without the buzzer connected if necessary.

Only connect the batteries after a permanent supply is established i.e, do not switch the unit on and off with the batteries connected during installation as this may cause damage and false error reporting.

Faults may be cleared by switching off the permanent mains supply and temporarily disconnecting the batteries. This action will reset the internal computer chip.

After corrective action i.e, replacing faulty lamp or batteries, faults should automatically clear after the next scheduled test.

Never attempt to replace the lamp during a self-test or whilst the unit is in emergency mode. This action may cause damage and false error reporting.

THX LED HYDRA

SELF-TESTING EMERGENCY FOR LED PANELS/STRIPS

OVERVIEW:

- Maintained or non-maintained operation
- Auto. self-testing feature with audible and visual tactics
- Emergency lighting kit for 30 to 56Vdc LEDs
- Emergency lighting for 1 - 3 hours
- 5 year warranty

PRODUCT DESCRIPTION:

The THX LED Hydra provides emergency operation for LED panels, strips, modules that uses an external LED driver. Any load with a forward voltage of 30 to 56Vdc and a current rating of a minimum of 500mA may be driven on emergency mode. The THX LED Hydra provides 450 to 500mA output on emergency mode. The percentage output on emergency mode will be determined by the wattage of the load connected. THX LED Hydra provides a minimum of 1 hour emergency operation.

The THX LED Hydra has a self-testing function that will cycle the battery every month and perform automatic tests. These tests will check the status of the battery and the load connected to the emergency control unit and signal any faults via the LED and the buzzer.

The monthly tests, of two-minute durations, establish lamp condition whilst the 6th month tests last 40 minutes to check battery capacity. System faults are reported via both audible and visual means. A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the battery . A red pilot light indicates that the batteries are being charged. The unit is housed in a plastic case, which includes a wiring diagram.

SPECIFICATIONS	
Battery Type	25.9V Li-ion
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Lighting Duration	Minimum 1 hour
Lamp Type	30 to 56Vdc LED modules
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Ambient Temperature	+45°C
Output Voltage	10 - 300Vdc

THX LED HYDRA (CONTINUED)

SELF-TESTING EMERGENCY FOR LED PANELS/STRIPS

OVERVIEW:

- Maintained or non-maintained operation
- Auto. self-testing feature with audible and visual tactics
- Emergency lighting kit for 30 to 56Vdc LEDs
- Emergency lighting for 1 - 3 hours
- 5 year warranty

PRODUCT DESCRIPTION:

The indicating lamp reports the status of the batteries and the lamp by flashing at different intervals. An audible alarm emits a beep every hour of a five seconds duration if a system fault is detected. The built-in computer establishes whether the lamp is faulty, the battery voltage is low (shorted cell) and if the batteries have lost capacity due to ageing. The user can now be aware on any problems with the emergency lighting system before power failures and not during them. The periodic use of the batteries also prolongs their life. The built-in computer prohibits deep discharging of the batteries.

This type of inverter is now becoming mandatory in Europe because users need to guarantee that the emergency lighting is always fully functional. The inverter satisfies the requirements as defined in SABS 598-1 (Luminaires: General requirements and tests) and will satisfy SABS 1464 PART 22 (Safety of luminaires: Luminaires for emergency lighting).

FAULT TYPE	LED CODE		BUZZER
Mains is on and the system is OK	No flashing, LED continuously burning	●●●●●●●●	Off
Battery voltage low	Continuous flashing	●○●○●○●○	Beep every hour
Low capacity battery	Two flashes followed by a pause	●○●○○○○○	Beep every hour
Lamp fault	One flash followed by a pause	●○○○○○○○	Beep every hour
No mains	LED off	○○○○○○○○	Off

NOTES:

The unit may be installed without the buzzer connected if necessary.

Only connect the batteries after a permanent supply is established i.e, do not switch the unit on and off with the batteries connected during installation as this may cause damage and false error reporting.

Faults may be cleared by switching off the permanent mains supply and temporarily disconnecting the batteries. This action will reset the internal computer chip.

After corrective action i.e, replacing faulty lamp or batteries, faults should automatically clear after the next scheduled test.

Never attempt to replace the lamp during a self-test or whilst the unit is in emergency mode. This action may cause damage and false error reporting.

THX - 1HR / E

SELF-TESTING EMERGENCY KIT

OVERVIEW:

- Maintained or non-maintained operation
- Auto. self-testing feature with audible and visual tactics
- Emergency lighting kit for 6 to 65W
- 20 % Emergency lighting for 1 - 3 hours
- 5 year warranty

PRODUCT DESCRIPTION:

FLUORESCENT VERSIONS:

THX_1hr:	one hour emergency duration for switch start ballasts.
THX_3hrs:	three hours emergency duration for switch start ballasts.
THX_1/3hr/E:	1-3 hour emergency lighting duration for all ballasts switch start, electronic control gear and dimming circuits).
THX_1/E HP(40W):	for 40W 4 ft fluorescent lamp 50% for 4 ft lamp for electronic control gear
THX_1/E HP(65W):	for 65W 5 ft fluorescent lamp 50% for 5ft lamp. Suitable for switch start and electronic control gear
THX 40/65W 100% E 100%:	light output for a 4ft or 5ft fluorescent tube, can also give off 50% for a duration of 2 hours for a 4ft or 5ft fluorescent tub

FEATURES:

- Automatic tests reduce maintenance requirements.
- Single unit construction for reduced wiring requirements.
- In a multi lamp fitting only one lamp is affected during tests.
- Satisfies SABS 1464 Part 22.

The indicating lamp reports the status of the batteries and the lamp by flashing at different intervals. An audible alarm emits a beep every hour of five seconds duration if a system fault is detected. The built in computer establishes whether the lamp is old, the lamp connections are sound, the battery voltage is low (shorted cell), the battery voltage is too high (old batteries) and if the batteries have lost capacity due to ageing.

The user can now be aware of any problems with the emergency lighting system before power failures and not during them. The periodic use of the batteries also prolongs their life. The built in computer also prohibits deep discharging of the batteries. This type of inverter is now becoming mandatory in Europe because users needs some guarantee that the emergency lighting is fully functional at all times.

THX - 1HR / E (CONTINUED)

SELF-TESTING EMERGENCY KIT

OVERVIEW:

- Maintained or non-maintained operation
- Auto. self-testing feature with audible and visual tactics
- Emergency lighting kit for 6 to 65W
- 20 % Emergency lighting for 1 - 3 hours
- 5 year warranty

PRODUCT DESCRIPTION:

The inverter satisfies the requirements as defined in SABS 598-1 (Luminaries: General requirements and tests) and will satisfy SABS 1464 PART 22 (Safety of luminaires: Luminaires for emergency lighting).

SPECIFICATIONS	
Battery Requirements	6V Ni-Cad
Emergency Lighting Duration	1 hour (3 hours)
Emergency Light Output	See chart above
Lamp Type	8 to 65W linear lamps and four-pin compact lamps
Mains Power Consumption	< 3VA
Mains Voltage Tolerance	100 - 253Vac 50/60 Hz
Maximum Operating Temperature	+70°C
Weight	300-365g
Physical Size (L x W x H)**:**	
HP2&1E	247 x 44 x 36mm
1 hour	191 x 43 x 36mm
3 hours	200 x 46 x 36mm

THX ES10W

SELF-TESTING UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 10W

OVERVIEW:

- Auto. self-testing feature with audible and visual status
- Emergency lighting kit for 230Vac lamps from 3 to 10W
- 100% emergency lighting for 45 mins to 3 hours
- 7.4V 2400mA li-ion battery
- Maintained or non-maintained operation
- 5 year warranty

PRODUCT DESCRIPTION:

The THX_ES10W provides emergency operation for one hour duration on using 230V ES, GU10 or 230Vac device up to 10W load. Lamps will deliver 100% light output in emergency mode. This level of light output means that the THX_ES10W becomes a perfect choice when high output emergency lighting is required to provide good visibility for emergency situations in an exterior or interior application when using a single ES or GU10 lamp.

This emergency lighting control unit incorporates a self testing facility that exercises the batteries and establishes lamp condition on a regular basis. Automatic tests are conducted monthly with full functional tests every 6 months. The monthly tests, of two minute durations, establish battery and lamp condition whilst the 6th month tests last 40 minutes to remove battery memory effects. System faults are reported via both audible and visual means.

A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the battery. A red pilot light indicates that the batteries are being charged. The unit is housed in a plastic case, which includes a wiring connection diagram.

FEATURES:

- Automatic tests reduce maintenance requirements.
- Single unit construction for reduced wiring requirements.
- Satisfies SABS 1464 Part 22.

SPECIFICATIONS	
Battery Type	7.5V Ni-Cad
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Lighting Duration	minimum 45 minutes
Lamp Type	230Vac load up to 10W
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Ambient Temperature	+70°C
Output Voltage	300Vdc

THX ES10W (CONTINUED)

SELF-TESTING UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 10W

OVERVIEW:

- Auto. self-testing feature with audible and visual status
- Emergency lighting kit for 230Vac lamps from 3 to 10W
- 100% emergency lighting for 45 mins to 3 hours
- 7.4V 2400mA li-ion battery
- Maintained or non-maintained operation
- 5 year warranty

PRODUCT DESCRIPTION:

The indicating lamp reports the status of the batteries and the lamp by flashing at different intervals. An audible alarm emits a beep every hour of five seconds duration if a system fault is detected. The built-in computer establishes whether the lamp is faulty, the battery voltage is low (shorted cell) and if the batteries have lost capacity due to ageing. The user can now be aware of any problems with the emergency lighting system before power failures and not during them. The periodic use of the batteries also prolongs their life.

The built-in computer also prohibits deep discharging of the batteries. This type of inverter is now becoming mandatory in Europe because users' needs some guarantee that the emergency lighting is always fully functional.

The inverter satisfies the requirements as defined in SABS 598-1 (Luminaires: General requirements and tests) and will satisfy SABS 1464 PART 22 (Safety of luminaires: Luminaires for emergency lighting).

FAULT TYPE	LED CODE		BUZZER
Mains is on and the system is OK	No flashing, LED continuously burning	●●●●●●●●	Off
Battery voltage low	Continuous flashing	●○●○●○●○ 🔊	Beep every hour
Low capacity battery	Two flashes followed by a pause	●○●○○○○○ 🔊	Beep every hour
Lamp fault	One flash followed by a pause	●○○○○○○○ 🔊	Beep every hour
No mains	LED off	○○○○○○○○	Off

NOTES:

The unit may be installed without the buzzer connected if necessary.

Only connect the batteries after a permanent supply is established i.e, do not switch the unit on and off with the batteries connected during installation as this may cause damage and false error reporting.

Faults may be cleared by switching off the permanent mains supply and temporarily disconnecting the batteries. This action will reset the internal computer chip.

After corrective action i.e, replacing faulty lamp or batteries, faults should automatically clear after the next scheduled test.

Never attempt to replace the lamp during a self-test or whilst the unit is in emergency mode. This action may cause damage and false error reporting.

THX ES25W

SELF-TESTING UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 25W

OVERVIEW:

- Auto self-testing feature with audible and visual status
- Emergency lighting kit for 230Vac lamps from 3 to 25W
- 100% emergency lighting for 1 or 3 hours
- Maintained or non-maintained operation
- 5 year warranty

PRODUCT DESCRIPTION:

The THX ES25W provides emergency operation for one hour duration using 230V ES, LED lamp or 230Vac device up to 25W load. Lamps will deliver 100% light output in emergency mode. This level of light output means that the THX ES25W becomes a perfect choice when high output emergency lighting is required to provide good visibility foremergency situations in an exterior or interior application when using a single ES lamp.

This emergency lighting control unit incorporates a self testing facility that exercises the batteries and establishes lamp condition on a regular basis. Automatic tests are conducted monthly with full functional tests every 6 months. Themonthly tests, of two minutes duration, establish battery and lamp condition whilst the 6th month tests last 40 minutes to remove battery memory effects. System faults are reported via both audible and visual means.

A 12V battery provides the power to the unit for the emergency operation. A safety start circuit is provided that prevents emergency operation until mains is connected. This enables installation without disconnecting or depleting the batteries. A red pilot light indicates that the batteries are being charged. The unit is housed in an alu-zinc case, which includes a wiring connection diagram.

SPECIFICATIONS	
Battery Discharge Current	2.2A
Charging Current	>300mA
Charging Indication	Provided
Battery Type	11.1V Li-ion | 12V 7Ahr sealed Lead-Acid | Ni-Cad
Dimensions (L x W x H)	310 x 43 x 38mm
Emergency Light Output	100%
Emergency Lighting Duration	1 hour
Lamp Type	Any ES, LED lamps or loads up to 25W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Ambient Temperature	+70°C

THX ES25W (CONTINUED)

SELF-TESTING UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 25W

FEATURES:

- Automatic tests reduce maintenance requirements.
- Single unit construction for reduced wiring requirements
- Satisfies SABS 1464 Part 22.

PRODUCT DESCRIPTION:

The indicating lamp reports the status of the batteries and the lamp by flashing at different intervals. An audible alarm emits a beep every hour of five seconds duration if a system fault is detected. The built-in computer establishes whether the lamp is faulty, the battery voltage is low (shorted cell) and if the batteries have lost capacity due to ageing. The user can now be aware of any problems with the emergency lighting system before power failures and not during them. The periodic use of the batteries also prolongs their life.

The built-in computer also prohibits deep discharging of the batteries. This type of inverter is now becoming mandatory in Europe because users' needs some guarantee that the emergency lighting is always fully functional. The inverter satisfies the requirements as defined in SABS 598-1 (Luminaires: General requirements and tests) and will satisfy SABS 1464 PART 22 (Safety of luminaires: Luminaires for emergency lighting).

FAULT TYPE	LED CODE		BUZZER
Mains is on and the system is OK	No flashing, LED continuously burning	●●●●●●●●	Off
Battery voltage low	Continuous flashing	●○●○●○●○ 🔊	Beep every hour
Low capacity battery	Two flashes followed by a pause	●○●○○○○○ 🔊	Beep every hour
Lamp fault	One flash followed by a pause	●○○○○○○○ 🔊	Beep every hour
No mains	LED off	○○○○○○○○	Off

NOTES:

The unit may be installed without the buzzer connected if necessary.

Only connect the batteries after a permanent supply is established i.e, do not switch the unit on and off with the batteries connected during installation as this may cause damage and false error reporting.

Faults may be cleared by switching off the permanent mains supply and temporarily disconnecting the batteries. This action will reset the internal computer chip.

After corrective action i.e, replacing faulty lamp or batteries, faults should automatically clear after the next scheduled test.

Never attempt to replace the lamp during a self-test or whilst the unit is in emergency mode. This action may cause damage and false error reporting.

THX ES40/85W

SELF-TESTING UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 40W & 85W

OVERVIEW:

- Emergency power for 230Vac 40/85W devices/lamps
- 1 to 3 hours emergency duration
- 100% emergency light output
- 5 year warranty

PRODUCT DESCRIPTION:

The THX ES-40W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 40W. The THX ES-85W supplies 100% light output in emergency operation for most 230V LED or ES lamps up to 85W.

PLEASE NOTE, the lamp must be specified prior to ordering this product to confirm it's compatibility with the load - active circuitry varies from each brand, which could interfere with this emergency product. The battery provides the power to the unit. A safety start circuit is provided that prevents emergency operation until mains is connected - this enables installation without disconnecting or depleting the batteries. A pilot light indicates that the batteries are being charged. The unit is housed in an alu-zinc case, which includes a label of the wiring connection diagram.

This unit can be supplied in a remote box as per customer requirement.

The emergency control gear will conduct a short system check every month and a deep system test every 6 months. These tests greatly improve battery life by discharging and recharging the cells on a regular basis thus preventing crystallization of the cells which causes battery life and capacity to diminish. During the tests the lamp and battery are measured and checked for faults. If a fault is detected then the unit will flash a code and the buzzer will make an audible sound.

This unit can work off lithium-ion, lead acid or ni-cad batteries, therefore please specify which battery type you will be using prior to ordering so that it may be modified accordingly. The batteries that may be used with this unit are any 12V lead acid battery or 10 cell ni-cad battery for the THX_ES40W or 11.1V 6000mA Lithium-ion and for the THX_ES85W 25.9V 5000mA Lithium-ion battery or 24V lead acid battery.

THX ES40/85W (CONTINUED)

SELF-TESTING UPS SYSTEM FOR 230VAC DEVICES OR LAMPS UP TO 40W & 85W

OVERVIEW:

- Emergency power for 230Vac 40/85W devices/lamps
- 1 to 3 hours emergency duration
- 100% emergency light output
- 5 year warranty

PRODUCT DESCRIPTION:

SPECIFICATIONS	
Battery Discharge Current	Up to 3.5A
Charging Current	>300mA
Charging Indication	Provided
Battery Type	THX ES40: 11.1V Li-ion | 12V Lead-Acid | 10 x 4Ahr Ni-Cad THX ES40: 25.9V Li-ion | 24V Lead-Acid | 20 x 4Ahr Ni-Cad
Dimensions (L x W x H)	250 x 78 x 40mm
Emergency Light Output	100%
Emergency Lighting Duration	1 - 3 hours
Lamp Type	Any ES, LED lamps or loads up to 40W | 85W
Mains Power Consumption	10VA
Mains Voltage	100 - 253Vac 50/60 Hz
Maximum Ambient Temperature	+70°C

HOMEBASE LIGHTING

EMERGENCY LIGHT SYSTEM

OVERVIEW:

- Can position LED lights throughout your home and add flood lights
- Centralized system will switch lights on when the power fails
- Lithium-ion battery which provides a much longer life than other batteries

PRODUCT DESCRIPTION:

EMERGENCY FOR 12VDC LOADS UP TO 82W:

The duration on emergency mode will be determined by the total load connected to the emergency control gear. The HOMEBASE is a battery system which allows you to connect multiple loads to the device. Miniature lights can be placed throughout your home and flood lights outside to provide both comfort and secuirty lighting.

SET UP:

- Open HOMEBASE and connect RED wires to batteries.
- Connect all wires back to the HOMEBASE.
- Plug the HOMEBASE into a mains socket.

INDICATOR LIGHTS:

- Green = Mains is on
- Clear = Light sensor (detects if room is dark)

LOCATION:

Position the HOMEBASE light sensor where the unit can sense room light levels (you may place the control box in the cupboard or ceiling). Place miniature light fittings strategically throughout the home. Place the floodlights outside the home to provide security lighting.

POSSIBLE NUMBER OF CONNECTIONS:

The 9Ahr battery capacity provides 80-watts of emergency lighting for a maximum duration of one hour. Multiple 12V loads can be connected to the device.

TROUBLESHOOTING:

No GREEN light :

- Check mains connection
- Lights not working on emergency mode:
- Check light polarity
- Cover sensor to simulate dark conditions
- Check the press switch on the LED load
- Check the battery connections

SPECIFICATIONS	
Ambient Temperature	ta +55°C
Battery Charging Time	24 hours
Discharge Current	8A (max)
Load	12Vdc - up to 80W
Mains Voltage	110 - 253Vac / 50Hz
Output Forward Voltage	10 - 12Vdc

ELS

12V EMERGENCY LIGHTING SYSTEM FOR HALOGEN LAMPS/LUMINAIRES/LEDS

OVERVIEW:

- Emergency lighting kit for 12 V lamps and LED's
- 100% emergency lighting for 6 hours
- Non-maintained operation
- 2 years warranty

PRODUCT DESCRIPTION:

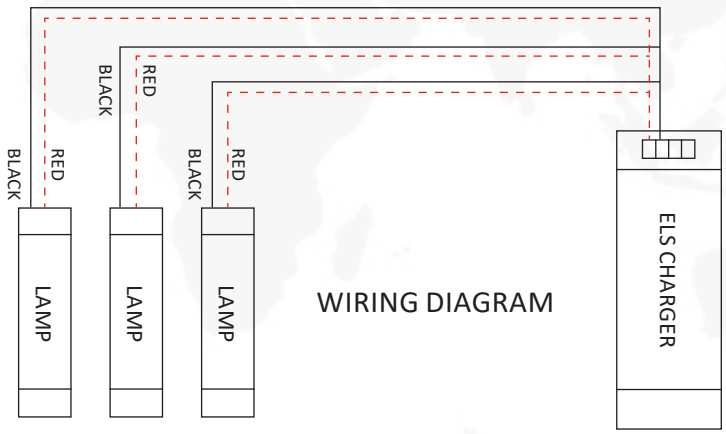
The Emergency Lighting System (ELS) can be connected to six 8W (12V) decorative fluorescent lamps, or two 12V 20W halogen lamps or one 12V 50W lamp or a combination of different lamp types that are fitted with 12V inverters or any 12V LED's.

In the event of a power failure the unit automatically energizes the lamps. Each fluorescent fitting can be switched on or off to conserve battery power during lengthy power interruptions. With one 8W luminaire the unit will provide up to eight hours of emergency light. When mains power is restored the unit automatically switches the lamps off and recharges the battery. The halogen lamps can be used in maintained mode i.e., the mains derived low voltage (fixed or dimming) supply can be used during normal conditions.

New legislation calls for emergency lighting in public areas. It is therefore illegal for casinos, pubs, shopping malls, etc. to not have emergency lighting. The unit satisfies SABS specifications and thus would satisfy mandatory requirements. An emergency lighting system would also complement a domestic alarm installation by offering additional safety for its occupants. The system is suited for D.I.Y. installation because the lamp wiring is low voltage (12 Volts) and need only be of 0.5mm^2 (flex type) diameter. The central unit is directly plugged into a mains outlet and the lamp wiring can be routed through the ceiling cavity. It is also possible to use halogen spot lights for security lighting.

The ELS contains a battery charging circuit for its 7 Ahr lead-acid maintenance free battery.

The unit has two indicating lights: the green light shows that mains power is on and the red light shows that the battery is flat. The red light will go off when the battery is fully charged. If the unit is disconnected from mains for storage then the battery must be disconnected to prevent damage.



WIRING DIAGRAM

ELS (CONTINUED)

12V EMERGENCY LIGHTING SYSTEM FOR HALOGEN LAMPS/LUMINAIRES/LEDS

OVERVIEW:

- Emergency lighting kit for 12 V lamps and LED's
- 100% emergency lighting for 6 hours
- Non-maintained operation
- 2 years warranty

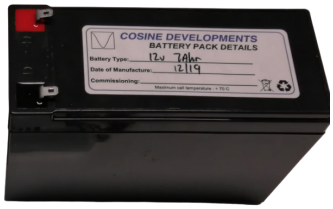
INSTALLATION GUIDE:

- Position the ELS charger near a mains outlet (It can be mounted on the wall utilising the two base slots).
- Route all lamp wires (standard 0.5 mm2 flex cable) through the ceiling cavity back to the charger unit. The lamps can be secured onto the wall using double sided tape. Note: the maximum length of flex cable between the lamp and the charger unit is 20 metres.
- Connect all lamp wires to the charger (Make sure the lamps are not connected backwards), i.e. the positive from the charger must be connected to the positive on the lamp). Usually the flex has identifying cotton strands with one of the bare wires to identify the positive lead.
- Open the charger lid and connect the positive battery lead and then replace the lid.
- Plug the unit into mains and switch on.

SPECIFICATIONS	
Battery Type	12V 7Ahr sealed Lead-Acid | 11.1V Li-ion
Battery Protection Fuse	10A
Change Over Time high-risk task area lighting	<100ms
Dimensions (L x W x H)	280 x 75 x 120mm
Duration with 1 x 8W Incandescent Lamp	9 hours
Duration with 2 x 20W Halogen Lamp	1 hour
Duration with 1 x 50W Halogen Lamp	1 hour
Duration 2 x 50W Halogen Lamp	20 minutes
Duration with 1 x 8W 12V Fluorescent Lamp	8 hours
Mains Voltage	230Vac +/- 10%
Maximum Operating Temperature	+70°C
Output Voltage	12V
Weight	3.911kg

12V PSU

EMERGENCY CONTROL GEAR FOR LOW VOLTAGE DOWN-LIGHTS OR LEDs



OVERVIEW:

- 1 hour emergency light on a 50W-12V load
- Non-maintained operation
- Provides "high-risk task-area" emergency lighting
- Suitable for 12V LED lamps / tape lights / floodlights

PRODUCT DESCRIPTION:

The EMG-PSU will provide 12V DC on emergency mode. Duration on emergency mode will differ according to the load that will be connected. The unit can drive a maximum load of 50-watts for one hour. When using a 20W load, you will achieve 3 hours of emergency duration.

This unit is particularly useful for high risk task area lighting where instant bright emergency light is required. Typical examples are security lighting, retail stores, passages and offices. The unit contains a sealed 12V Gel maintenance free battery that is charged automatically once the mains power is restored. This unit can also be supplied with a Lithium-Ion battery on request.

There are two indicating lights: the green light shows that mains power is on and the red light shows that the battery is low. The red light will go off when the battery is fully charged. If the unit is disconnected from mains for storage then the battery must be disconnected to prevent damage.

SPECIFICATIONS	
Battery Type	12V 7Ahr Gel or 11.1V 6Ahr Li-ion
Battery Protection Fuse	10A
Chaneover Time high-risk task area lighting	<100ms
Dimensions (L x W x H)	250 x 45 x 35mm
Emergency Lighting Duration	minimum 45 minutes
Mains Voltage	100 - 253Vac 50/60 Hz
Mains Power Consumption	9VA
Maximum Ambient Temperature	+70°C

24V PSU

EMERGENCY CONTROL GEAR FOR LOW VOLTAGE DOWN-LIGHTS OR LEDs

OVERVIEW:

- Emergency lighting kit for 24V lamps and LED's
- 100% emergency lighting for 1 hour
- Maintained or non-maintained operation

PRODUCT DESCRIPTION:

This system has been designed for low voltage emergency control systems. It can drive 24Vdc loads up to 100-watts for a minumum of one hour duration.

The unit can be used in maintained mode (where the normal low voltage supply, fixed or dimming, is routed through the unit). A 24V battery pack suplies the voltage to the load during emergency mode.

Please note that there is Li-ion, Lead-Acid and Ni-Cad versions available. The unit plus batteries may also be supplied in a remote enclosure.

SPECIFICATIONS	
Battery Discharge Current	(load dependant) Max 5A
Battery Protection Fuse	10A
Changeover Time high-risk area lighting	<100ms
Charging Current	300mA
Charging Indication	Provided
Deep Discharge Protection	Provided
Dimensions (L x W x H)	170 x 45 x 35mm
Emergency Lighting Duration	1 hour
Lamp Types	24Vdc load
Mains Power Consumption	9VA
Mains Voltage Tolerance	100 - 253Vac 50/60 Hz
Maximum Operating Temperature	+70°C
Queiscent Current	<1µA
Weight	123g

IP65 LED EMERGENCY BULKHEAD

EMERGENCY LIGHT FITTINGS AND SYSTEMS

OVERVIEW:

- IP65 Rated
- Maintained or non-maintained operation
- 3 hour emergency
- 100% light output
- 1 year warranty

PRODUCT DESCRIPTION:

The LED emergency bulkhead with 3-hour emergency duration is IP65 rated, making it ideal for both indoor and outdoor use. The bulkhead can be set for emergency operation in either maintained or non-maintained modes. It is therefore ideal for the use in corridors, workshops and permanently illuminated emergency exit signs (exit signs on request).

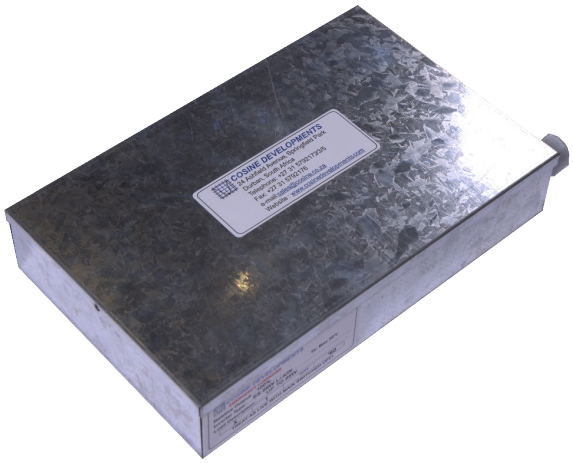
The bulkhead uses a 3 cell NiCad battery with a charge time of 24 hours, which provides 100% light output on the emergency mode. The internal circuitry has protection for both charge and discharge modes of the battery to enable efficient operations and granting long life.

SPECIFICATIONS	
Battery	3 Cell NiCad
Bulkhead Material	Poly Carbonate
Charge	140mA
CRI	>80
Dimensions	345 x 118 x 78mm
Emergency Duration	3 hours (minimum)
IP Rating	IP65
Light Output	100%
Lumens / Watt	40
Mains Voltage	230Vac
Number of LEDs	30 / 6000k
Power Rating	4 Watts
IP Rating	IP65

DECAL OPTIONS:

ES40W/ES85W COMBO PACK

HIGH POWER, MAINTAINED OR NON-MAINTAINED EMERGENCY LIGHTING PACK



OVERVIEW:

- Maintained or non-maintained operation
- Emergency lighting duration from 1 to 3 hours
- 100% emergency light output
- 5 year warranty on inverter

PRODUCT DESCRIPTION:

This emergency lighting pack is designed for areas that require very high illumination levels. The pack can be wired in either a maintained or non-maintained version. Inside the remote box will either be an ES40W or an ES85W, depending on the customers requirements.

The lamp configuration for the ES40W may be the following:

- 1 x 30W LED Floods
- 2 x 20W LED Floods
- 4 x 10W LED Floods

The lamp configuration for the ES85W may be the following:

- 1 x 50W LED Floods
- 4 x 20W LED Floods
- 8 x 10W LED Floods

PLEASE NOTE that these are the common configurations. Alternate configurations are available upon request. This system is highly convenient due to the fact that the remote box can be placed in an out-of-sight area and depending on the configuration, the LED floods may be mounted in separate rooms / locations.There is no volt drop between the remote box and the load.

This is an ideal package for high risk areas eg, industrial / commercial car parks, residential and retail outlets.

ELS SPOT

1 HOUR EMERGENCY LIGHT WITH 2 X 20W SPOT LAMPS

OVERVIEW:

- Suitable for 12V LED Lamps
- Provides "high-risk task area" emergency lighting
- 1 hour emergency light from 2 x 20W spot lamps
- Non-maintained operation
- 2 year warranty

PRODUCT DESCRIPTION:

The ELS SPOT will provide one hour of emergency lighting with two 20 Watt halogen lamps. The lamps are swivel mounted so that emergency light may be directed where necessary.

This unit is particularly useful for high risk task area lighting where instant bright emergency light is required. Typical examples are security lighting, cashiers, casino tables and for moving machinery. The unit contains a sealed lead-acid maintenance free battery that is charged automatically once the mains power is restored.

There are two indicating lights:

The green light shows that mains power is on and the red light shows that the battery is flat.

The red light will go off when the battery is fully charged. If the unit is disconnected from mains for storage then the battery must be disconnected to prevent damage.

SPECIFICATIONS	
Battery Protection Fuse	10A
Battery Type	11.1V Li-ion | 12V 7Ahr sealed lead-acid
Changeover Time	<100ms
Dimensions (L x W x H)	280 x 75 x 120mm
Emergency Lighting Duration	1 hour
Mains Power Consumption	9VA
Mains Voltage	230Vac +/- 10%
Maximum Ambient Temperature	+70°C
Weight	3.9kg

ELS BIG BEAM

EMERGENCY CONTROL UNIT WITH TWO 55W HALOGEN LAMPS

OVERVIEW:

- Provides “high-risk task area” emergency lighting
- 20 minutes of emergency light from 2 x 20W spot lamps
- Non-maintained operation
- 2 year warranty

PRODUCT DESCRIPTION:

The ELS BIG BEAM will provide twenty minutes of emergency lighting with two 55 Watt halogen lamps. The lamps are swivel mounted so that emergency light may be directed where necessary.

This unit is particularly useful for high risk task area lighting where instant bright emergency light is required. Typical examples are security lighting, cashiers, casino tables and for moving machinery. The unit contains a sealed lead-acid maintenance free battery that is charged automatically once the mains power is restored.

There are two indicating lights: the green light shows that mains power is on and the red light shows that the battery is flat. The red light will go off when the battery is fully charged. If the unit is disconnected from mains for storage then the battery must be disconnected to prevent damage.

SPECIFICATIONS	
Battery Protection Fuse	10A
Battery Type	11.1V Li-ion | 12V 7Ahr sealed lead-acid
Changeover Time	<100ms
Dimensions (L x W x H)	280 x 75 x 120mm
Emergency Lighting Duration	60 minutes
Mains Power Consumption	9VA
Mains Voltage	230Vac +/- 10%
Maximum Ambient Temperature	+70°C
Weight	3.9kg

ELS LED FLOOD

(2 X 10W) OR (1 X 10W) OR (1 X 20W)

OVERVIEW:

- 3 hours of emergency light from 1 x 10W LED floodlight
- Provides "Anti-panic area" emergency lighting
- Non-maintained operation
- 2 year warranty

PRODUCT DESCRIPTION:

The ELS LED FLOOD will provide three hours of emergency lighting from 1 x 10W LED flood lights. This unit is particularly useful for open area anti-panic emergency lighting and security lighting.

The unit contains a Li-ion maintenance free battery that is charged automatically once the mains power is restored. There are two indicating lights: the green light shows that mains power is on and the red light shows that the battery is flat.

The red light will go off when the battery is fully charged. If the unit is disconnected from mains for storage then the battery must be disconnected to prevent damage.

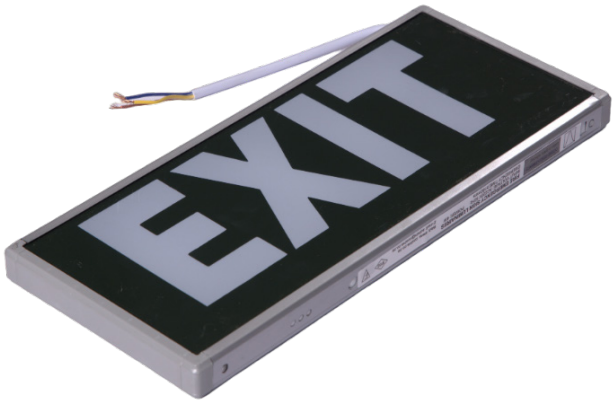
SPECIFICATIONS	
Battery Protection Fuse	10A
Battery Type	11.1V Li-ion | 12V 7Ahr sealed lead-acid
Changeover Time	<100ms
Dimensions (L x W x H)	280 x 100 x 360mm
Emergency Lighting Duration	3 - 6 hours
Lamp Type	2 x 10W | 1 x 10W | 1 x 20W LED
Mains Power Consumption	9VA
Mains Voltage	230Vac +/- 10%
Maximum Ambient Temperature	+70°C
Weight	3.9kg

*Also available in self-testing version.

EMERGENCY EXIT SIGNS

LED DOUBLE-SIDED EXIT SIGN

EMERGENCY LIGHT FITTING AND SYSTEMS



OVERVIEW:

- Test button provided
- LEDs provide long service life
- Emergency lighting duration for 3 hours
- 2 year warranty

PRODUCT DESCRIPTION:

The Emergency Exit Sign range of luminaries are ideally suited as stand-alone self contained double-sided, suspended fittings in new or existing buildings.

The LED arrangement provides a uniform illumination of the signs / legends with a high level of emergency illumination at floor level, or at the threshold of an exit door. 3 Hours of emergency lighting is provided with the ni-cad batteries.

SPECIFICATIONS	
Charge Current	40mA
Dimensions (L x W x H)	340 x 23 x 150mm
Discharge Current	250mA
Emergency Lighting Duration	3 hours
Lamp Type	4W LED
Mains Voltage	230Vac 50Hz
Maximum Ambient Temperature	+70°C

LED SINGLE-SIDED EXIT SIGN

EMERGENCY LIGHT FITTING AND SYSTEMS

OVERVIEW:

- Test button provided
- LEDs provide long service life
- Emergency lighting duration for 3 hours
- 2 year warranty

PRODUCT DESCRIPTION:

The Emergency Exit Sign range of luminaries are ideally suited as stand-alone self contained single-sided surface mount fittings in new or existing buildings.

The LED arrangement provides a uniform illumination of the signs / legends with a high level of emergency illumination at floor level, or at the threshold of an exit door. 3 Hours of emergency lighting is provided with the ni-cad batteries.

SPECIFICATIONS	
Charge Current	40mA
Dimensions (L x W x H)	375 x 28 x 145mm
Discharge Current	250mA
Emergency Lighting Duration	3 hours
Lamp Type	2W LED
Mains Voltage	230Vac 50Hz
Maximum Ambient Temperature	+70°C

We are able to customise the perspex of our LED single-sided emergency exit sign to suit all customer requirements - if the two stock items do not suit the customers needs.

SABS SINGLE-SIDED EXIT SIGN

EMERGENCY EXIT SIGN

OVERVIEW:

- LED lamps for high reliability
- 2 year warranty
- 3 hours emergency duration

PRODUCT DESCRIPTION:

The Emergency Exit Sign range of luminaires are ideally suited as stand-alone self contained single-sided, surface-mount fittings in new or existing buildings.

The LED arrangement provides a uniform illumination of the signs/legends with a high level of emergency illumination at floor level, or at the threshold of an exit door. An estimated 3 hours of emergency lighting is provided with the ni-cad batteries.

SPECIFICATIONS	
Charge Current	150mA
Battery Type	5 X 2Ahr Ni-Cad | 7.4V Li-ion
Dimensions (L x W x H)	430 x 45 x 215mm
Discharge Current	300mA
Emergency Lighting Duration	3 hours
Lamp Type	LED
Legend Height	150mm
Mains Voltage	230Vac 50Hz
Maximum Ambient Temperature	+70°C

SABS DOUBLE-SIDED EXIT SIGN

EMERGENCY EXIT SIGN

OVERVIEW:

- LED lamps for high reliability
- 2 year warranty
- 3 hours emergency duration

PRODUCT DESCRIPTION:

The Emergency Exit Sign range of luminaires are ideally suited as stand-alone self contained double-sided suspended fittings in new or existing buildings.

The LED arrangement provides a uniform illumination of the signs/legends with a high level of emergency illumination at floor level, or at the threshold of an exit door. An estimated 3 hours of emergency lighting is provided with the ni-cad batteries.

SPECIFICATIONS	
Charge Current	150mA
Battery Type	7.4V Li-ion
Dimensions (L x W x H)	430 x 90 x 215mm
Discharge Current	300mA
Emergency Lighting Duration	3 hours
Lamp Type	LED
Legend Height	150mm
Mains Voltage	230Vac 50Hz
Maximum Ambient Temperature	45°C

2XPL9 EXIT SIGN

EMERGENCY LIGHT FITTING AND SYSTEMS

OVERVIEW:

- Satisfies all SABS specifications
- 1 hour emergency duration
- All SABS legends available
- 2 year warranty

PRODUCT DESCRIPTION:

The COSINE DEVELOPMENTS Emergency Exit Sign range of luminaires are ideally suited as stand alone self contained surface mounted fittings in new or in existing buildings.

The Emergency Exit sign housing is a white epoxy powder coated steel frame with exit legend.

Connection to the mains is made by means of an internal terminal connector.

The 2 x PL9W arrangement provides a uniform illumination of the signs/legends with a high level of emergency illumination at floor level or at the threshold of an exit door.

SPECIFICATIONS	
Charge Current	150mA
Battery Type	5 x 2 Ahr Ni-Cad
Dimensions (L x W x H)	410 x 270 x 90mm
Discharge Current	1.1A
Emergency Lighting Duration	1 hour
Lamp Type	PL9W
Mains Voltage	230Vac 50Hz
Maximum Ambient Temperature	+70°C

DC INVERTERS

TL12/24/48Vdc

FLUORESCENT LAMP INVERTERS FOR DC SUPPLIES

OVERVIEW:

- High efficiency
- Fluorescent lamp driver for use with DC supplies
- 12V, 24V and 48Vdc versions
- Drives fluorescent lamps ranging from 7W to 40W
- 5 year warranty

PRODUCT DESCRIPTION:

These inverters can drive any four pin fluorescent lamp from dc supplies (TL12V = 12V, TL24V = 24V, TL48V = 48V). Bi-axial fluorescent lamps from 7 to 40 Watts and four pin compact fluorescent lamps can be used.

It can be used for emergency lighting, standby lighting, automotive and industrial applications. Optimal design ensures long lamp life and reliable lamp ignition.

Design features include high power conversion efficiency, high lumen efficacy, high supply immunity (for automotive applications) and input fuse protection. No damage will result if the lamp is removed whilst the power is on or if the lamp fails.

SPECIFICATIONS	
Dimensions (L x W x H)	170 x 45 x 35mm
Input Current (lamp dependant)	Maximum 3A
Input Fuse Protection	5A
Lamp Types	7 - 40W four-pin fluorescent lamps
Maximum Operating Temperature	+70°C
Nominal Input Voltage	TL12V = 12Vdc TL24V = 24Vdc TL48V = 48Vdc
Operating Frequency	30kHz
Power Consumption Efficiency	80%
Weight	161g

TL12Vdc/2 | TL24Vdc/2

DUAL FLUORESCENT LAMP INVERTER FOR 12V & 24V DC SUPPLIES

OVERVIEW:

- High efficiency
- Dual Fluorescent lamp driver for use with DC supplies
- 12V and 24V versions
- Drives fluorescent lamps ranging from 7W to 20W
- 5 year warranty

PRODUCT DESCRIPTION:

This inverter can drive two four (4) pin fluorescent lamps from a 12V or 24V dc supply. Bi-axial fluorescent lamps up to 20Watts and four pin compact fluorescent lamps up to 26W can be used.

The TL12/2 or TL24/2 inverter can be used for emergency lighting, standby lighting, automotive and industrial applications. Optimal design ensures long lamp life and reliable lamp ignition.

Design features include high power conversion efficiency, high lumen efficacy, high supply immunity (for automotive applications) and input fuse protection. No damage will result if the lamp is removed whilst the power is on or if the lamp fails.

SPECIFICATIONS	
Dimensions (L x W x H)	250 x 45 x 35mm
Fixing Centres	230mm
Input Current (lamp dependant)	Maximum 4A
Input Fuse Protection	5A
Lamp Types	2 x 18W four-pin Bi-axial fluorescent lamps 2 x 9W four-pin compact fluorescent lamps
Maximum Operating Temperature	+70°C
Nominal Input Voltage	12 - 14Vdc (24 - 26Vdc)
Operating Frequency	30kHz
Power Consumption Efficiency	80%
Weight	272g

TL20/40/65 | TL24/110Vdc

FLUORESCENT LAMP INVERTERS FOR RAILWAY COACH LIGHTING

OVERVIEW:

- High efficiency
- Designed for railway coach lighting
- Tough and transient pulse supply tolerant
- Fluorescent lamp driver for use with DC supplies
- 24V and 110Vdc versions
- Drives 20, 40W or 65W fluorescent lamps
- 5 year warranty

PRODUCT DESCRIPTION:

These fluorescent lamp inverters are specifically designed for transport lighting. They feature both transient and sustained over-voltage protection, reverse polarity connection, fusing and lamp failure tolerance. Automatic cut-off protects both the lamp and inverter during both over and under-voltage conditions.

The unit is also tolerant to interchanging of lamp and supply connections. Both 24V dc and 110V dc versions are available to power a single 20 W fluorescent lamps (TL20_24V, TL20_110V). The (TL40_24V, TL40_110V) may also be used to power single or double 20W fluorescent lamps. It is housed in an aluminium enclosure with Phoenix plug-in connectors for power and lamp terminations.

It is designed to cope with harsh temperature extremes, vibration and “dirty” voltage supplies commonly experienced in transport environments. Lamp ignition is guaranteed through cathode heating and long lamp life is ensured by a near ideal discharge current. The unit satisfies IEC 924, IEC 925 and IEC 60081. Versions are available to drive any fluorescent lamp from 6 to 65 Watts.

SPECIFICATIONS	
Dimensions (L x W x H)	150 x 65 x 42mm
Lamp Types	6 - 65W
Maximum Operating Temperature	70°C
Nominal Input Voltage	24Vdc (110Vdc)
Operating Frequency	24kHz
Over Voltage Cut-Off	38V (140V)
Power Consumption Efficiency	80%
Under Voltage Cut-Off	18V (90V)
Weight	238g

TL20/75/110Vdc

FLUORESCENT LAMP INVERTERS FOR HIGH DC VOLTAGES

OVERVIEW:

- High efficiency
- Fluorescent lamp driver for high voltage DC supplies
- 75V and 110Vdc versions
- Drives 20W fluorescent lamps / PL lamps
- 5 year warranty

PRODUCT DESCRIPTION:

These inverters drive a single fluorescent lamp (15, 18 or 20 Watts) from either 75V dc (TL20_75Vdc) or 110V dc (TL20_110Vdc). It can be used for emergency lighting, standby lighting, automotive and industrial applications. Mainly used in coaches / sub-stations.

Optimal design ensures long lamp life and reliable lamp ignition. Design features include high power conversion efficiency, high lumen efficacy, high supply immunity (for automotive applications) and input fuse protection. No damage will result if the lamp is removed whilst the power is on or if the lamp fails.

SPECIFICATIONS	
Box Size (L x W x H)	215 x 32 x 42mm
Input Current	180mA
Input Voltage Range (lamp ignition range)	(50...90V) 80...130V
Maximum Operating Temperature	70°C
Operating Frequency	25kHz
Weight	288g

TL24Vac/STD | 32Vac SUPPLIES

FLUORESCENT LAMP INVERTER FOR 24VAC & 32VAC SUPPLIES

OVERVIEW:

- High efficiency
- Fluorescent lamp driver for low voltage AC supplies
- 24Vac and 32Vac versions
- Drives fluorescent lamps from 18 or 26Watts
- 5 year warranty

PRODUCT DESCRIPTION:

The TL24Vac & TL32Vac can drive any four pin compact fluorescent lamps PL18 and PL26W from a 24Vac or 32Vac supply. It can be used for emergency lighting, standby lighting, and industrial applications. Optimal design ensures long lamp life and reliable lamp ignition.

Design features include high power conversion efficiency, high lumen efficacy, high supply immunity (for automotive applications) and input fuse protection.

No damage will result if the lamp is removed whilst the power is on or if the lamp fails.

SPECIFICATIONS	
Dimensions (L x W x H)	170 x 45 x 35mm
Input Current	Maximum 2A
Input Fuse Protection	2A
Lamp Types	18/26W four-pin CFL
Maximum Operating Temperature	+70°C
Nominal Input Voltage	24Vac or 32 Vac
Operating Frequency	30kHz
Power Conversion Efficiency	80%
Weight	169g

LED 30W - 110V

LED RAILWAY INVERTER

OVERVIEW:

- High efficiency
- Drives any device with a rated input of 230V up to 30W
- Designed for railway coaches and substations
- 5 year warranty

PRODUCT DESCRIPTION:

With the increasingly common use of LED's in various applications, Cosine Developments have prepared for the transition from old lamp technologies to LED technology in applications that make use of 110Vdc- Such as railway stations.

The functionality concept of this unit is very simple, plug in 110Vdc and let then the unit will convert the low voltage of 110VDC to 300VDC output.

This allows for 230VAC LED tubes to be used in railway coaches , substations etc. It is housed in an alu-zinc housing which also aids in efficiency dissipating any heat the unit my generate.

SPECIFICATIONS	
Dimensions (L x W x H)	150 x 65 x 42mm
Lamp Types	6 - 30W
Maximum Operating Temperature	70°C
Nominal Input Voltage	110Vdc
Weight	238g

BATTERY PACKS

BATTERY PACKS AND SPECIFICATIONS

PRODUCT DESCRIPTION:

Wide variety of battery packs available, specifically selected for emergency gear. Battery types include Nickel Cadmium, Nickel Metal Hydride, Lithium Ion and Lead Acid Batteries. All Nickel-Cadmium batteries are available in side-by-side packaging as well as sausage, pyramid and stick packaging.

BATTERY | CAPACITY	TYPE | PACKAGE	VOLTAGE	DIMENSIONS
5 x 2 Ahr	nickel-cadmium	6 V	110 x 46 x 26 mm
6 x 2 Ahr	nickel-cadmium	7.2 V	134 x 46 x 26 mm
8 x 2 Ahr	nickel-cadmium	9.6 V	179 x 46 x 26 mm
10 x 2 Ahr	nickel-cadmium	12 V	220 x 46 x 26 mm
10 x 2.8 Ahr	nickel-cadmium	12 V	235 x 51 x 27 mm
5 x 4 Ahr	nickel-cadmium	6 V	160 x 62 x 36 mm
6 x 4 Ahr	nickel-cadmium	7.2 V	195 x 62 x 36 mm
8 x 4 Ahr	nickel-cadmium	9.6 V	260 x 62 x 36 mm
10 x 4 Ahr	nickel-cadmium	12 V	320 x 62 x 36 mm
20 x 1 Ahr	nickel-cadmium	24 V	192 x 38 x 30 mm
12V 7 Ahr	sealed lead-acid	12 V	151 x 65 x 95 mm
12V 4.5 Ahr	sealed lead-acid	12V	100 x 70 x 90 mm
12.8V 18Ahr	LifeP04	12.8V	151 x 65 x 95 mm
2.4 Ahr	lithium-ion	7.4V	[Stick] 170 x 17 x 20 mm [Side by Side] 115 x 34 x 21 mm
2.4 Ahr	lithium-ion	11.1V	240 x 18 x 21 mm
3.Ahr	lithium-ion	11.1V	240 x 40 x 21mm
6 Ahr	lithium-ion	11.1V	240 x 20 x 35 mm
5000mA	lithium-ion	25.9V	160 x 68 x 40mm

DN2 | DN2L

DAY/NIGHT SWITCH - CFL LOADING

OVERVIEW:

- Ultra-reliable 5 Amp relay
- Designed to fit inside the light fitting
- Long proven service life
- 1 year warranty

PRODUCT DESCRIPTION:

The DN-2 Photocell is a compact/rugged daylight switch that can operate both compact fluorescent lamps and incandescent lamps. The unit has a long, tapered sensor tube which makes it easy to install into light fittings.

Two 3mm mounting holes are also provided. The unit features a high degree of lightning protection to provide many years of trouble free operation. The DN2-L version has the sensor connected by a fly lead.

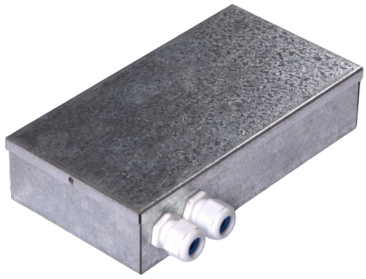
SPECIFICATIONS	
Dimensions (L x W x H)	53 x 30 x 22mm
Lamp Types	any fluorescent | incandescent | LED lamps up to 100W
Mains Voltage	230Vac
Maximum Operating Temperature	70°C
Switching Light Levels	on = 30 lux off = 100 lux
Weight	40g

INSTALLATION GUIDE:

- Drill a 9mm hole in the side of the luminaire for the sensor to detect natural light.
- Direct sunlight must not shine into the sensor. Point the sensor downwards to prevent rainwater or direct sunlight from entering the sensor.
- Seal the aperture with silicon glue.
- The sensor must not detect reflected light from the luminaire (nearby walls etc.).
- The sensor should protrude 5mm outside the luminaire.facilitates daylight harvesting.

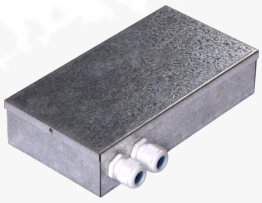
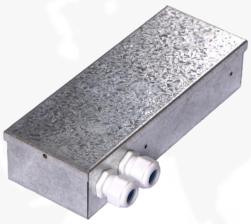
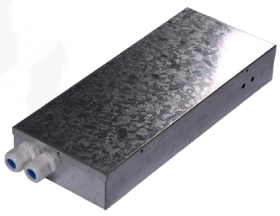
REMOTE BOXES

REMOTE BOXES AND SPECIFICATIONS



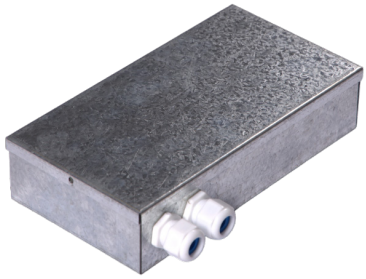
PRODUCT DESCRIPTION:

All Cosine Developments products are available in a remote box version. The remote boxes function is to house the inverter and battery in a contained box, therefore making it SABS compliant – as you can not just leave the inverter and battery sitting in the roof alone. There are a variety of different sized remote boxes, as well as boxes that are IP rated.

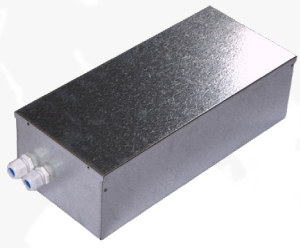
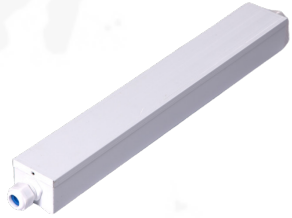
REMOTE BOX CODE	DIMENSIONS (H x W x L)	REMOTE BOX
PHASE 1	50 x 115 x 220mm	
PHASE 2	50 x 82 x 220mm	
PHASE 3	50 x 130 x 320mm	

REMOTE BOXES (CONTINUED PT.2)

REMOTE BOXES AND SPECIFICATIONS

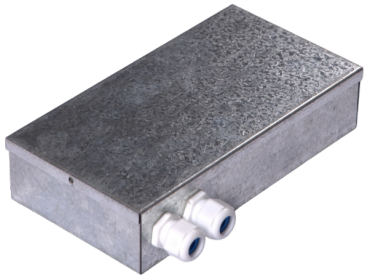


SPECIFICATIONS

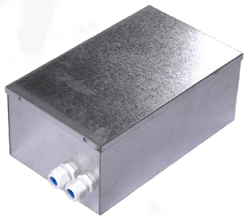
REMOTE BOX CODE	DIMENSIONS (H x W x L)	REMOTE BOX
PHASE 3A	45 x 105 x 380mm	
PHASE 4	43 x 54 x 500mm	
PHASE 5	110 x 165 x 360mm	
PHASE 6	43 x 54 x 400mm	

REMOTE BOXES (CONTINUED PT.3)

REMOTE BOXES AND SPECIFICATIONS

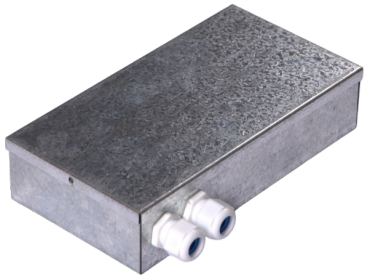


SPECIFICATIONS

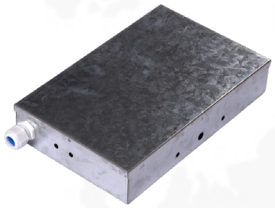
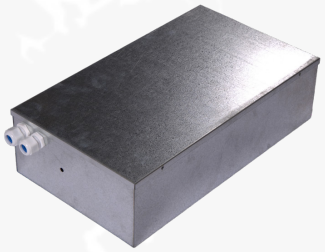
REMOTE BOX CODE	DIMENSIONS (H x W x L)	REMOTE BOX
PHASE 7	110 x 260 x 266mm	
PHASE 8	70 x 130 x 400mm	
PHASE 9	50 x 130 x 400mm	
PHASE 10	110 x 165 x 260mm	

REMOTE BOXES (CONTINUED PT.4)

REMOTE BOXES AND SPECIFICATIONS



SPECIFICATIONS

REMOTE BOX CODE	DIMENSIONS (H x W x L)	REMOTE BOX
PHASE 10A	50 x 170 x 290mm	
PHASE 11	110 x 230 x 400mm	
PHASE 12	50 x 100 x 360mm	

BMS: Building Management System.

Centrally Supplied Luminaire: A luminaire (for maintained or non-maintained operation) energized from a central emergency power supply.

ECG: High frequency electronic control gear to drive the fluorescent lamp from the mains supply.

Emergency Control Unit: An electronic module usually fitted inside the luminaire that enables the lamp to operate from mains during normal conditions and powers the lamp from a battery pack (usually at low brightness) in the event of a power failure.

Emergency Lighting Duration: The emergency lighting provided during a power failure. It is important to note that this minimum figure should be comfortably exceeded during initial testing to compensate for battery ageing.

Fluorescent Lamp Inverter: An electronic module that power a fluorescent lamp at full brightness from a dc supply.

High-risk Task Area Lighting: provides illumination for the safety of people involved in a potentially dangerous process or situation that enables proper shut-down procedures.

Maintained Lighting System:

An emergency lighting system requires two mains feeds: a permanent live connection and a switched live connection. The luminaire may be switched on and off with a healthy mains supply and the emergency control unit energizes the lamp during a mains failure. The advantage of this system is that the luminaire can be used to provide normal lighting but the disadvantage is that the luminaire requires additional wiring.

Non-maintained lighting system:

An emergency lighting system requires a single permanent mains supply. The luminaire cannot be used to provide normal lighting. In the event of a power failure the emergency control unit energizes the lamp. The advantage of this system is that the lamp is not aged during normal mains conditions but the disadvantage is that the luminaire cannot provide normal lighting.

Self Testing Control Unit: An emergency control unit that automatically conducts regular tests to establish the condition of the lamp and battery pack.

Stand-by Lighting: Non-mandatory emergency lighting that is provided to enable normal activities to continue substantially unchanged.

Sustained Lighting System:

An emergency lighting system requires a single permanent mains connection. The fluorescent lamp is permanently energized from the mains supply and is powered by the emergency control unit during a power failure. The advantages of this system are that one live feed is required and the luminaire can provide normal lighting. The disadvantage is that the luminaire must remain on permanently.

Switch start ballast:

A conventional inductive ballast and glow starter system. This system is being phased out due to its poor efficiency.

EMERGENCY GEAR INSTALLATION:

Both the emergency control unit and the batteries are adversely affected by high temperatures. It is therefore essential that these components are fitted in the coolest region of the luminaire. The worst offenders are usually maintained bulkhead luminaires (mostly used in stairwells) where the high temperatures inside the fitting destroy the batteries within weeks. The following tips will ensure optimum performance of the emergency gear:

- Mount the emergency gear as far as possible away from the ballast.
- Secure both the emergency control unit and batteries with bolts and nuts (not adhesives) to allow for easy replacement.
- Position the indicator lamp so that it will be visible at ground level when the luminaire is switched on (light from the luminaire should not swamp the light from the indicating lamp).
- Keep wiring as short as possible (maximum wire length is three metres).
- Affix the necessary labels in accordance with SABS 1464 Part 22.
- Connect battery to control unit and test with mains.
- Disconnect battery pack.

The battery pack should not be reconnected until the building wiring is complete. If the emergency unit is switched on and off repeatedly during this phase then damage to both the batteries and lamp may result.

A permanent live feed must be routed to all emergency luminaires. This is essential because if the units are switched off every night and the units switch over to emergency lighting then both the batteries and lamps will deteriorate rapidly.

EMERGENCY GEAR MAINTENANCE:

In order to ensure that your emergency lighting will function in the event of a power failure it is important to conduct regular tests.

- Emergency lighting should be tested at least once per month by turning off the main circuit breaker for a few minutes. Emergency luminaires should be identifiable in accordance with SABS 1464 Part 22.
- Do not merely turn off the permanent live feed to the emergency luminaires without switching off the switched live feed if electronic control gear (electronic ballasts) is used. This may result in the electronic control gear shutting down and require resetting.
- Periodically check the commissioning date on the battery packs. If the battery packs are older than three years then they should be replaced.
- Periodically inspect the emergency lamps to ensure that end blackening is not excessive and replace if necessary.
- If self testing emergency control gear is used then no testing is required. Visual inspections of indicating lamps are only needed to ascertain system status.

The Occupational Health and Safety Act (Act 85 of 1993) requires emergency evacuation lighting for workplaces without natural light. It is therefore illegal not to have emergency evacuation lighting in work areas or public places where no natural light is present. A minimum of 0.3 lux at the floor level is required to enable evacuation but a level of not less than 20 lux is required for moving machinery or where it is necessary to shut down plants or processes where dangerous materials are present. The act also requires that the emergency lighting must be activated within 15 seconds and the emergency lighting must be kept in good working order and tested at intervals of not more than three months.

All emergency lighting must comply with the following requirements of SABS 1464 Part 22:

Classification: Emergency luminaires shall be labelled to indicate whether they are self-contained or centrally supplied, maintained or non-maintained, have test devices and emergency duration. The following symbols shall be used:

X = self-contained, Z = central supply, 0 = non-maintained, 1 = maintained, 6 = satellite, A = including test devices, B = including remote rest mode, C = including inhibiting mode, D = high risk task area lighting, 10 = ten minutes duration, 60 = one hour duration, 120 = two hours duration, 180 = three hours duration.

Marking: Luminaires shall be clearly marked with rated voltage, correct replacement lamps and maximum ambient temperature. Emergency lamp holders in combined luminaires shall be identified by a green dot. A label on the battery pack shall indicate replacement battery details, battery manufacture and commissioning date.

An instruction leaflet shall be provided detailing test facilities and test procedures.

Electrical safety: Requirements of SABS 598-1 shall apply.

Endurance and thermal testing: The unit must satisfy various soak and cycle testing to ensure reliability.

Battery charge and discharge: The batteries must be charged within 24 hours; deep battery discharge must be prevented, and high temperature batteries must be used in self-contained emergency luminaires.

Photometric performance: The luminaire shall provide rated lumen output claimed by the manufacturer during emergency mode for 1 minute after failure of supply and continuously to the end of rated duration. In other words, if the unit is marked as a 50% light output, then the emergency light output must be 50% of the mains light output.

VALIDITY OF INFORMATION:

Cosine Developments has supplied the information within this catalogue and specifications through thorough testing of our products with trusted equipment and brands.

Please note that the information on each product data sheet is accurate to the exact brand of which was used for testing. Specifications such as the battery discharge vary greatly from brand to brand.

Cosine Developments will not be held liable for any variations of our products performance on the field as it is impossible to have accurate specifications such as that of the battery discharge that will be uniform across all lamp and load manufacturers.

"A customer is the most important visitor to our business.

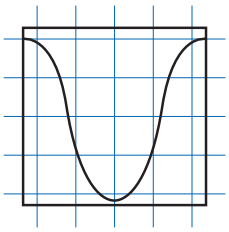
They are not dependent on us. We are dependent on them.

They are not an interruption in our work. They are the purpose of it.

They are not an outsider in our business. They are part of it.

We are not doing them a favour by serving them.

They are doing us a favour by giving us an opportunity to do so."



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