Duo Luna
Specification sheet

Flexible

KKDC

9V DC	5.27/3.65 W/m	1.6/1.11 W/ft	87.1 lm/W	IP40/65/68	c(UL)us LISTED E356145	CE

9V

12V DC	7.03/4.87 W/m	2.14/1.48 W/ft	64.7 lm/W

12V

PRODUCT SPECIFICATION

Dimension	H10.7/W22.5/L60mm (H0.42/W0.88/L2.36in) (9/13 modules per metre)
Module pitch	111/77mm (4.37/3.03in)
Chip	Toyoda Gosei
Beam angle	105°
Colours	White: 2100K/2300K/2500K/2700K/3000K/3200K/3500K/3800K/5000K
	Single colours: Red/Green/Blue/Orange/Amber
Bin/Step	s-líne 2 Step MacAdam ellipse
	e-líne 3 Step MacAdam ellipse
CRI	≥ 90
Lifetime	50,000 hours @ 25°C (50,000 hours @ 77°F)
Operating temp	IP40: T_a = -25 to 50°C (T_c max = 65°C) T_a = -13 to 122°F (T_c max = 149°F)
	IP65: T_a = -25 to 50°C (T_c max = 65°C) T_a = -13 to 122°F (T_c max = 149°F)
	IP68: T_a = -25 to 50°C (T_c max = 65°C) T_a = -13 to 122°F (T_c max = 149°F)
IP rating	IP40/IP65/IP68
Finish	Polycarbonate
Cover/lens	Clear
Mounting	3M adhesive tape (IP40/65), Screw fixing (IP68)
Minimum bend radius	130° (77mm/3.03" pitch)/180° (111mm/4.37" pitch)
Connection	Sheathed hardwire single/double ended sheathed tail
Control	0-10V/1-10V/DMX/DALI (see visDIM range)

Polar diagram: C0/C180 — candela (cd), C90/C270 ...... , 111mm pitch, 9V (values 21, 42, 63)
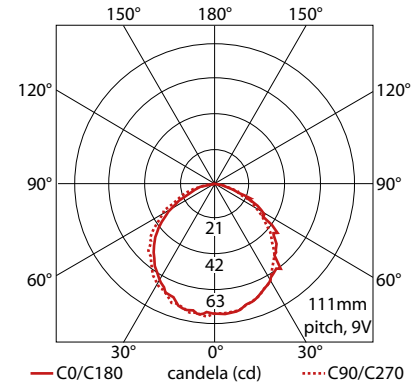
PERFORMANCE DATA for 3000K

Supply voltage	9V DC	9V DC	12V DC	12V DC
Modules per metre	13 modules	9 modules	13 modules	9 modules
Power consumption	5.27W/m (1.6W/ft)	3.65W/m (1.11W/ft)	7.03W/m (2.14W/ft)	4.87W/m (1.48W/ft)
Supply current	0.586A/m (0.179A/ft)	0.406A/m (0.123A/ft)	0.586A/m (0.179A/ft)	0.406A/m (0.123A/ft)
Luminous flux	459lm/m (140lm/ft)	320lm/m (98lm/ft)	455lm/m (139lm/ft)	316lm/m (96lm/ft)

TECHNICAL DRAWING

22.5mm (0.88")
10.7mm (0.42")
60mm (2.36")
77 / 111mm (3.03 / 4.37")

77mm (3.03") Pitch = 77 ~ 11000mm (39.37 ~ 433.07"),
111mm (4.37") Pitch = 111 ~ 14000 (39.37 ~ 551.18")
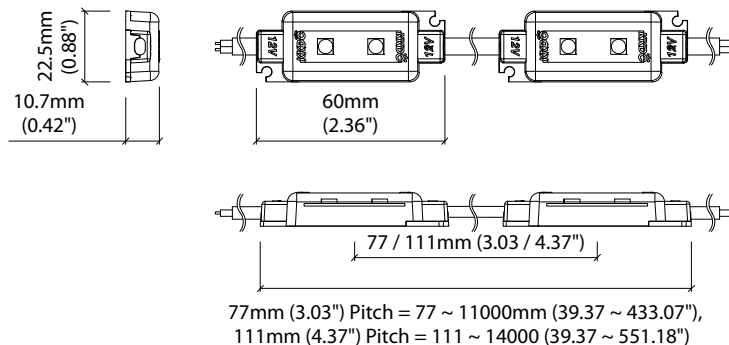
Data derived from independent UKAS / IESNA LM-79-08 accredited testing of production samples.

Duo Luna
Photometric Test Report

Flexible

KKDC

s-line

PRODUCT DETAILS

Product name :	Duo Luna
Stated output :	331lm per metre (@ 13 modules per m)
Description:	Hardwired LED modules, 3200K, 9~12V, 5.27W max
Quantity/length of product tested :	1 module
Bin tolerance/#. MacAdams ellipse of chip :	2 Step MacAdam Ellipse (+/- 91K)

ELECTRICAL CHARACTERISTICS

Input Voltage (V DC) :	9.00
Input power (W DC) :	0.38
Input Current (mA DC) :	43

LIGHT OUTPUT

Total light output (Lumens) :	24
Luminaire efficacy (lm/W) :	62.84
Beam angle :	109°

COLOUR CHARACTERISTICS

|	
Correlated colour temperature (CCT) :	3040K
Colour rendering index (CRI Ra) :	91
Chromaticity coordinates (CIE 1931 - x,y) :	0.4327, 0.4003
Duv :	0.0010

TEST DETAILS

Test Standards :	Data from independent UKAS accredited IESNA LM-79-08 testing of production samples.
Number of hours operated prior to test measurement :	24
Stabilisation time (minutes) :	45
Test orientation :	Base Down
Ambient test temperature :	24.7°C
Data measured at luminaire :	V,W,mA,lm/W

COLOUR RENDERING INDEX (CRI)

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
93.1	94.1	91.9	92.6	91.2	91.4	92.7	82.1	56.3	82.8	92.0	69.5	93.6	94.2

KKDC BIN DETAILS (CIE 1931)
Source LED details
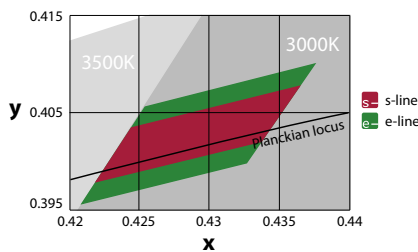
POLAR CURVE
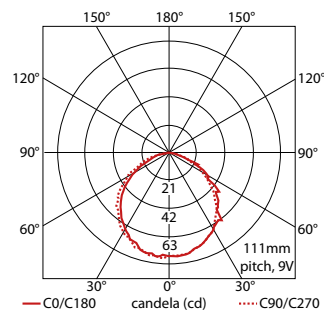
SPECTRAL RADIANT FLUX VERSUS WAVELENGTH
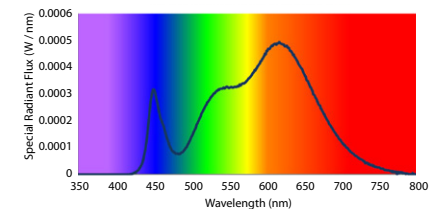
TEST SPECIFICATIONS

Test Lab :	LUX-TSI Ltd, Pencoed Technology Park, CF35 5HZ, UK
Test equipment :	40-inch (1metre) Integrating Sphere Spectroradiometer System. Fluke 289 True RMS Multimeter. Yokogawa TY720 Digital Multimeter.
Measurement uncertainty	Total Luminous Flux +/-5.6%, CCT +/-100K, CRI +/-2

LUX-TSI

Duo Luna
Installation Guide

Flexible

s-line e-line

KKDC

PRODUCT CARE AND HANDLING

• KKDC products are delivered in appropriate packaging. Any handling instructions on the packaging must be observed. Products should remain in packaging 'as delivered' until installation or for ongoing transportation and storage.

• Inspect products carefully before installation. Do not proceed to install any product that may have been damaged in transportation, storage or handling.

• Handle with care. Many KKDC products contain precision electrical components and are not designed to withstand excessive stresses from tension or compression.

• Please follow standard ESD (Electrostatic discharge) protection measures when handling and installing KKDC LED products.

SAFETY AND WARRANTY

• Installation is only to be carried out by suitably qualified persons in accordance with installation instructions and all applicable regulations or standards. (Improper installation can create an electrical hazard with risk of electric shock, fire or injury).

• KKDC will not be held responsible for any consequences arising from improper product handling, storage or installation.

• KKDC products must be installed as supplied. Disassembly, modification or attempted repair will invalidate warranty and may create an electrical hazard.

• The KKDC product warranty is available with this document or in the following link:
http://www.kkdc.lighting/warranty-information.php on our website – **www.kkdc.lighting**.

PREPARATION

• Install KKDC products in accordance with the Wiring and Mounting instructions supplied with the product, using the recommended accessories, tools and fixings where specified.

• Product specification and installation information is also available from the KKDC website **www.kkdc.lighting**.

• Products should only be installed in areas appropriate to their IP rating, operable temperature and humidity range.

• Carefully plan and check the physical layout and circuit structure of the installation before starting work. Note wiring methods , cable type and connection points along with positioning and rating of power supplies and any control gear.
Refer to all product information – including that for power supplies/control gear – and confirm choice of power supply, control gear, cable thickness and cable length.

• For safe and reliable operation KKDC LED products must only be used with suitable KKDC supplied or recommended power supplies and control gear. Contact KKDC for further information.
(North America – Use only UL listed Class 2 power supplies with KKDC products – See also Installation Guide – Wiring)

• The KKDC LED products in this guide require **9-12V DC** 'constant voltage' power supplies as indicated in product specifications.

AFTER INSTALLATION

• KKDC products are designed to be maintenance free however accumulated dust may be removed from the emitting surface of luminaires with careful use of a soft dry cloth.

• Ensure that paints, organic solvents and caustic or corrosive cleaning chemicals do not come into contact with KKDC products.
For example **DO NOT USE** –
- Benzene, Toluene, Xylene, Acetone, Carbon tetrachloride, Gasoline, Ether,
- Sodium/Calcium hydroxide, Sodium Carbonate.

• For cleaning or sanitization – products in sealed IP rated housings may be wiped with a soft cloth dampened with an alcohol cleaner or with cool, soft water diluted (5% or less) bleach (Sodium Hypochlorite) solution.

• Please retain this information and pass to those responsible for installation/site maintenance.

Note: KKDC may change product specifications and installation guidance without prior notice.

See KKDC website for product document updates.   **www.kkdc.lighting**   DuoLunaIG-03EN-20150703
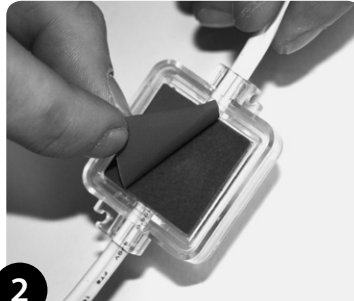
READ BEFORE INSTALLATION

- The mounting surface to which any KKDC product is attached must not carry any electrical potential and metallic surfaces must be earthed. Avoid physical contact between adjacent LED products.

- Prepare, measure and mark the installation location and mounting surfaces before fixing. Any machining or drilling etc. should be completed before mounting. KKDC products and their immediate installation area should be kept clean, dry and free of paints and solvents during and after installation.

- Ensure that products are mounted with supplied, recommended or appropriate screws and fixings to suit the surface material.

- Mount products so that cables and connectors will not come under excessive stress and position accessories, wiring and connectors where they will not cast shadows.

- Luna products may also be mounted with suitably sized and shaped 'P' clips or other cable clips. Contact KKDC for advice.

MOUNTING – SELF-ADHESIVE (IP20 and IP65)
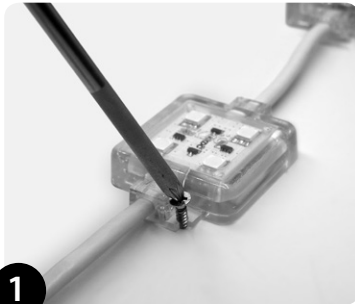

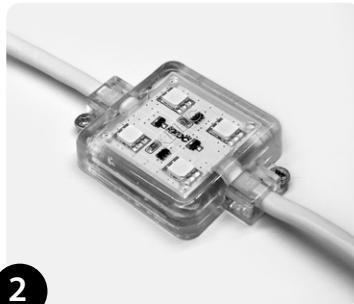**1** Ensure mounting surface is clean and dry.

2 Remove backing from adhesive pad.
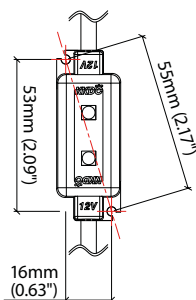

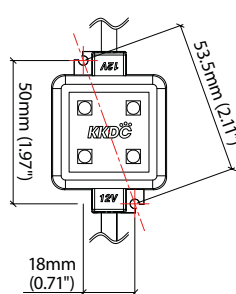**3** Press in position.

MOUNTING – SCREWS

1 Fix with suitable screws.
(fixing hole diameter = 3mm)
Do not overtighten.

2

53mm (2.09") | 55mm (2.17") | 16mm (0.63")

Duo Luna (excluding RGB)

50mm (1.97") | 53.5mm (2.11") | 18mm (0.71")

Quadro Luna

Note: This guide is produced from testing under 'average' conditions and does not represent all possible applications or installation circumstances.
Please contact KKDC for further information.
KKDC may change product specifications and installation guidance without prior notice.

Flexible

Duo Luna/eDuo Luna
(111mm/4.37in pitch) + 9V 45W PSU
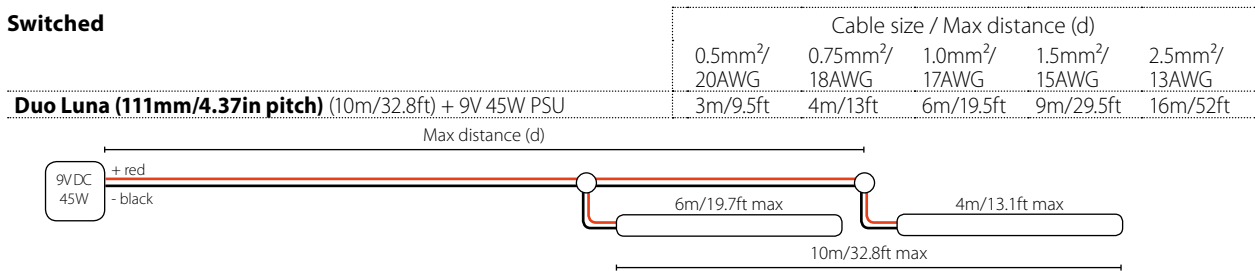## Installation Guide – Wiring

KKDC
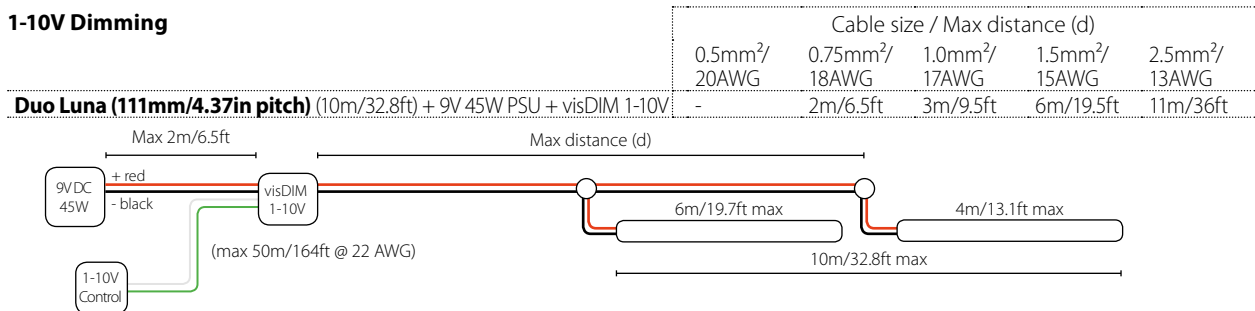
s-line   e-line

READ BEFORE INSTALLATION

- Cables used for connecting KKDC products must be of a suitable type and recommended gauge. Cable insulation must remain undamaged and conductors free from dirt and corrosion.
- Control cables should be of a suitable shielded type and not fixed in proximity to high voltage power cables or other sources of electromagnetic interference.
- When connecting KKDC products always observe the correct polarity (+/-). Failure to do so may destroy the product.
- Electrical circuits should be wired with power off and all wiring and connections should be complete and checked thoroughly before power is switched on. Take particular care not to confuse any control and power wiring. Do not remove any supplied product cable labels.
- Power supplies should not be made 'live' without the correct load attached and the low voltage output must not be switched. Do not exceed the recommended load.
- Remove only the minimum of cable insulation necessary to make wiring connections to eliminate the possibility of short circuit.
- Cables should be joined with terminal blocks and adequately protected against water immersion or moisture ingress with suitable tapes and sealants, potting compounds and IP rated junction boxes as appropriate to the installation and operating environment.
- Wiring examples derive from testing of products with single 1m 18AWG hardwired tails. Where longer or multiple tails are used please contact KKDC for further information.
- Luna LED products require **9V or 12V DC** PSU's. Use 9V for higher efficacy, or 12V for longer PSU to product wiring distances.
- When connecting **Duo Luna (111mm/4.37in+9V PSU)** products end to end – **Do not exceed 6m/19.7ft** (from any one parallel power feed – see wiring examples).
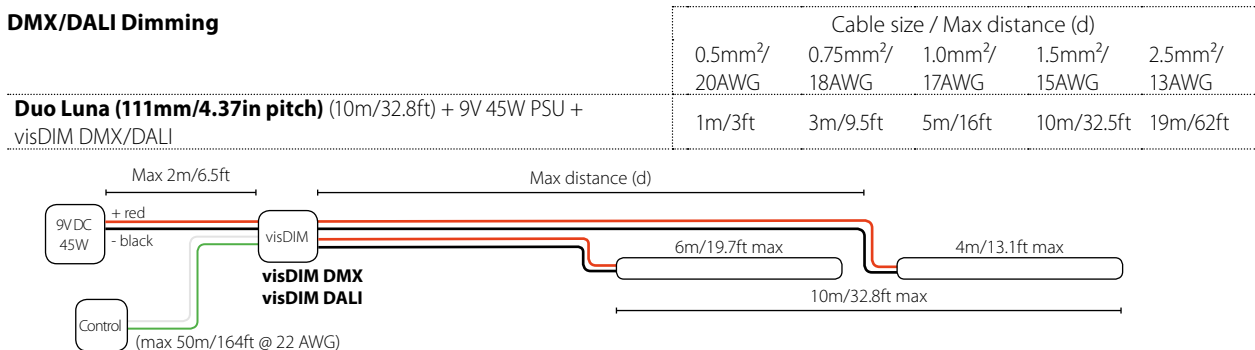
WIRING EXAMPLES

Switched

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (111mm/4.37in pitch) (10m/32.8ft) + 9V 45W PSU	3m/9.5ft	4m/13ft	6m/19.5ft	9m/29.5ft	16m/52ft

1-10V Dimming

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (111mm/4.37in pitch) (10m/32.8ft) + 9V 45W PSU + visDIM 1-10V	-	2m/6.5ft	3m/9.5ft	6m/19.5ft	11m/36ft

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (111mm/4.37in pitch) (10m/32.8ft) + 9V 45W PSU + visDIM DMX/DALI	1m/3ft	3m/9.5ft	5m/16ft	10m/32.5ft	19m/62ft

Note: This guide is produced from testing with KKDC approved power supplies or control gear.
Performance with other power or control products cannot be guaranteed. Contact KKDC for further information.
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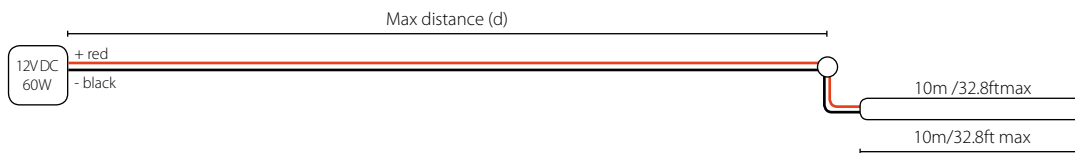
s–líne   e–líne

READ BEFORE INSTALLATION

- Cables used for connecting KKDC products must be of a suitable type and recommended gauge. Cable insulation must remain undamaged and conductors free from dirt and corrosion.

- Control cables should be of a suitable shielded type and not fixed in proximity to high voltage power cables or other sources of electromagnetic interference.

- When connecting KKDC products always observe the correct polarity (+/-). Failure to do so may destroy the product.

- Electrical circuits should be wired with power off and all wiring and connections should be complete and checked thoroughly before power is switched on. Take particular care not to confuse any control and power wiring. Do not remove any supplied product cable labels.

- Power supplies should not be made 'live' without the correct load attached and the low voltage output must not be switched. Do not exceed the recommended load.

- Remove only the minimum of cable insulation necessary to make wiring connections to eliminate the possibility of short circuit.

- Cables should be joined with terminal blocks and adequately protected against water immersion or moisture ingress with suitable tapes and sealants, potting compounds and IP rated junction boxes as appropriate to the installation and operating environment.

- Wiring examples derive from testing of products with single 1m 18AWG hardwired tails. Where longer or multiple tails are used please contact KKDC for further information.

- Luna LED products require **9V or 12V DC** PSU's. Use 9V for higher efficacy, or 12V for longer PSU to product wiring distances.

- When connecting **Duo Luna (111mm/4.37in+12V PSU)** products end to end – **Do not exceed 14m/45.9ft** (from any one parallel power feed – see wiring examples).
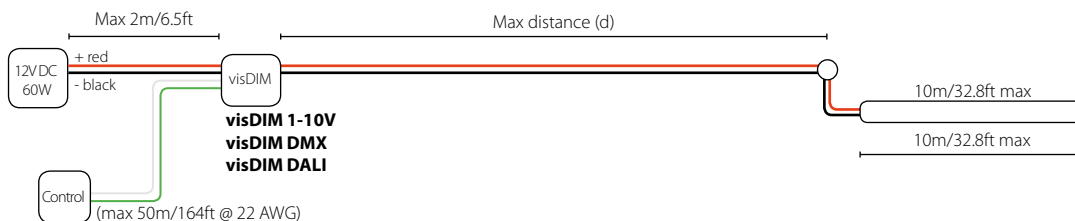
WIRING EXAMPLES

Switched

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (111mm/4.37in pitch) (10m/32.8ft) + 12V 60W PSU	10m/32.5ft	16m/52ft	21m/68.5ft	32m/104.5ft	54m/177ft

1-10V/DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (111mm/4.37in pitch) (10m/32.8ft) + 12V 60W PSU + visDIM 1-10V/DMX/DALI	8m/26ft	13m/42.5ft	18m/59ft	29m/95ft	50m/164ft

Note: This guide is produced from testing with KKDC approved power supplies or control gear.
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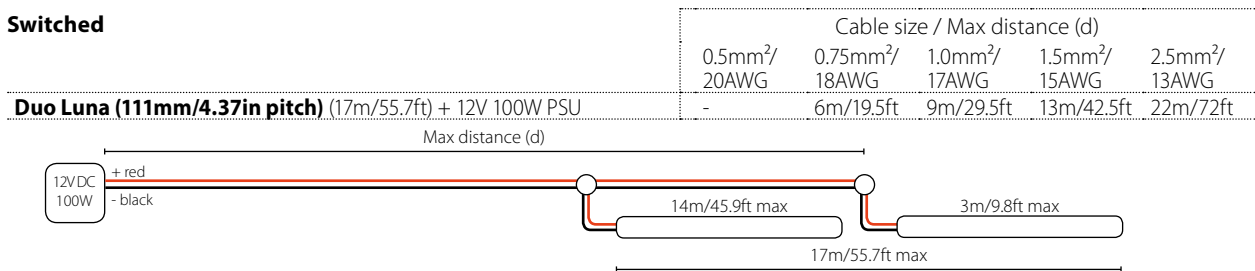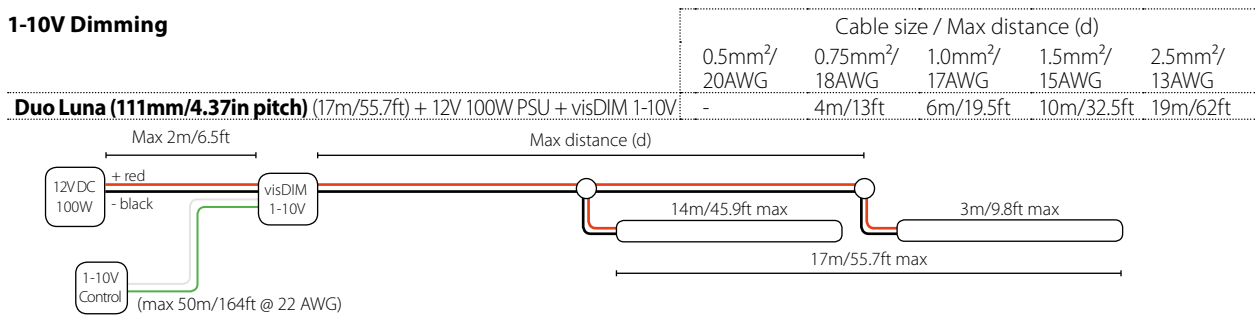
s-line e-line

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- Control cables should be of a suitable shielded type and not fixed in proximity to high voltage power cables or other sources of electromagnetic interference.

- When connecting KKDC products always observe the correct polarity (+/-). Failure to do so may destroy the product.

- Electrical circuits should be wired with power off and all wiring and connections should be complete and checked thoroughly before power is switched on. Take particular care not to confuse any control and power wiring. Do not remove any supplied product cable labels.

- Power supplies should not be made 'live' without the correct load attached and the low voltage output must not be switched. Do not exceed the recommended load.

- Remove only the minimum of cable insulation necessary to make wiring connections to eliminate the possibility of short circuit.

- Cables should be joined with terminal blocks and adequately protected against water immersion or moisture ingress with suitable tapes and sealants, potting compounds and IP rated junction boxes as appropriate to the installation and operating environment.

- Wiring examples derive from testing of products with single 1m 18AWG hardwired tails. Where longer or multiple tails are used please contact KKDC for further information.

- Luna LED products require **9V or 12V DC** PSU's. Use 9V for higher efficacy, or 12V for longer PSU to product wiring distances.

- When connecting **Duo Luna (111mm/4.37in+12V PSU)** products end to end – **Do not exceed 14m/45.9ft** (from any one parallel power feed – see wiring examples).
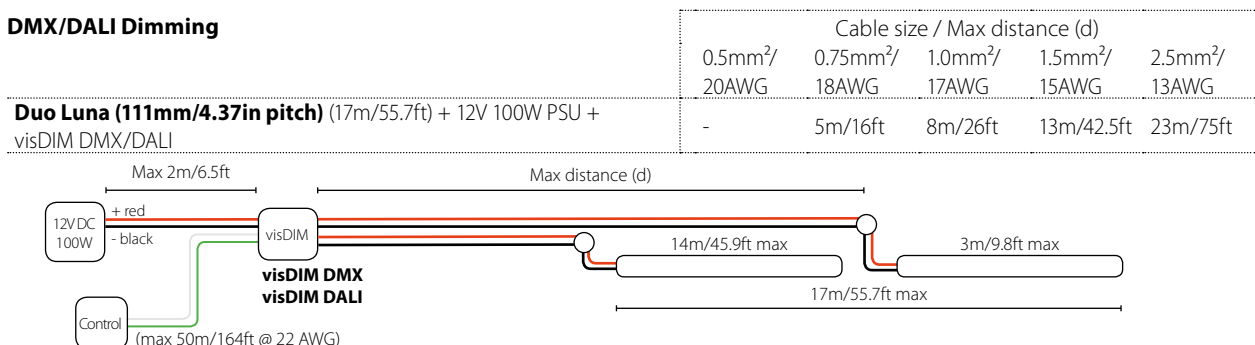
WIRING EXAMPLES

Switched

	Cable size / Max distance (d)				
	$0.5mm^2/$ 20AWG	$0.75mm^2/$ 18AWG	$1.0mm^2/$ 17AWG	$1.5mm^2/$ 15AWG	$2.5mm^2/$ 13AWG
Duo Luna (111mm/4.37in pitch) (17m/55.7ft) + 12V 100W PSU	-	6m/19.5ft	9m/29.5ft	13m/42.5ft	22m/72ft

1-10V Dimming

	Cable size / Max distance (d)				
	$0.5mm^2/$ 20AWG	$0.75mm^2/$ 18AWG	$1.0mm^2/$ 17AWG	$1.5mm^2/$ 15AWG	$2.5mm^2/$ 13AWG
Duo Luna (111mm/4.37in pitch) (17m/55.7ft) + 12V 100W PSU + visDIM 1-10V	-	4m/13ft	6m/19.5ft	10m/32.5ft	19m/62ft

DMX/DALI Dimming

	Cable size / Max distance (d)				
	$0.5mm^2/$ 20AWG	$0.75mm^2/$ 18AWG	$1.0mm^2/$ 17AWG	$1.5mm^2/$ 15AWG	$2.5mm^2/$ 13AWG
Duo Luna (111mm/4.37in pitch) (17m/55.7ft) + 12V 100W PSU + visDIM DMX/DALI	-	5m/16ft	8m/26ft	13m/42.5ft	23m/75ft

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Duo Luna/eDuo Luna (77mm/3.03in pitch) + 9V 45W PSU
Installation Guide – Wiring
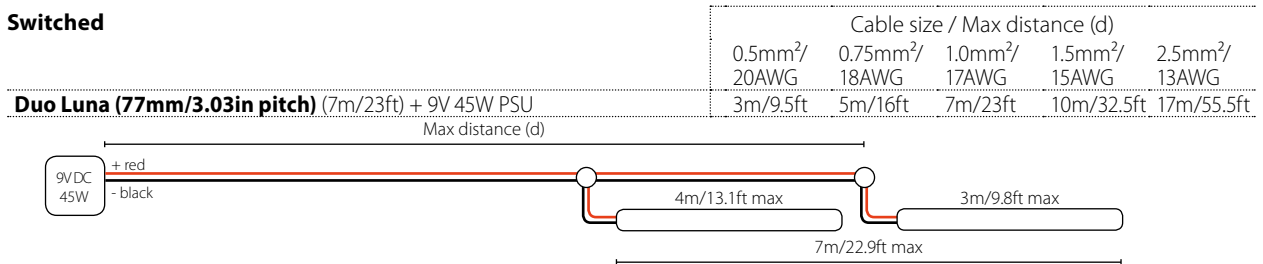
KKDC

s-line   e-line
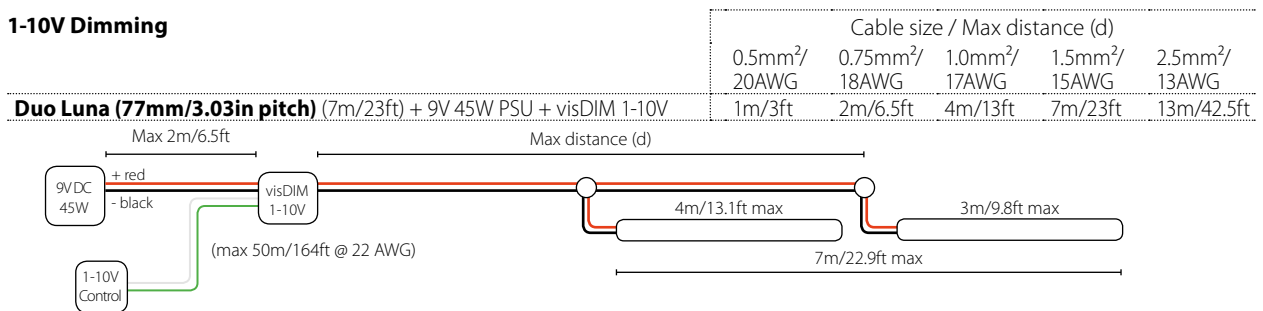
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- Luna LED products require **9V or 12V DC** PSU's. Use 9V for higher efficacy, or 12V for longer PSU to product wiring distances.
- When connecting **Duo Luna (77mm/3.03in+9V PSU)** products end to end – **Do not exceed 4m/13.1ft** (from any one parallel power feed – see wiring examples).
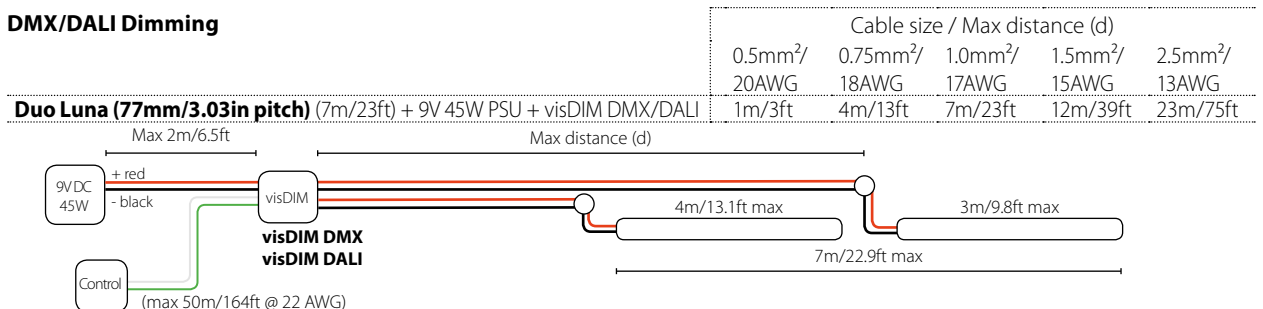
WIRING EXAMPLES

Switched

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna (77mm/3.03in pitch) (7m/23ft) + 9V 45W PSU	3m/9.5ft	5m/16ft	7m/23ft	10m/32.5ft	17m/55.5ft

1-10V Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna (77mm/3.03in pitch) (7m/23ft) + 9V 45W PSU + visDIM 1-10V	1m/3ft	2m/6.5ft	4m/13ft	7m/23ft	13m/42.5ft

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna (77mm/3.03in pitch) (7m/23ft) + 9V 45W PSU + visDIM DMX/DALI	1m/3ft	4m/13ft	7m/23ft	12m/39ft	23m/75ft

Note: This guide is produced from testing with KKDC approved power supplies or control gear.
Performance with other power or control products cannot be guaranteed. Contact KKDC for further information.
KKDC may change product specifications and installation guidance without prior notice.
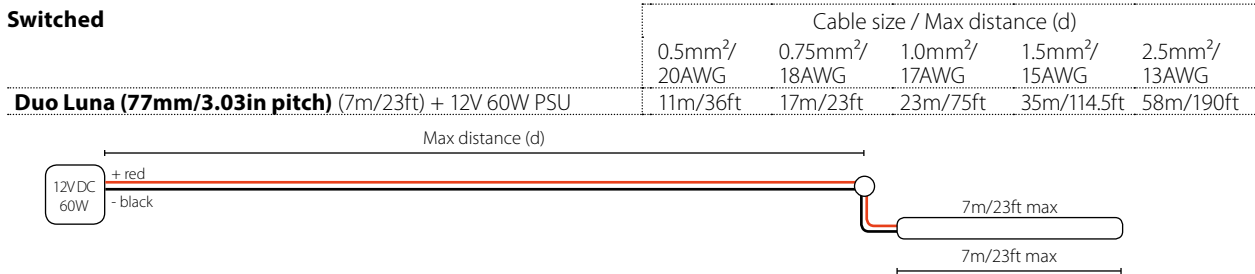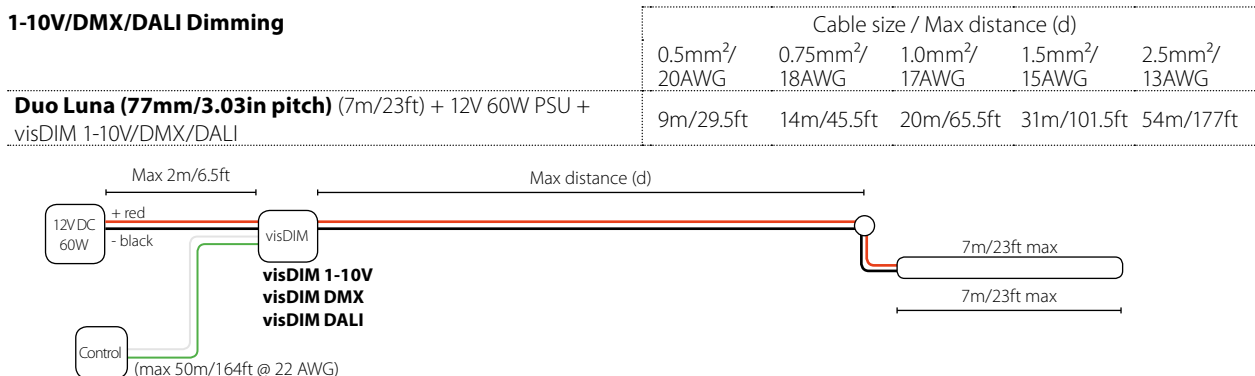
s-line   e-line

READ BEFORE INSTALLATION

- Cables used for connecting KKDC products must be of a suitable type and recommended gauge. Cable insulation must remain undamaged and conductors free from dirt and corrosion.

- Control cables should be of a suitable shielded type and not fixed in proximity to high voltage power cables or other sources of electromagnetic interference.

- When connecting KKDC products always observe the correct polarity (+/-). Failure to do so may destroy the product.

- Electrical circuits should be wired with power off and all wiring and connections should be complete and checked thoroughly before power is switched on. Take particular care not to confuse any control and power wiring. Do not remove any supplied product cable labels.

- Power supplies should not be made 'live' without the correct load attached and the low voltage output must not be switched. Do not exceed the recommended load.

- Remove only the minimum of cable insulation necessary to make wiring connections to eliminate the possibility of short circuit.

- Cables should be joined with terminal blocks and adequately protected against water immersion or moisture ingress with suitable tapes and sealants, potting compounds and IP rated junction boxes as appropriate to the installation and operating environment.

- Wiring examples derive from testing of products with single 1m 18AWG hardwired tail. Where longer or multiple tails are used please contact KKDC for further information.

- Luna LED products require **9V or 12V DC** PSU's. Use 9V for higher efficacy, or 12V for longer PSU to product wiring distances.

- When connecting **Duo Luna (77mm/3.03in+12V PSU)** products end to end – **Do not exceed 11m/36.1ft** (from any one parallel power feed – see wiring examples).

WIRING EXAMPLES

Switched

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (77mm/3.03in pitch) (7m/23ft) + 12V 60W PSU	11m/36ft	17m/23ft	23m/75ft	35m/114.5ft	58m/190ft

1-10V/DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm^2/ 20AWG	0.75mm^2/ 18AWG	1.0mm^2/ 17AWG	1.5mm^2/ 15AWG	2.5mm^2/ 13AWG
Duo Luna (77mm/3.03in pitch) (7m/23ft) + 12V 60W PSU + visDIM 1-10V/DMX/DALI	9m/29.5ft	14m/45.5ft	20m/65.5ft	31m/101.5ft	54m/177ft

Flexible

Duo Luna/eDuo Luna (77mm/3.03in pitch) + 12V 100W PSU
Installation Guide – Wiring
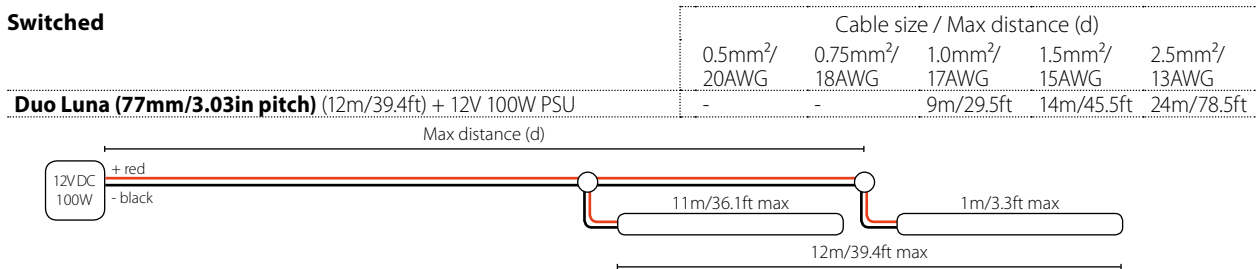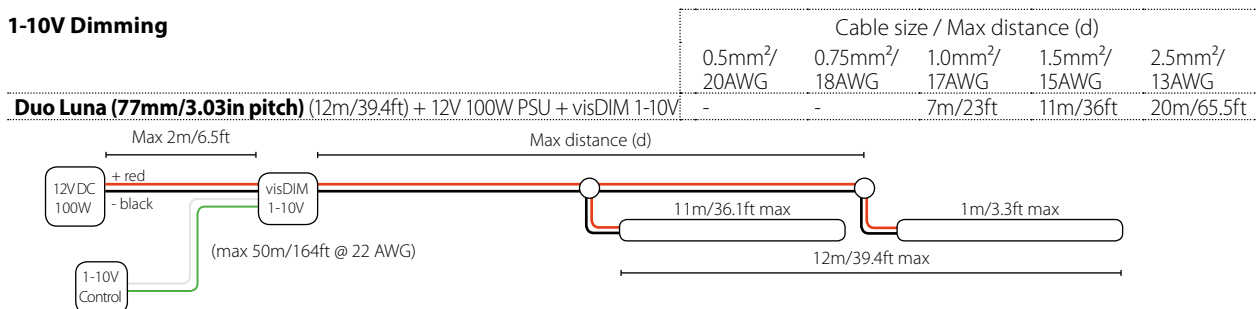
KKDC

s-line e-line

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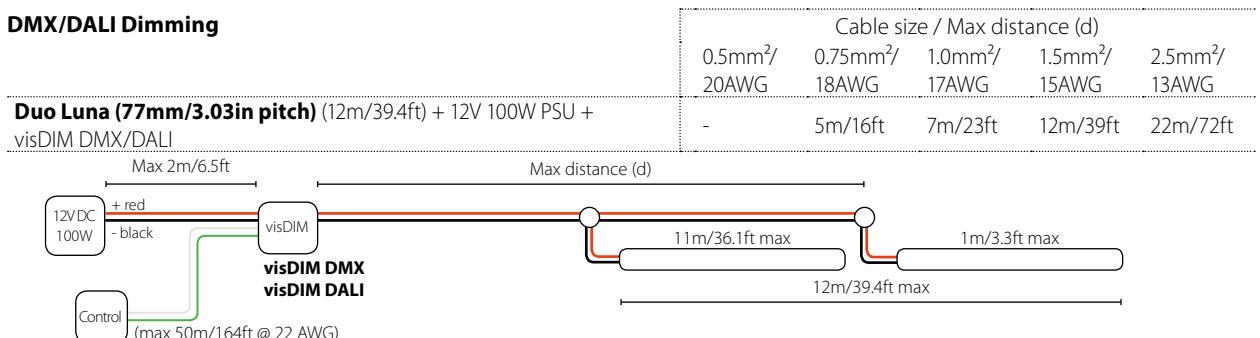
WIRING EXAMPLES

Switched

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna (77mm/3.03in pitch) (12m/39.4ft) + 12V 100W PSU	-	-	9m/29.5ft	14m/45.5ft	24m/78.5ft

Max distance (d)

12V DC 100W + red - black

11m/36.1ft max   1m/3.3ft max

12m/39.4ft max

1-10V Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna (77mm/3.03in pitch) (12m/39.4ft) + 12V 100W PSU + visDIM 1-10V	-	-	7m/23ft	11m/36ft	20m/65.5ft

Max 2m/6.5ft   Max distance (d)

12V DC 100W + red - black   visDIM 1-10V

1-10V Control

(max 50m/164ft @ 22 AWG)

11m/36.1ft max   1m/3.3ft max

12m/39.4ft max

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna (77mm/3.03in pitch) (12m/39.4ft) + 12V 100W PSU + visDIM DMX/DALI	-	5m/16ft	7m/23ft	12m/39ft	22m/72ft

Max 2m/6.5ft   Max distance (d)

12V DC 100W + red - black   visDIM

visDIM DMX
visDIM DALI

Control

(max 50m/164ft @ 22 AWG)

11m/36.1ft max   1m/3.3ft max

12m/39.4ft max

Note: This guide is produced from testing with KKDC approved power supplies or control gear.
Performance with other power or control products cannot be guaranteed. Contact KKDC for further information.
KKDC may change product specifications and installation guidance without prior notice.

Product Warranty

KKDC

In the unlikely event that purchasers should experience a product failure, this should in the first instance be dealt with by contacting the supplier or local authorised KKDC representative.

Our warranty is provided in addition to any statutory legal rights and details the terms under which claims can be made.

1. Duration of Warranty

This warranty applies to all KKDC manufactured products for 3 years from the date of installation (or date of manufacture if the installation date is not known or verifiable) An extended 5 year warranty may be offered at the discretion of KKDC if appropriate project registration criteria are met.

2. Repair or Replacement

Should a KKDC product fail to function within the warranty period, KKDC will on its sole discretion provide a replacement free of charge or repair defective components in accordance with the terms set out below. Purchasers shall bear the cost of removal and return of any product subject to a warranty claim and that of installing a replacement. Any other costs, including but not limited to replacement costs upon installation; costs caused from failures of the installation or other damages and/or consequential damages are not covered by this warranty.

Replacement products shall as far as possible match the specification of the original but may have superior performance characteristics in line with ongoing product development.

3. Return of a Defective Product

The purchaser making a warranty claim shall contact KKDC (or their authorised representative) at the earliest opportunity to be provided with an address for return of the product. On receipt of returned product/s the validity of the claim will be checked. Proof of purchase may be required.

KKDC reserve the right to conduct diagnostic examination of any defective or failed product to determine patterns of usage and cause of failure and reserve the right to be the sole judge as to whether a returned product is defective within the terms of this warranty.

4. Notes / Conditions of Warranty

This warranty applies only to defects in materials and workmanship and only where KKDC Products are properly handled, stored, installed, wired and maintained in accordance with the most recent published KKDC product usage guides, installation instructions, specification sheets, and any applicable local electrical safety standards and wiring regulations.
(The most recent versions of KKDC product documentation are available from the website www.kkdc.co.uk)

This warranty does not constitute any inference as to the suitability of any product for any purpose. In no event shall KKDC be liable for any other costs or damages including lost profits, incidental, special or consequential damages.

Warranty claims will be invalid in the event of :

Product damage due to abuse, unauthorised alteration or modification, accident, fire, flood, lightning, rodents, insects, negligence or acts of God.

Product installation by unqualified persons.

Product modification, disassembly or attempted repair by non KKDC staff.

Product installation or storage in 'abnormal' conditions or locations, including but not limited to those where :

Ambient Temperatures are in excess of 60 Deg C.

Installation in areas of excessive humidity.

Any product subjected to excessive mechanical stress, or physical damage.

Inadequate heat sinking provision for any unhoused 'bare PCB' type LED product.

IP67 class luminaires installed without adequate local drainage, or becoming immersed in water.

Chemical contamination or damage from salt laden air.

Damage from use of pressure washers or other mechanical cleaners.

Improper use of 'sanitizing products' and maintenance using improper or unapproved chemical compounds/solvents.

Unauthorised use of parts or accessories not manufactured by KKDC in conjunction with KKDC Products.

'Constant Voltage' (CV) KKDC LED Products supplied with incorrect voltage.

'Constant Current' (CC) KKDC LED products supplied with incorrect current.

Incorrect layout, cutting and connection of wiring; intermittent or improper mains electrical supply.

Product/s having damaged serial number, cable or Certificate labels.

Product/s which have been installed more than once or have not been returned promptly and directly to KKDC for fault diagnosis and testing.

5. Warranty contacts

Warranty claims can be made only by the original purchaser by contacting KKDC or local KKDC authorised representative details of which can be found via the supplier or on the website – **www.kkdc.lighting**.

6. Implied Terms

6.1 Subject to sub-clause 6.2, any condition or warranty which would otherwise be implied is excluded.

6.2 Where legislation implies any condition or warranty, and that legislation avoids or prohibits provisions in a contract excluding or modifying the application of or exercise of or liability under such condition or warranty, the condition or warranty shall be deemed to be included in this warranty. However the liability of KKDC for any breach of such condition or warranty shall be limited, at the option of KKDC, to the following:

If the breach relates to any KKDC Product:

(i) the replacement or the supply of equivalent KKDC Product;

(ii) repair of product (excluding costs of removal and installation);

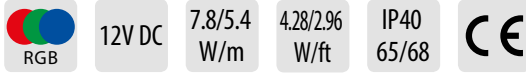(iii) payment of the cost of replacement or of acquiring equivalent product; or

(iv) payment of the cost of repair of product (excluding costs of removal and installation).

Note: KKDC reserves the right to make changes to product specifications and installation guidance without prior notice.
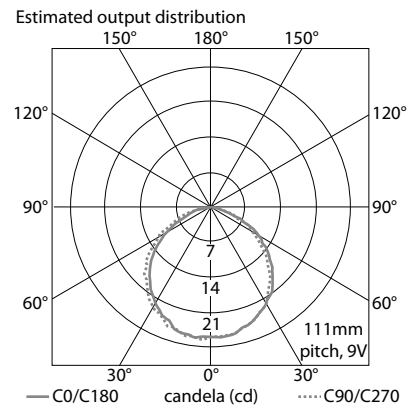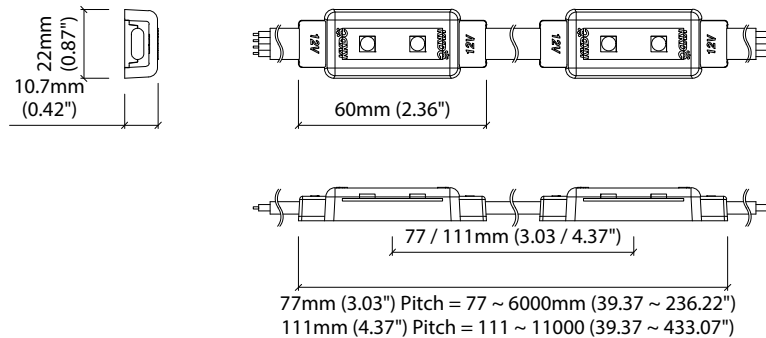
Duo Luna RGB
Specification sheet

Flexible

KKDC

RGB | 12V DC | 7.8/5.4 W/m | 4.28/2.96 W/ft | IP40 65/68 | CE

PRODUCT SPECIFICATION

Dimension	H10.7/W22/L60mm (H0.42/W0.86/L2.36in) (9/13 modules per metre)
Module pitch	111/77mm (4.37/3.03in)
Chip	Red TEKCORE/Green EPILEDS/Blue 3E
Beam angle	105°
Colours	Red 620-628nm/Blue 459-464nm/Green 521-527nm
Bin/Step	5nm tolerance
CRI	N/A
Lifetime	50,000 hours @ 25°C (50,000 hours @ 77°F)
Operating temp	IP40: T_a = -25 to 50°C (T_c max = 65°C) T_a = -13 to 122°F (T_c max = 149°F) IP65: T_a = -25 to 50°C (T_c max = 65°C) T_a = -13 to 122°F (T_c max = 149°F) IP68: T_a = -25 to 50°C (T_c max = 65°C) T_a = -13 to 122°F (T_c max = 149°F)
IP rating	IP40/IP65/IP68
Finish	Polycarbonate
Cover/lens	Clear
Mounting	3M adhesive tape (IP40/65), Screw fixing (IP68)
Minimum bend radius	90° (77mm/3.03" pitch)/180° (111mm/4.37" pitch)
Connection	Sheathed hardwire single/double ended sheathed tail
Control	DMX/DALI (see visDIM range)

Estimated output distribution

150° 180° 150°
120° 120°
90° 90°
7
14
60° 60°
21
111mm pitch, 9V
30° 0° 30°
—C0/C180 candela (cd) ·······C90/C270

PERFORMANCE DATA

Power consumption	7.8/5.4W/m (4.28/2.96W/ft) (13modules/9modules)
Supply voltage	12V DC
Supply current	0.65/0.45A/m (0.2/0.14A/ft) (13modules/9modules)
Luminous flux	9 modules: Red: 26lm/m Green: 75lm/m Blue: 11lm/m White: 106lm/m (Red: 8lm/ft Green: 23lm/ft Blue: 3lm/ft White: 32lm/ft) 13modules: Red: 41lm/m Green: 11lm/m Blue: 17lm/m White: 163lm/m (Red: 12lm/ft Green: 36lm/ft Blue: 5lm/ft White: 50lm/ft)

TECHNICAL DRAWING

22mm (0.87")
10.7mm (0.42")

60mm (2.36")

77 / 111mm (3.03 / 4.37")

77mm (3.03") Pitch = 77 ~ 6000mm (39.37 ~ 236.22")
111mm (4.37") Pitch = 111 ~ 11000 (39.37 ~ 433.07")

Duo Luna
Installation Guide

Flexible

KKDC

s-line e-line

PRODUCT CARE AND HANDLING

- KKDC products are delivered in appropriate packaging. Any handling instructions on the packaging must be observed. Products should remain in packaging 'as delivered' until installation or for ongoing transportation and storage.

- Inspect products carefully before installation. Do not proceed to install any product that may have been damaged in transportation, storage or handling.

- Handle with care. Many KKDC products contain precision electrical components and are not designed to withstand excessive stresses from tension or compression.

- Please follow standard ESD (Electrostatic discharge) protection measures when handling and installing KKDC LED products.

SAFETY AND WARRANTY

- Installation is only to be carried out by suitably qualified persons in accordance with installation instructions and all applicable regulations or standards. (Improper installation can create an electrical hazard with risk of electric shock, fire or injury).

- KKDC will not be held responsible for any consequences arising from improper product handling, storage or installation.

- KKDC products must be installed as supplied. Disassembly, modification or attempted repair will invalidate warranty and may create an electrical hazard.

- The KKDC product warranty is available with this document or in the following link:
  http://www.kkdc.lighting/warranty-information.php on our website – **www.kkdc.lighting**.

PREPARATION

- Install KKDC products in accordance with the Wiring and Mounting instructions supplied with the product, using the recommended accessories, tools and fixings where specified.

- Product specification and installation information is also available from the KKDC website **www.kkdc.lighting**.

- Products should only be installed in areas appropriate to their IP rating, operable temperature and humidity range.

- Carefully plan and check the physical layout and circuit structure of the installation before starting work. Note wiring methods , cable type and connection points along with positioning and rating of power supplies and any control gear.
  Refer to all product information – including that for power supplies/control gear – and confirm choice of power supply, control gear, cable thickness and cable length.

- For safe and reliable operation KKDC LED products must only be used with suitable KKDC supplied or recommended power supplies and control gear. Contact KKDC for further information.
  (North America – Use only UL listed Class 2 power supplies with KKDC products – See also Installation Guide – Wiring)

- The KKDC LED products in this guide require **9-12V DC** 'constant voltage' power supplies as indicated in product specifications.

AFTER INSTALLATION

- KKDC products are designed to be maintenance free however accumulated dust may be removed from the emitting surface of luminaires with careful use of a soft dry cloth.

- Ensure that paints, organic solvents and caustic or corrosive cleaning chemicals do not come into contact with KKDC products.
  For example **DO NOT USE** –
  - Benzene, Toluene, Xylene, Acetone, Carbon tetrachloride, Gasoline, Ether,
  - Sodium/Calcium hydroxide, Sodium Carbonate.

- For cleaning or sanitization – products in sealed IP rated housings may be wiped with a soft cloth dampened with an alcohol cleaner or with cool, soft water diluted (5% or less) bleach (Sodium Hypochlorite) solution.

- Please retain this information and pass to those responsible for installation/site maintenance.

Note: KKDC may change product specifications and installation guidance without prior notice.

See KKDC website for product document updates.   **www.kkdc.lighting**   DuoLunaIG-03EN-20150703
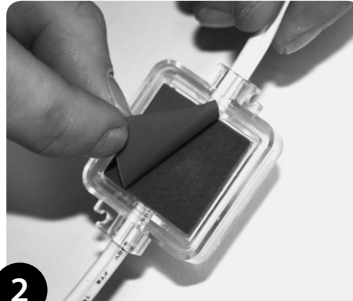
READ BEFORE INSTALLATION

- The mounting surface to which any KKDC product is attached must not carry any electrical potential and metallic surfaces must be earthed. Avoid physical contact between adjacent LED products.

- Prepare, measure and mark the installation location and mounting surfaces before fixing. Any machining or drilling etc. should be completed before mounting. KKDC products and their immediate installation area should be kept clean, dry and free of paints and solvents during and after installation.

- Ensure that products are mounted with supplied, recommended or appropriate screws and fixings to suit the surface material.

- Mount products so that cables and connectors will not come under excessive stress and position accessories, wiring and connectors where they will not cast shadows.

- Luna products may also be mounted with suitably sized and shaped 'P' clips or other cable clips. Contact KKDC for advice.

MOUNTING – SELF-ADHESIVE (IP20 and IP65)
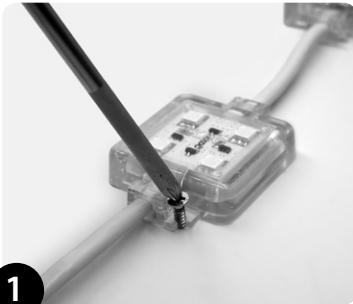

1 Ensure mounting surface is clean and dry.

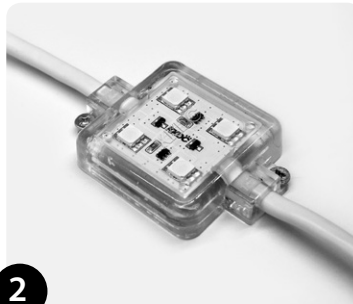
2 Remove backing from adhesive pad.

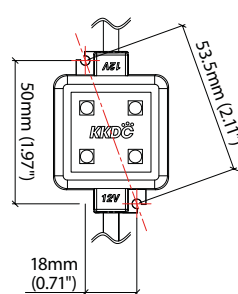**3** Press in position.

MOUNTING – SCREWS

1 Fix with suitable screws.
(fixing hole diameter = 3mm)
Do not overtighten.

2

53mm (2.09")
55mm (2.17")
16mm (0.63")

Duo Luna (excluding RGB)

50mm (1.97")
53.5mm (2.11")
18mm (0.71")

Quadro Luna

Note: This guide is produced from testing under 'average' conditions and does not represent all possible applications or installation circumstances.
Please contact KKDC for further information.
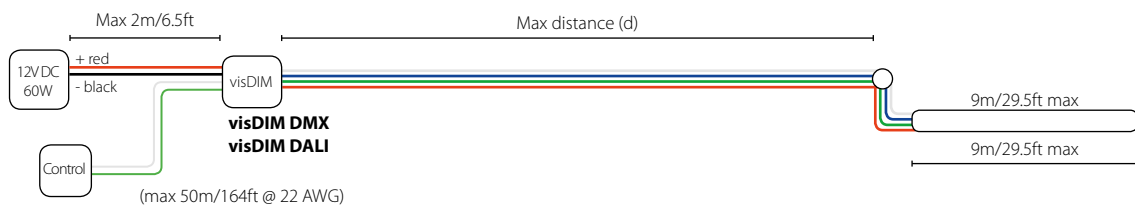KKDC may change product specifications and installation guidance without prior notice.

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- Control cables should be of a suitable shielded type and not fixed in proximity to high voltage power cables or other sources of electromagnetic interference.

- When connecting KKDC products always observe the correct polarity (+/-). Failure to do so may destroy the product.

- Electrical circuits should be wired with power off and all wiring and connections should be complete and checked thoroughly before power is switched on. Take particular care not to confuse any control and power wiring. Do not remove any supplied product cable labels.

- Power supplies should not be made 'live' without the correct load attached and the low voltage output must not be switched. Do not exceed the recommended load.

- Remove only the minimum of cable insulation necessary to make wiring connections to eliminate the possibility of short circuit.

- Cables should be joined with terminal blocks and adequately protected against water immersion or moisture ingress with suitable tapes and sealants, potting compounds and IP rated junction boxes as appropriate to the installation and operating environment.

- Wiring examples derive from testing of products with single 1m 18AWG hardwired tail. Where longer or multiple tails are used please contact KKDC for further information.

- RGB Luna LED products require **12V DC** PSU's.

- When connecting **Duo Luna RGB (111mm/4.37in)** products end to end – **Do not exceed 9m/29.5ft** (from any one parallel power feed – see wiring examples).

WIRING EXAMPLES

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna RGB (111mm/4.37in pitch) (9m/29.5ft) + 12V 60W PSU + visDIM DMX/DALI	6m/19.5ft	11m/36ft	15m/49ft	24m/78.5ft	42m/137.5ft

Max 2m/6.5ft   Max distance (d)

```
12V DC    + red
 60W      - black    visDIM
                     visDIM DMX
                     visDIM DALI
Control
          (max 50m/164ft @ 22 AWG)
```
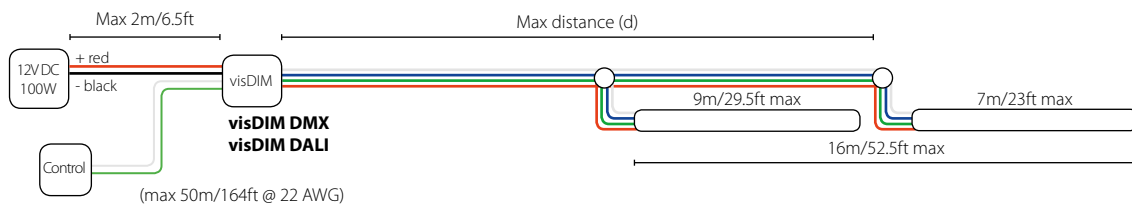
9m/29.5ft max

9m/29.5ft max

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- Wiring examples derive from testing of products with single 1m 18AWG hardwired tail. Where longer or multiple tails are used please contact KKDC for further information.

- RGB Luna LED products require **12V DC** PSU's.

- When connecting **Duo Luna RGB (111mm/4.37in**) products end to end – **Do not exceed 9m/29.5ft** (from any one parallel power feed – see wiring examples).

WIRING EXAMPLES

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna RGB (111mm/4.37in pitch) (16m/52.5ft) + 12V 100W PSU + visDIM DMX/DALI	-	-	7m/23ft	12m/39ft	22m/72ft

Max 2m/6.5ft

Max distance (d)

12V DC 100W

+ red
- black

visDIM

visDIM DMX
visDIM DALI

Control

(max 50m/164ft @ 22 AWG)

9m/29.5ft max

7m/23ft max

16m/52.5ft max

Note: This guide is produced from testing with KKDC approved power supplies or control gear.
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- Wiring examples derive from testing of products with single 1m 18AWG hardwired tail. Where longer or multiple tails are used please contact KKDC for further information.

- RGB Luna LED products require **12V DC** PSU's.

- When connecting **Duo Luna RGB (77mm/3.03in)** products end to end – **Do not exceed 7m/23ft** (from any one parallel power feed – see wiring examples).

WIRING EXAMPLES

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna RGB (77mm/3.03in pitch) (6m/19.6ft) + 12V 60W PSU + visDIM DMX/DALI	8m/26ft	14m/45.5ft	19m/62ft	30m/98ft	52m/170.5ft

Max 2m/6.5ft

Max distance (d)

12V DC 60W

+ red
- black

visDIM

visDIM DMX
visDIM DALI

Control

(max 50m/164ft @ 22 AWG)
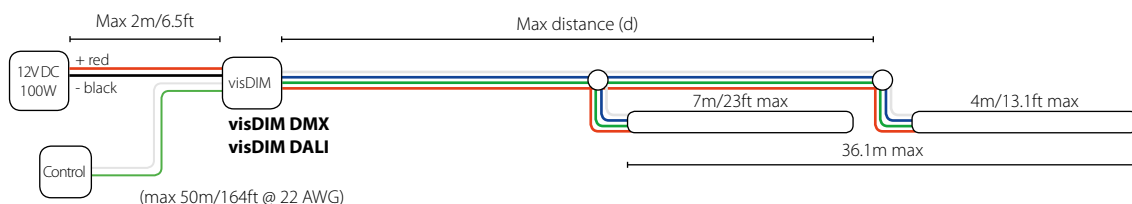
6m/19.6ft max

6m/19.6ft max

READ BEFORE INSTALLATION

• Cables used for connecting KKDC products must be of a suitable type and recommended gauge. Cable insulation must remain undamaged and conductors free from dirt and corrosion.

• Control cables should be of a suitable shielded type and not fixed in proximity to high voltage power cables or other sources of electromagnetic interference.

• When connecting KKDC products always observe the correct polarity (+/-). Failure to do so may destroy the product.

• Electrical circuits should be wired with power off and all wiring and connections should be complete and checked thoroughly before power is switched on. Take particular care not to confuse any control and power wiring. Do not remove any supplied product cable labels.

• Power supplies should not be made 'live' without the correct load attached and the low voltage output must not be switched. Do not exceed the recommended load.

• Remove only the minimum of cable insulation necessary to make wiring connections to eliminate the possibility of short circuit.

• Cables should be joined with terminal blocks and adequately protected against water immersion or moisture ingress with suitable tapes and sealants, potting compounds and IP rated junction boxes as appropriate to the installation and operating environment.

• Wiring examples derive from testing of products with single 1m 18AWG hardwired tail. Where longer or multiple tails are used please contact KKDC for further information.

• RGB Luna LED products require **12V DC** PSU's.

• When connecting **Duo Luna RGB (77mm/3.03in)** products end to end – **Do not exceed 7m/23ft** (from any one parallel power feed – see wiring examples).

WIRING EXAMPLES

DMX/DALI Dimming

	Cable size / Max distance (d)				
	0.5mm²/ 20AWG	0.75mm²/ 18AWG	1.0mm²/ 17AWG	1.5mm²/ 15AWG	2.5mm²/ 13AWG
Duo Luna RGB (77mm/3.03in pitch) (11m/36.1ft) + 12V 100W PSU + visDIM DMX /DALI	-	-	8m/26ft	13m/42.5ft	24m/78.5ft

Note: This guide is produced from testing with KKDC approved power supplies or control gear.
Performance with other power or control products cannot be guaranteed. Contact KKDC for further information.
KKDC may change product specifications and installation guidance without prior notice.

See KKDC website for product document updates.   **www.kkdc.lighting**   DuoLunaRGB111mm100WG-05EN-20161216

Product Warranty

KKDC

In the unlikely event that purchasers should experience a product failure, this should in the first instance be dealt with by contacting the supplier or local authorised KKDC representative.

Our warranty is provided in addition to any statutory legal rights and details the terms under which claims can be made.

1. Duration of Warranty

This warranty applies to all KKDC manufactured products for 3 years from the date of installation (or date of manufacture if the installation date is not known or verifiable) An extended 5 year warranty may be offered at the discretion of KKDC if appropriate project registration criteria are met.

2. Repair or Replacement

Should a KKDC product fail to function within the warranty period, KKDC will on its sole discretion provide a replacement free of charge or repair defective components in accordance with the terms set out below. Purchasers shall bear the cost of removal and return of any product subject to a warranty claim and that of installing a replacement. Any other costs, including but not limited to replacement costs upon installation; costs caused from failures of the installation or other damages and/or consequential damages are not covered by this warranty.

Replacement products shall as far as possible match the specification of the original but may have superior performance characteristics in line with ongoing product development.

3. Return of a Defective Product

The purchaser making a warranty claim shall contact KKDC (or their authorised representative) at the earliest opportunity to be provided with an address for return of the product. On receipt of returned product/s the validity of the claim will be checked. Proof of purchase may be required.

KKDC reserve the right to conduct diagnostic examination of any defective or failed product to determine patterns of usage and cause of failure and reserve the right to be the sole judge as to whether a returned product is defective within the terms of this warranty.

4. Notes / Conditions of Warranty

This warranty applies only to defects in materials and workmanship and only where KKDC Products are properly handled, stored, installed, wired and maintained in accordance with the most recent published KKDC product usage guides, installation instructions, specification sheets, and any applicable local electrical safety standards and wiring regulations.
(The most recent versions of KKDC product documentation are available from the website www.kkdc.co.uk)

This warranty does not constitute any inference as to the suitability of any product for any purpose. In no event shall KKDC be liable for any other costs or damages including lost profits, incidental, special or consequential damages.

Warranty claims will be invalid in the event of :

- Product damage due to abuse, unauthorised alteration or modification, accident, fire, flood, lightning, rodents, insects, negligence or acts of God.
- Product installation by unqualified persons.
- Product modification, disassembly or attempted repair by non KKDC staff.
- Product installation or storage in 'abnormal' conditions or locations, including but not limited to those where :
  - Ambient Temperatures are in excess of 60 Deg C.
  - Installation in areas of excessive humidity.
  - Any product subjected to excessive mechanical stress, or physical damage.
  - Inadequate heat sinking provision for any unhoused 'bare PCB' type LED product.
  - IP67 class luminaires installed without adequate local drainage, or becoming immersed in water.
- Chemical contamination or damage from salt laden air.
- Damage from use of pressure washers or other mechanical cleaners.
- Improper use of 'sanitizing products' and maintenance using improper or unapproved chemical compounds/solvents.
- Unauthorised use of parts or accessories not manufactured by KKDC in conjunction with KKDC Products.
- 'Constant Voltage' (CV) KKDC LED Products supplied with incorrect voltage.
- 'Constant Current' (CC) KKDC LED products supplied with incorrect current.
- Incorrect layout, cutting and connection of wiring; intermittent or improper mains electrical supply.
- Product/s having damaged serial number, cable or Certificate labels.
- Product/s which have been installed more than once or have not been returned promptly and directly to KKDC for fault diagnosis and testing.

5. Warranty contacts

Warranty claims can be made only by the original purchaser by contacting KKDC or local KKDC authorised representative details of which can be found via the supplier or on the website – **www.kkdc.lighting**.

6. Implied Terms

6.1 Subject to sub-clause 6.2, any condition or warranty which would otherwise be implied is excluded.

6.2 Where legislation implies any condition or warranty, and that legislation avoids or prohibits provisions in a contract excluding or modifying the application of or exercise of or liability under such condition or warranty, the condition or warranty shall be deemed to be included in this warranty. However the liability of KKDC for any breach of such condition or warranty shall be limited, at the option of KKDC, to the following:

If the breach relates to any KKDC Product:
- (i) the replacement or the supply of equivalent KKDC Product;
- (ii) repair of product (excluding costs of removal and installation);
- (iii) payment of the cost of replacement or of acquiring equivalent product; or
- (iv) payment of the cost of repair of product (excluding costs of removal and installation).

Note: KKDC reserves the right to make changes to product specifications and installation guidance without prior notice.