

Product description

Unity-LED™ is a range of Maintained emergency lighting modules combining both mains and emergency drivers in a compact low-profile enclosure and suitable for use in either internal or remote self-contained applications.

Their SELV isolated high-efficiency LED driver technology will run any LED lamp or array rated from 20V – 55V in both mains or emergency mode, so making it easy to produce an emergency version of your existing LED luminaire without the need for separate drivers, 'emergency' LEDs or connectors.

They are available in 2 and 3 cell versions and compatible with both NiMH or NiCd batteries for either 1 or 3-hour autonomy.

Features

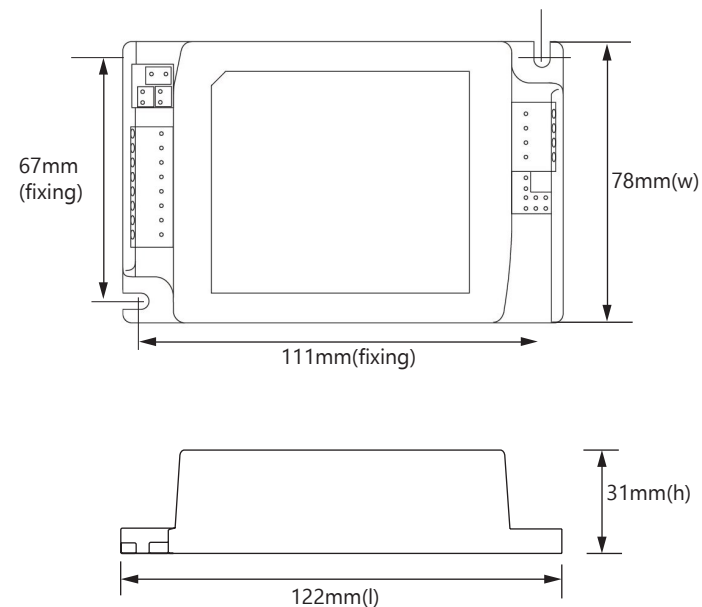
- > High efficiency mains driver for LED lamps up to 30W⁺
- > User selectable, Mains-mode LED output current with additional 10, 20 & 25% reductions
- > Optional 1-10V dimming and occupancy detector input on Unity-LED PHASE version – will dim to 10% upon absence
- > Incorporates active power factor correction (PFC).
- > Protected against short circuit & open circuit Lamp conditions.
- > Emergency output power (Typical) : 1.4W (2-cell) and 2.6W (3-cell)
- > Constant-current charger with short-circuit protection and polarised socket for use with NiCd or NiMH batteries
- > Input for optional manual low-voltage emergency test switch
- > Industry standard fixing points
- > Operates high-brightness green indicator LEDs (250mm supplied. Other lengths available, please see accessories section for options)
- > Designed and manufactured in Great Britain
- > Complies with: EN61347-1, EN61347-2-7, EN61347-2-13, EN55015, EN61000-3-2, EN61547, EN60598-2-22

Common Technical Data	
Input Supply Voltage	230V +/- 10%
Supply Frequency	50/60 Hz
Output Voltage Range	20 - 55 Vdc operating at 350/500mA 20 - 45 Vdc operating at 700mA 20 - 30 Vdc operating at 1050mA
Maximum Output Power	31.5W ⁺ (Higher power version available)
Maximum TC Point	80°C
Ambient Temperature Range	0°C - 50°C
Earth Leakage Current	<0.5mA
IP Rating	IP20
Weight per unit	130g
Box quantity	50

Range overview			
Model Number	LED output current (Mains mode)	Typical output power (Emergency mode)	Number of Cells
OLU350/500/2/*/**	350 or 500mA	1.4W	2
OLU350/500/3/*/**	350 or 500mA	2.6W	3
OLU700/1050/2/*/**	700 or 1050mA	1.4W	2
OLU700/1050/3/*/**	700 or 1050mA	2.6W	3

/* Add M3 for 3 hour or M1 for 1 hour emergency duration

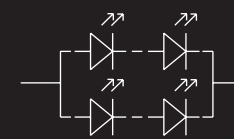
** Add PH for PHASE version



Accessories

A range of batteries and accessories are available, please refer to accessories section.



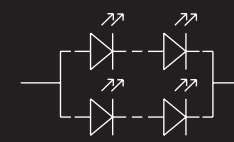


TECHNICAL INFORMATION

Model Number	Input Characteristics							
	Circuit Watts		Input Current		Inrush Current		Typical Power Factor	
	Combined	Charging Only	Combined	Charging Only	Combined	Charging Only	Combined	Charging Only
OLU350/500/2/M1	25W/33W	2.3W	125/160mA	27mA	12A pk <200µs	10A pk <200µs	0.88/0.90	0.38
OLU350/500/2/M3	25W/34W	3.4W	140/185mA	34mA	12A pk <200µs	10A pk <200µs	0.88/0.90	0.45
OLU350/500/3/M1	25W/33W	2.6W	125/160mA	29mA	12A pk <200µs	10A pk <200µs	0.88/0.90	0.39
OLU350/500/3/M3	25W/34W	3.6W	140/185mA	36mA	12A pk <200µs	10A pk <200µs	0.88/0.90	0.45
OLU700/1050/2/M1	35W/36W	2.3W	185/190mA	27mA	12A pk <200µs	10A pk <200µs	0.93/0.94	0.38
OLU700/1050/2/M3	36W/37W	3.4W	195/200mA	34mA	12A pk <200µs	10A pk <200µs	0.93/0.94	0.45
OLU700/1050/3/M1	35W/37W	2.6W	185/190mA	29mA	12A pk <200µs	10A pk <200µs	0.93/0.94	0.39
OLU700/1050/3/M3	35W/37W	3.3W	195/200mA	36mA	12A pk <200µs	10A pk <200µs	0.93/0.94	0.45

* This figure may be used for LENI 'Parastic Power' calculations.

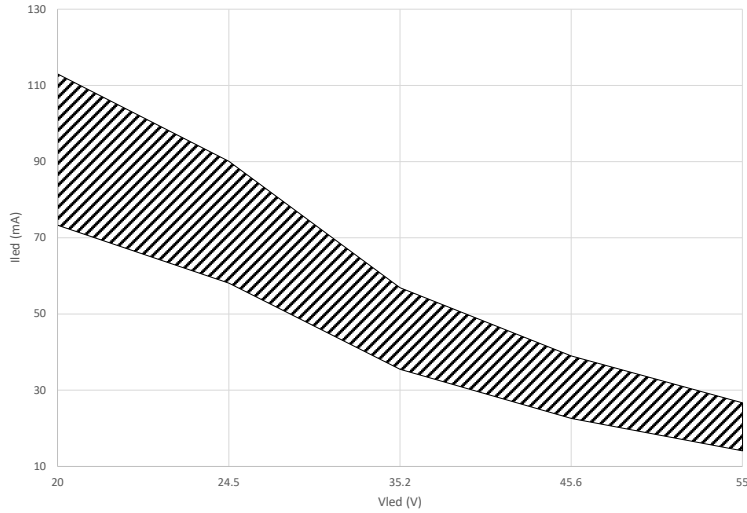
Model Number	Battery & Emergency Characteristics									
	Rated Duration	Battery Type	Number of Battery Cells	Battery Volts Range (Charge Mode)	Rated Capacity	DDP Voltage	Discharge Current Nominal/ (Range)	Charge Current	Emergency Output Power	Uout Max (Open Circuit)
OLU350/500/2/M1	1 Hour	NiCd/ NiMH See pages 5 & 6 for battery data	2	1.5 - 4.0V	1.6Ah	1.8V (Min)	1.10A / (0.8 - 1.2A)	75-95mA	1.4W	60V
OLU350/500/2/M3	3 Hours		2	1.5 - 4.0V	4Ah	1.8V (Min)	1.10A / (0.8 - 1.2A)	180-210mA	1.4W	
OLU350/500/3/M1	1 Hour		3	1.5 - 6.0V	1.6Ah	2.4V (Min)	1.10A / (0.8 - 1.2A)	75-95mA	2.6W	
OLU350/500/3/M3	3 Hours		3	1.5 - 6.0V	4Ah	2.4V (Min)	1.10A / (0.8 - 1.2A)	180-210mA	2.6W	
OLU700/1050/2/M1	1 Hour		2	1.5 - 4.0V	1.6Ah	1.8V (Min)	1.10A / (0.8 - 1.2A)	75-95mA	1.4W	
OLU700/1050/2/M3	3 Hours		2	1.5 - 4.0V	4Ah	1.8V (Min)	1.10A / (0.8 - 1.2A)	180-210mA	1.4W	
OLU700/1050/3/M1	1 Hour		3	1.5 - 6.0V	1.6Ah	2.4V (Min)	1.10A / (0.8 - 1.2A)	75-95mA	2.6W	
OLU700/1050/3/M3	3 Hours		3	1.5 - 6.0V	4Ah	2.4V (Min)	1.10A / (0.8 - 1.2A)	180-210mA	2.6W	



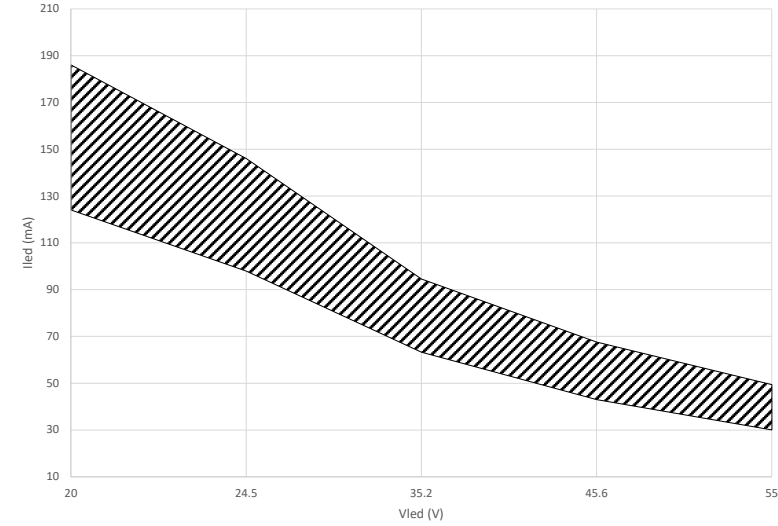
TECHNICAL INFORMATION

Emergency mode LED lamp output - typical forward voltage (Vf) vs

2-Cell Emergency Operating Region

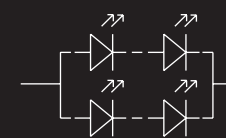


3-Cell Emergency Operating Region



Product description

In emergency mode, the Unity-LED™ driver will automatically adjust LED output current to maximise power whilst still achieving rated duration. The shaded areas on the graphs indicate the range of output current compared to LED forward voltage when operating from either 2, 3 or 4 cells.



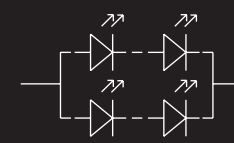
ACCESSORY ASSIGNMENT

Applicable battery packs to Unity-LED models

Model Number	NiCd Batteries									NiMH Batteries					
	NCD24SS	NCD24BS	NCD34SS	NCD34BS	NCD44SS	NCD44BS	NCD216SS	NCD316SS	NCD416SS	NMH24SS	NMH34SS	NMH44SS	NMH216SS	NMH316SS	NMH416SS
OLU350/500/2/M1							4						4		
OLU350/500/2/M3	4	4								4					
OLU350/500/3/M1								4						4	
OLU350/500/3/M3			4	4							4				
OLU700/1050/2/M1							4						4		4
OLU700/1050/2/M3	4	4								4					
OLU700/1050/3/M1								4						4	
OLU700/1050/3/M3			4	4							4				

Applicable number of end caps to relevant battery models

Model Number	NiCd Batteries						NiMH Batteries		
	NCD24SS	NCD34SS	NCD44SS	NCD216SS	NCD316SS	NCD416SS	NMH24SS	NMH34SS	NMH44SS
E	2	2	2						
E/Slotted	2	2	2						
E/18700							2	2	2
E/ Sub C				2	2	2			



ACCESSORIES | NICKEL CADMIUM (NiCd) BATTERIES

Product description

- > High temperature Nickel Cadmium batteries for Emergency Lighting use
- > Suitable for use with all One-LUX products
- > 1-year warranty

Properties

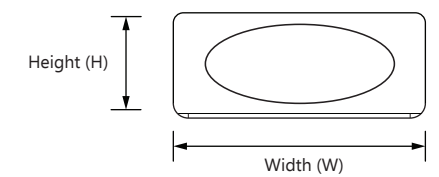
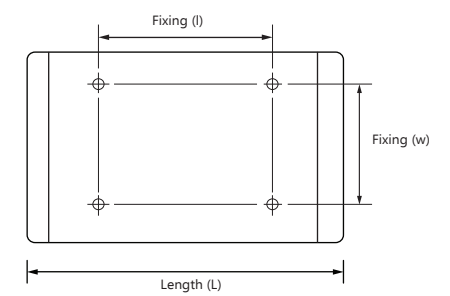
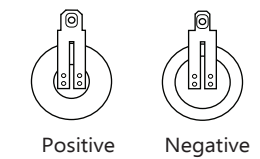
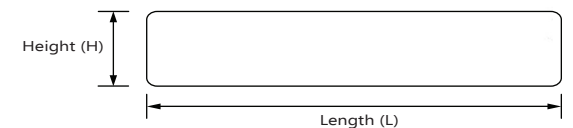
- > Rated for continuous operation at 55°C and meets the 4-year design life as per Annex A of EN60598-2-22
- > Complies with IEC61951-1
- > Supplied with suitable connectors
- > Available in custom configurations
- > 4Ah 'D' size cells
- > Other capacities available
- > Refer to battery datasheet for further information

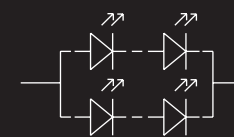
Common Technical Data	
Absolute Maximum Temperature	70°C
Maximum Continuous Temperature	55°C
Minimum Ambient Temperature	5°C
Charge Requirements	C/20 for 24 hours Constant Current (CC)
Storage	0-25°C for 12 months
Disposal at registered treatment facility only	

Table of Dimensions						
Dimensions	NCD24SS	NCD24BS	NCD34SS	NCD34BS	NCD216SS	NCD316SS
Length (L)	116mm	63mm	175mm	63mm	86mm	131mm
Width (W)	34mm	68mm	34mm	102mm	23mm	23mm
Height (H)	34mm	36mm	34mm	36mm	23mm	23mm
Fixing (l)		40mm		40mm		
Fixing (w)		n/a		32mm		
IEC Cell Size	'D'			'Sub-C' (SC/Cs)		

NiCd Batteries - Ordering Information					
Product Code	NCD24SS	NCD34SS	NCD34BS	NCD216SS	NCD316SS
Box Quantity	40	30	30	140	60
Weight	11kg	12kg	13kg	14.5kg	10kg

NiCd Cable Assemblies	Connector Type	Wire Length	Connector Dimensions
CAS031 required with packs (BS) (Sold separately)	Mini JST plug to Amp 'mate-n-lok' (male)	250mm	N/A N/A
CAS020 required with sticks (SS) (Sold separately)	Mini JST plug to Red & Black wires with sockets	500mm	4.8mm x 0.8mm 6.3mm x 0.8mm
CAS012 - link wire (Sold separately)	White wire (female/female)	100mm	6.3mm x 0.8mm (positive) 4.8mm x 0.8mm (negative)





ACCESSORIES | NICKEL METAL HYDRIDE (NiMH) BATTERIES

Product description

- > High temperature 4Ah Nickel Metal Hydride batteries for emergency lighting use
- > Suitable for use with all One-LUX products
- > 4Ah '18700' size cells
- > 1-year warranty

Properties

- > Rated for continuous operation at 50°C and meets the 4-year design life as per Annex A of EN60598-2-22
- > Complies with IEC61951-2
- > Supplied with suitable connectors
- > Available in custom configurations
- > Other capacities available
- > Refer to battery data sheet for further information

Common Technical Data	
Absolute Maximum Temperature	70°C
Maximum Continuous Temperature	40°C
Minimum Ambient Temperature	5°C
Charge Requirements	C/20 for 24 hours Constant Current (CC)
Storage	0-25°C for 6 months
Disposal at registered treatment facility only	

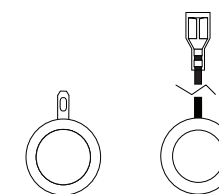
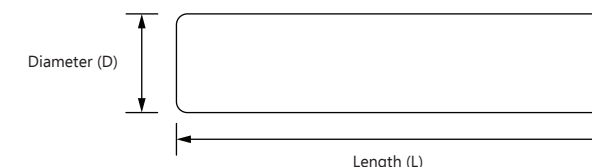
Table of Dimensions		
Dimensions	NMH24SS	NMH34SS
Length (L)	140mm	210mm
Diameter (D)	20mm	20mm
IEC Cell Size	'18700'	

NiMH Batteries - Ordering Information		
Product Code	NMH24SS	NMH34SS
Box Quantity	50	45
Weight	7kg	11kg

NiMH Cable Assemblies	Connector Type	Wire Length	Connector Dimensions
CAS024/JST - wire set (Sold separately)	Mini JST plug to Red & Black wires with spade & socket	700mm	Red 4mm (socket) Black 3.5mm (spade)
CAS070 - link wire (Sold separately)	Black wire (male/female)	300mm	3.5mm & 4mm (spade & socket)



Nickel Metal Hydride (Ni-MH)



Positive Negative

ACCESSORIES

BATTERY END CAPS

Product description

- > End caps available for use with 'stick' D size batteries
- > End caps available for use with 'stick' Sub-C batteries
- > End caps available for use with 'stick' 18700 Nickel Metal Hydride batteries

Properties

- > Provides a convenient and secure mounting option for cylindrical batteries
- > Moulded in UL94-V0 rated plastic
- > 'E' version offers slide together feature to produce secure side-by-side configuration
- > Link wires available separately
- > Slotted for tag connection or outlet for pre-soldered connections

Battery End Caps - Ordering Information				
Product Code	E	E/Slotted	E/18700	E/SubC
Battery type	NiCd D size	NiCd D size	NiMH 18700	NiCd Sub-C size
Fixing Centres when fitted	Battery Length (L) + 20mm	Battery Length (L) + 17mm	Battery Length (L) + 16mm	Battery Length (L) + 19mm
Maximum Length when fitted	Battery Length (L) + 37mm	Battery Length (L) + 34mm	Battery Length (L) + 23mm	Battery Length (L) + 40mm



INDICATOR LED

Product description

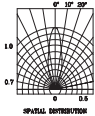
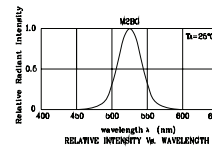
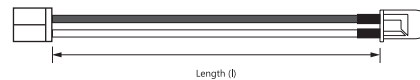
- > High intensity 30° beam green LED
- > Available with 250mm, 500mm and 750mm length leads
- > Used in conjunction with emergency control gear to indicate that the battery is charging

Properties

- > Narrow beam, high intensity – ideal for use behind diffusers even with the main lamp on
- > Suitable for standard T1 3/4 (5mm) LED mounts (not supplied)
- > 250mm LED indicator supplied as standard (CAS119). Other sizes are available and can be ordered if required separately.

LED Indicator - Technical Data	
Forward Voltage (Vf)	3.2V nominal
Forward Current (If)	30mA maximum
Dominant Wavelength	535nm
Grey Wire	LED Cathode (-)
White wire	LED Anode (+)

LED Assembly - Ordering Information			
Product Code	CAS119	CA119/500	CAS119/750
Lead Length (l)	250mm	500mm	750mm



USER SELECTION LINKS

Product description

- > Insulated links/ jumpers for configuring input/ output features
- > Supplied in bulk packs of 100.

User selection Links Accessory Kit - Ordering Information	
Product Code	OLU/JUMP

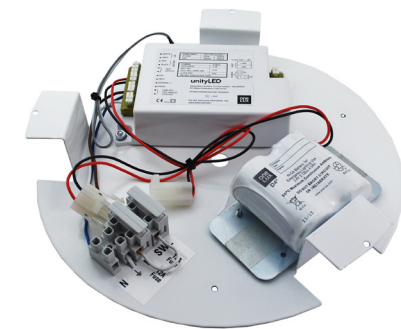
CUSTOM ASSEMBLIES

Product description

- > Custom assemblies manufactured to your specification

Properties

- > Easy fit solutions for simplified manufacture / installation
- > Full technical support during design (Mechanical Drawings, Material sourcing, compliance assistance: thermal management, EMC, etc.)
- > Produced in an ISO9001 and ISO14001 manufacturing environment



INSTALLATION

Disclaimers

This product and its associated accessories have been manufactured and designed to comply with the requirements of EN60598-2-22 in addition to the standards detailed on page 1 of this document. Operation beyond the parameters specified in this document and the associated standards may result in reduced performance and ultimate premature failure, with the warranty made void. It is the users responsibility to ensure full compatibility of the Unity-LED product for the intended application and for compliance of the emergency conversion to relevant Standards. The user should be aware of the environment to which the luminaire and these components are used and follow the luminaire manufacturer's specifications. The Unity-LED modules are not intended for use in high-risk luminaires. Installation should be in line with the following guides. Please contact our Technical department if you are in any doubt.

Precautions

This product should be installed as per the following guidelines, electric shock or damage to the product may result if incorrectly installed. The luminaire should be installed by a qualified and competent electrician. If the luminaire is to be mounted in an external location, consider the battery as temperatures below 0°C may be frequent in cold months. In this case, the design life of 4 years will be compromised and more frequent battery replacements may be needed. Likewise, if the luminaire is situated in a hot environment where the temperature is maintained at 25°C or above, or sited next to large panes of glass in which case it may be exposed to thermal magnification.

It is recommended that IP65 luminaires are avoided for use in internal applications as undue thermal stress may result.

SELV Isolation when used with controls

CAUTION - Please note that SELV isolation of the Unity-LED output may be compromised if used with non-SELV isolated 1-10V dimmer controls. Check SELV compatibility of dimmer before use.

Installation notes

Wire Preparation: maximum strip length 10mm (recommended 6mm)
Min/max Conductor sizes: 0.5 - 1.5 mm².

Ensure battery wiring is correct **before** connection as reverse polarity will cause permanent damage to the module.

Best effort should be made to keep the Unity-LED and battery away from direct sources of heat, i.e. other mains LED drivers and LED lamps. Avoid obstructing airflow around the sides of the Unity-LED and other electronic products. Allow a clearance of 10mm or more wherever possible.

Lamp Connections should be kept as short as possible and under no circumstances exceed 1m for self-contained luminaires.
The Unity-LED product should be secured using both fixing points and the use of M4x 6mm screws are recommended for most applications.


User configuration settings 'LK1' and 'LK2' should be checked and adjusted for correct use in the intended application before use. Incorrect settings can reduce life of the luminaire or cause permanent damage.
Unity-LED products are supplied with a jumper prefitted on LK1 (Low current setting) and for /PH variants LK2 leftmost pins (Disables 1-10 dimming).
Spare jumpers can be ordered separately as required. (See accessory page for details).
Refer to page 9 for details of configuration jumper settings.

Test Switch inputs - Emergency Test Function (Optional)
This product offers the facility to perform a function test for the duration which the switch is held. A non-latching push-to-make switch should be connected as shown in the wiring diagram.

EMC considerations: Mains input connections should be as far from the lamp leads as possible and no ideally less than 10cm. Mains input wires should be as short as possible and run direct from input terminations to the Unity-LED product; they should not run alongside the case.

Other EMC tips:
> Keep the lamp wires raised off any earthed metalwork
> Twist mains leads together when 'looping' or 'through wiring'
The switched and un-switched lives may be joined together for continuous operation (un-switched) applications.

If other devices are connected to the un-switched supply, please be aware that to maintain compliance with EN60598-2-22 that in event of its failure it will not affect other devices on the same circuit. In this case we recommend the use of separate fused terminal blocks to each device.

The symbol  confirms the control gear is built-in type, but accessible parts (excluding terminals) are insulated from live parts by double/reinforced insulation.

The Unity-LED modules are not suitable for use with battery supplies having 'trickle' or 'intermittent' re-charging circuits.

Installation particulars for end user

Commissioning:

Once the luminaire has been installed in line with the manufacturer's recommendations, **the battery should be allowed to charge for a minimum period of 24 hours before testing for its rated duration.** If it is anticipated that the un-switched supply may be interrupted, it is imperative that the battery is left disconnected and commissioning is delayed until the supply is stable.

If the luminaire has been stored for a number of months, it may be necessary to repeat the charge/discharge process several times to re-condition the battery.

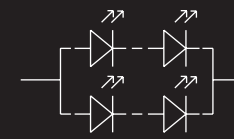
After successful commissioning, the battery should be marked with the date of commission.

Routine test and inspection should be performed in accordance with EN50172 or otherwise local legislation. Short discharge periods of around 5 – 10 minutes each month for the purposes of inspection will not adversely affect One-LUX batteries and should be considered as a maintenance exercise for the battery. Regular full discharge cycles will adversely affect the design life of the battery.

The mains supply should always be disconnected when servicing the luminaire.

Internal fuses used within Unity-LED product are not user serviceable.

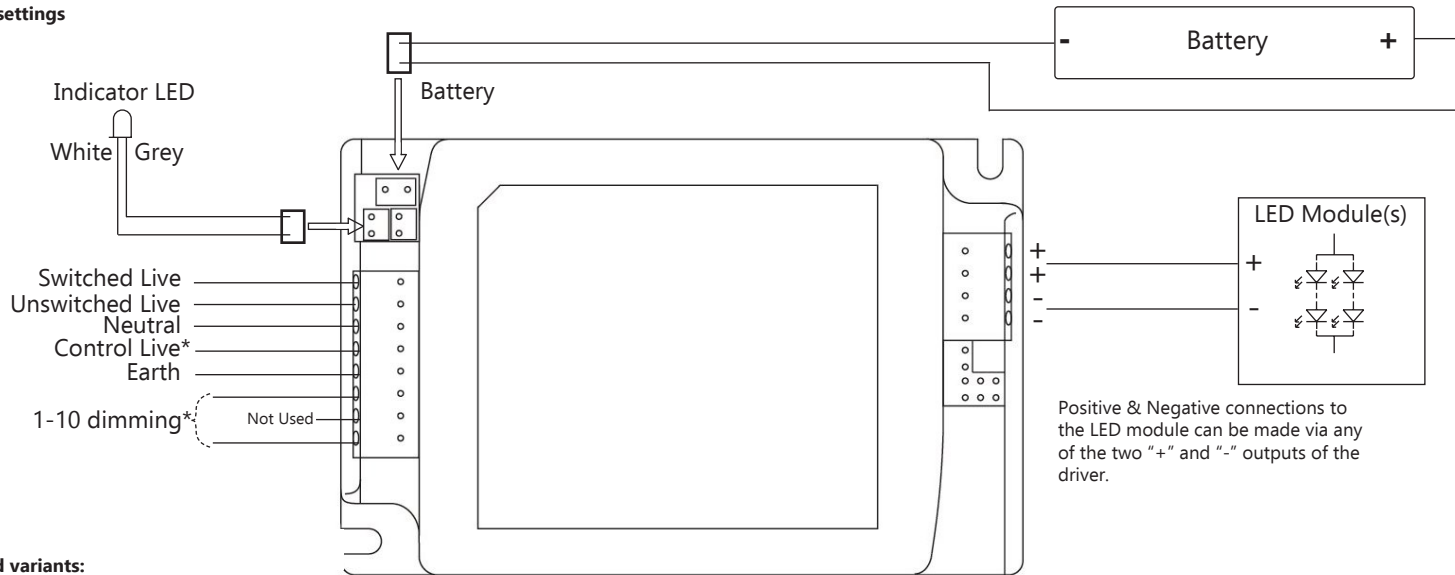
The unit provides double insulation between the mains supply and battery charging circuit and employs self-resetting protection against short-circuit of battery terminals. Normal charging will resume automatically once a fault is removed.



INSTALLATION

Wiring diagram and configuration settings

* Features only available on Unity-LED "/PH" Phase variants .

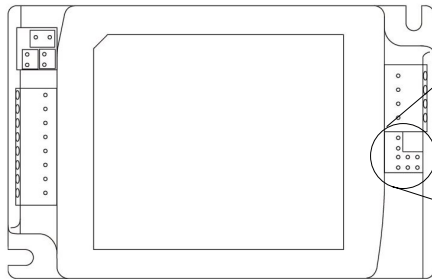


Positive & Negative connections to the LED module can be made via any of the two "+" and "-" outputs of the driver.

Configuration settings for Standard variants:

LK1 selects lower output current with jumper fitted and higher output current with jumper removed. (Currents are shown for OLU350/500 as an example).

LK2 is used to further reduce output current to the percentage level shown, if required.



LK1	Iout
█	350mA
●	500mA

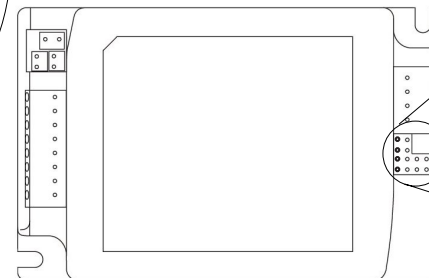
LK2	%Iout
●●●●	100%
●●●█	90%
●●█	80%
●█	75%

Configuration settings for /PH 'Phase' VARIANTS:

Output current settings as per standard variant, except the following extra features.

LK1 also allows deactivating corridor function if leftmost jumper is fitted.

LK2 also allows deactivating 1-10V dimming if leftmost jumper is fitted.



LK1	Iout
█	350mA
●	500mA

LK2	%Iout
●●●●	100%
●●●█	90%
●●█	80%
●█	75%