

USER MANUAL

LEDLine

DMX-controlled RGB LED Indoor/Outdoor Batten

For firmware 50-015-0158-00101-1-00 LEDLine_IR RevB 4CH

ENGLISH Page 2-18

■ Introduction

Dear customer,

congratulations on the purchase of this quality item and the trust having been put in us with this decision. To take full advantage of all possibilities and for your own safety and the safety of your environment, please read these operating instructions carefully before you start using the unit.

SAFETY INFORMATION



Read the safety precautions in this chapter before installing, powering up, operating or servicing this device. Failure to do so may void the product warranty, and releases the manufacturer from all product liability.

■ Symbols used in this manual

The following symbols are used to identify important safety information on the product and in this manual:



WARNING! Read manual before installation, operation or servicing.



WARNING! Safety hazard. Risk of injury or death.



WARNING! Hazardous voltage. Risk of severe or fatal electric shock.



WARNING! Shock hazard. Equipment must be properly grounded.



WARNING! Hot surface. Risk of skin burn or skin irritation.



WARNING! Fire hazard.



WARNING! Laser radiation. Risk of surface damage.



WARNING! LED light emission. Risk of eye injury.

■ Maintenance

This device does not need regular maintenance. It is protected by an internal fuse located on the power supply PCB. If this fuse fails, this usually indicates an internal fault requiring servicing by a qualified engineer. The fuse shall only be replaced by a fuse of same specification, and the replacement has to be made by qualified personnel obeying applicable safety rules.

■ Technical data LEDLINE

Mains Input.....AC100-250V~ 50/60Hz
 Power supply type.....switch mode
 Fuse.....internal (see service manual)
 DMX connections.....3 pin XLR (Male / Female)
 Modulation Type.....Pulse Width Modulation (PWM)
 Control protocol.....DMX 512 (1990)
 Dimension (Width/Height – Length see below).....75.5x101.5mm

Version data

LEDLINE	252-10	49-1	12-3	24-3
LEDs	252x10mm 63 red 20mA 108 green 20mA 81 blue 20mA	49x1W 16 red 350mA 21 green 350mA 12 blue 350mA	12x3W TriLED 12 red 350mA 12 green 350mA 12 blue 350mA	24x3W TriLED 24 red 350mA 24 green 350mA 24 blue 350mA
Dispersion	30° Conical	25°x75° Elliptic	25° Conical	25° Conical
Power Consumption	Max. 25W	Max. 55W	Max. 44W	Max. 80W
Length	1011.00 mm	1011.00 mm	515.00 mm	1011.00 mm
Weight	3.4kg net	6.20 kg	5.00 kg	6.20 kg

■ Standards

This product complies with the following standards:

EU electrical safety.....EN60598-1:2008, EN60598-2-1:1989
 EU photobiological safety.....EN 62471:2008
 EU EMC.....EN55015: 2006 + A1:2007, EN61547:1995 + A1:2000
 EU HarmonicsEN61000-3-2:2006
 EU FlickerEN61000-3-3:2008
 US safetyUL60065
 US EMC.....FCC Part 15

This product meets both the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC.

■ Security advice before use



General advice:

1. Read this manual completely before using the product.
2. Keep this manual in your records for future reference.
3. Follow all instruction printed in this manual.
4. Follow all printed security advice on the product itself.
5. Take care of enough distance between this product and sources of hum and noise like electric motors and transformers.
6. Carry this product with greatest care. Punches, big forces and heavy vibration may damage this product mechanically.



Protection from eye injury

1. Warning: Depending on the configuration of the device, this device may reach or exceed the limits of EN62471, risk group 2, and may hence reach to risk group 3.
2. To avoid eye injury, do not look into the beam from a distance of less than 8.5 m (27 ft. 11 ins) from the front surface of the fixture without protective eyewear such as shade-5 welding goggles. At larger distances, light output is harmless to the naked eye provided that the eye's natural aversion response is not affected.
3. Do not view the beam directly with optical instruments such as magnifiers, telescopes, binoculars or similar optical instruments that may concentrate the light output.
4. Ensure that during setup and DMX programming, no persons are inside a 8.50m (27 ft. 11 ins) vicinity of the device's front surface, to avoid that they may accidentally be exposed to the light beam.



Protection from electric shock:

1. Only connect this unit to a mains socket outlet with protective earth connection, ground-fault (earth-fault) and overload protection.
2. Where the mains plug or an appliance coupler is used as a disconnect device, such device shall remain readily operable.
3. To pull the AC Cord out of the wall outlet or the unit's AC socket, never pull the cable itself, but only the AC plug.
4. Disconnect the unit from AC supply before any kind of cleaning on the product. Use smooth and dry cloth only for cleaning.
5. Do not expose this unit to any dripping or splashing liquids, and do not place objects filled with liquids, such as vases, on the unit.
6. Do not operate this unit near to open water or in high humidity.
7. Choose the position of the AC cord according to the lowest risk of damage by foot steps or by squeezing it.
8. Do not open the unit for service, there are no user-serviceable parts inside. Warranty will be void in any case of unauthorized service by the user or other not authorized persons.

**Protection from fire:**

1. Take care of not placing the unit near sources of heat (e.g. powerful amplifiers, fog machines).
2. Allow at least about 0.15m (6 ins.) between this unit and other devices or a wall to allow for proper cooling.
3. Take always care of sufficient air convection in the unit's environment to avoid overheating. Make sure air convection slots are not blocked. Do not operate this unit in environmental temperatures exceeding 35 degrees Celsius.
4. Be sure this fixture is kept at least 0.75m (30ins.) away from any flammable materials (decoration etc.).
5. Do not stick filters, masks or other materials directly on the LEDs or the LED cover screen.
6. Check the total maximum power of your AC wall outlet if you connect several units to one wall outlet and avoid any overloading.
7. If the device itself has an AC outlet for providing power to other units, make sure to not exceed the specified maximum load.

**Protection from injury and damage:**

1. Never use any accessories or modifications not authorized by the manufacturer of this unit.
2. Choose a location for operation where the unit is protected from vibration and where a fixed mounting position is provided. In case of overhead-mounting, follow applicable rigging requirements.
3. Before plugging the AC cord in the wall outlet, check whether the AC plug, the mains voltage and frequency are the same as this product is specified for. If not, contact your dealer immediately.
4. The surface of the device may get hot during operation, and heat sink areas may reach to or exceed the limits of EN60950. Do not touch heat sink areas of the device during operation, and allow 20 minutes of cool-down time after powering off before touching.
5. If fluids have spilled into the unit or small parts have intruded the unit, immediately switch off the unit and hand it over to the authorized service for a security check.
6. Disconnect the unit from AC supply by pulling the AC plug out of the wall outlet or the unit's AC socket during a thunder-storm in order to avoid any damage on the unit due to AC voltage peaks.
7. In case of not correct function of this unit or damaged AC cord or other damaged parts, pull immediately the AC plug out of the wall outlet and hand the unit over to the authorized service for a security check.
8. To meet all aspects of functionality and security during maintenance work to be performed on this unit, all parts should be replaced by genuine spare parts. Consequently, take care of your dealer or maintenance company to be authorized by the manufacturer.

ON/OFF (Blackout) Key - the unit's light output can be enabled/disabled with this key.

SOUND Key – not assigned in this product.

COLOR Key – the unit will work in fixed color mode. A color can be chosen with the number keys 0...9 and will relate to the first 9 preset colors from the unit's onboard C-Mode:

IRC Key	Color Preset	Color	IRC Key	Color Preset	Color
0	C00	White	5	C05	Pink
1	C01	Red	6	C06	Turquoise
2	C02	Green	7	C07	Lime
3	C03	Blue	8	C08	Orange
4	C04	Yellow	9	C09	Marine

The dimming level can be varied with the relative UP/DOWN keys in ten steps.

AUTO Key – the unit will work in AUTO mode, and a relative pattern can be chosen with the number keys. The number keys directly relate to the pattern numbers, but depend on whether FADE or SWITCH is active. If FADE is active, then the number keys 0...9 relate to patterns A10...A19, if SWITCH is active then the number keys on the remote control relate to patterns A20...A29. The pattern speed and the dimming level can be varied with the relative UP/DOWN keys in ten steps.

STROBE Keys – allow to activate white/red/green/blue strobe directly. Default speed is 16Hz. The dimming level can be varied with the relative UP/DOWN keys in ten steps.

LEVEL UP/DOWN Keys – allow to set the dimming level of the unit in ten different steps. Since this control is not available on the on-board user interface of the main unit, the setting will get lost when switching the modes between COLOR and AUTO.

SPEED UP/DOWN Keys - allow to set the execution speed of the AUTO mode in ten different steps. Since this control is not available on the on-board user interface of the main unit, the setting will get lost when switching the modes between AUTO mode and other modes.

DMX channel	Value Range	Function
CH1	000-255	R level
CH2	000-255	G level
CH3	000-255	B level
CH4	000-127	Master level
	128-227	Tact (128=slow / 227=max. speed 23 Hz)
	228-255	Master level full on, Tact off

Display on/off

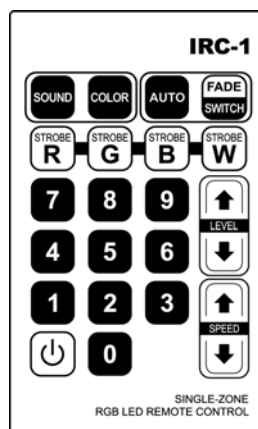
The display of the unit will turn off after 25 seconds of not receiving any user commands through the buttons 1/2/3. On the first hit of any button, the display will light up again; this first hit will not change any settings, only when you press any button after that, settings will be affected.

Key lock

Pressing the MODE button (1) for longer than 3 seconds locks all the buttons (1/2/3). The display shows "LOC" in alteration to the mode (changing every 2 seconds). Pressing the MODE button again for more than 3 seconds unlocks the button functions.

Infrared Remote Control (IRC)

As an optional accessory, this unit can be accompanied by an infrared (IR) remote control. Please note that not all versions of this product are fitted with the required IR receiver, in this case the following functional description may not be applicable to your product; in other configurations, the IR receiver may be fitted but the remote control unit needs to be purchased separately and is not part of the delivery of this unit. You may contact your distributor/dealer for details.



■ Health advice

This unit produces and absorbs electromagnetic radiation. The strength of radiation and the sensitivity for disturbing interference matches the CE and FCC requirements. A corresponding sign is printed on the backside of the unit. Any change or modification may affect the behavior of the unit concerning electromagnetic radiation, with the CE requirements eventually not to be met any more. The manufacturer takes no responsibility in this case.

■ Functional advice

This unit is immune to the presence of electromagnetic disturbances – both conducted and radiated - up to a certain level. Under peak conditions, the unit is classified to show a "class C" performance criteria and may encounter temporary degradation or loss of function which may need manual help to recover. In such case, disconnect the AC power from the unit and reconnect it again to recover.

■ Environmental advice



This unit is built to conform to the ROHS standards and the WEEE directive 2002/96/EC of the European Parliament and of the Council of the European Union. Under these regulations, the product shall not be discarded into regular garbage at the end of its life, but shall be returned to authorized recycling stations.

■ LED Lifetime advice

LED lifetime is determined by the gradually declining brightness of a LED over time, with a point of 50% brightness reduction marking the defined end of its lifetime. The driving factor of this effect is the heat that the chip inside the LED is exposed to. While a chip may under ideal circumstances reach to more than 100000 hours of lifetime, the real-world lifetime may only be 30000 to 50000 hours or less if the LED is exposed to excessive heat, which can be caused by continuously running all LEDs inside this device at full power and operating the unit in high environmental temperatures. If improving the lifespan expectancy is a priority, take care of providing for lower operational temperatures. This may include forced external cooling and/or the reduction of overall projection intensity.

■ Unpacking

Please check that the box contains the following items, and contact your dealer immediately for replacement if any part is missing:

Main parts: 1 pc. LEDLine main unit
1 pc. mains cable
1 pc. operation manual

Please note that the package – depending on your product configuration – may also contain an infrared remote control (IRC).

■ Getting started: changing the connectors (only if required)

Your LEDLINE has been factory-fitted with connectors for both AC In/out and DMX In/Out. This configuration can be changed with comparatively little effort into an IP65-compliant outdoor version, with PG9 cable glands to hold all connection cables in a waterproof manner.



Reliability risk: Changing the connectors in an inappropriate manner may defeat the waterproof capabilities of the fixture and may void any warranty of the manufacturer if water intrudes into the unit. It is essential to follow the below instructions to maintain the waterproof capabilities of the fixture and its product warranty subsequently.



Safety risk: This procedure requires to open the unit. In case of unintended connection to AC supply, life parts may be exposed and touchable. In case of wrong internal wiring, the safety of the whole installation where this unit is used may be endangered and a risk of fire is possible. This procedure shall hence only be carried out by qualified technicians with relevant experience in safe work methods for electrical equipment service and maintenance. DO NOT attempt to change the connectors by yourself if you do not have the applicable experience. The manufacturer does not take any liability for life and assets if such unqualified attempt is made.

Before you start to change the connectors, please make sure that:

- yourself or the person in charge has the relevant experience in safe work methods for electrical equipment service and maintenance.
- the unit is disconnected from any AC source. Please note that this also applies to the unit's AC output, since being connected by the AC output to other units which are still under AC supply, will still supply power to the unit.
- the unit is completely dry, and at room temperature.
- the location chosen to exchange the connectors does not have more than 40% relative humidity and the temperature during the exchange does not exceed 40 degrees Celsius. These parameters are important to avoid later condensation of the water contained in the environmental air when the unit works at lower outside temperatures.
- the screw driver used to dismantle and re-assemble the unit is properly matching the screws to avoid any damage to the screws.
- the screw driver has an in-built torque measurement or you have other torque-measurement devices on hand to make sure that screws are fastened with the right torque during re-assembly.

“C” Color Mode

Press the MODE button until the first digit on the display shows “Cxx”, indicating operation in “C” mode with chosen preset “xx”. Then choose by using the UP/DOWN buttons one of the 13 color presets as shown in the list below. Changing the setting becomes effective directly. The output level in this mode is always 100%.

In this mode, the unit does not receive any values from the DMX input but generates related DMX values on the output (3CH) according to the selected preset, so that further units can show the same behaviour if they are connected by DMX signal cables and set to Slave Mode “SLA”. If you leave mode “C” for any reason and come back later into mode “C”, the unit will recall the last chosen color preset (even if the unit was switched off in between). Available color presets:

	Color		Color
C00	White	C07	Lime
C01	Red	C08	Orange
C02	Green	C09	Marine
C03	Blue	C10	Frog
C04	Yellow	C11	Lavender
C05	Pink	C12	Candy
C06	Turquoise	C13	OFF

“SLA” DMX Slave Mode

Press the MODE button on the unit itself until the display shows “SLA”, indicating operation in “SLA” (SLAVE) mode. Once In this mode, the unit occupies 3 DMX channels, for R/G/B intensity each respectively. In this mode, the unit is set to DMX-channel 001 as start address in order to receive a 3CH DMX-Signal from a master-unit being in mode “A”, “S2L” or “C”. Once such signal is received, a LED on the lower right side of the “S” in the display indicates that a DMX signal is present.

“d” Mode (DMX Mode)

Press the MODE button until the display shows “d”, indicating operation in “d” (DMX) mode. Shortly after that, the display shows the DMX starting address. You can choose any DMX starting address by simply using the UP/DOWN buttons on the unit itself. The chosen DMX-address comes effective approximately 3 seconds later and will show up on the display on the unit itself in alternation to the “d”. This allows control of the unit by any external DMX signal sending on the chosen channels. Once such signal is received, a LED on the lower right side of the “d” in the display indicates that a DMX signal is present. In this mode, the unit receives DMX values on a packet of 4 channels starting from the chosen start address and mirrors the received data on the DMX output. The 4 channels control the unit as follows:

later into mode “Axx”, the unit will recall the last chosen pattern (even if the unit was switched off in between). Available pattern presets:

	Fade Transition 0.05 Hz
A00	Red, Green
A01	Green, Blue
A02	Red, Blue
A03	Red, Yellow
A04	Orange-Frog
A05	Pink-Blue
A06	Turquoise-Pink
A07	Random (Red, green, blue)
A08	Yellow, turquoise, pink
A09	Red, green, blue

	Fade Transition 0.5 Hz
A10	Red, Green
A11	Green, Blue
A12	Red, Blue
A13	Red, Yellow
A14	Orange-Frog
A15	Pink-Blue
A16	Turquoise-Pink
A17	Random (Red, green, blue)
A18	Yellow, turquoise, pink
A19	Red, green, blue

	Switching Transition 2Hz
A20	Red, Green
A21	Green, Blue
A22	Red, Blue
A23	Red, Yellow
A24	Orange-Frog
A25	Pink-Blue
A26	Turquoise-Pink
A27	Red, green, blue
A28	Yellow, turquoise, pink
A29	Red, orange, green, turquoise, blue, pink

	Strobes 16Hz
A30	Strobe white
A31	Strobe red
A32	Strobe green
A33	Strobe Blue

To expedite the connector change, you will need the matching outdoor conversion kit for this unit, which is available from your distributor. Further, you will also need to have the suitable cable material on hand, which ideally is

- Rubber AC cable of at least 3x1.5sqmm cross-section, with outer diameter of not less than 6mm, and not more than 9mm.
- DMX signal cable, 2-wire+shield, with outer diameter of not less than 6mm, and not more than 9mm.
- Matching wire termination sleeves.



Reliability risk: Using cable material of unsuitable outer diameter or with insufficient flexibility of its outer tubing may defeat the waterproof capabilities of the fixture and may void any warranty.

The conversion kit itself contains:

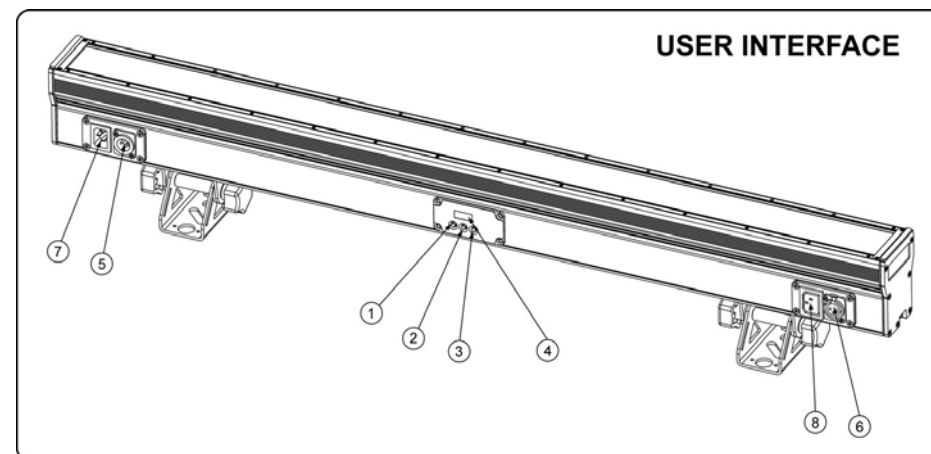
- The outdoor conversion panels (x2)
- The rubber seals for the outdoor conversion panels (x2)
- The PG9 cable glands made from stainless steel (x4)
- The rubber plain washers as seals for the fitting screws (x4)
- The rubber dummy plugs needed if a cable gland remains without cable (x3)

To start expediting the connector change, please follow the below step-by-step instructions and draw your attention to the illustrations provided. Please note that the unit has two connection panels, and each of them will require to expedite the below procedure. Further please note this refers to a conversion from indoor to outdoor; for the inverse conversion, please reverse the procedure's steps 5-16.

- 1) Loosen the 4pcs. of countersunk screws that hold the indoor connection panel on the main unit, and remove the screws.
- 2) Carefully lift the indoor connection panel with the attached connector assembly from the main unit.
- 3) Detach the indoor connection panel far enough from the main unit to gain access to the internal terminal blocks.
- 4) Unscrew the terminal block screws on the connector side and remove the indoor connection panel.
- 5) Pre-assemble the PG9 cable gland body with the outdoor conversion panels. Make sure that the lower PG cable gland seal is fitted properly and that the nut which holds the gland in the outdoor conversion panel is tightened sufficiently. Do NOT yet fit the upper cover nut and the cable seals.
- 6) Put the cover nuts of the PG glands over the cable end and push the cable seals on the cables.
- 7) Insert the cables into the cable gland bodies mounted to the outdoor conversion panels and loosely fix the cover nuts, so that the cable can still be moved longitudinally.

- 8) Pull the cable stubs far enough out to allow skinning of the leads inside the cables.
- 9) Skin the separate leads of both the DMX and AC cables on the rear side of the outdoor conversion panel and terminate them properly with termination sleeves.
- 10) Pull the cables from the front of the outdoor conversion panels until only the skinned individual leads are visible on the rear side of the outdoor conversion panel. Make sure to however not pull the cables too far out; the outer tubing of the cable must still have full-length traction with the cable gland seals.
- 11) Tighten the cover nuts of the PG glands tight enough to make sure the rubber gland seal adapts properly and tightly to the cable's outer perimeter.
- 12) Place the rubber seal for the outdoor conversion panel around the aperture in the main unit.
- 13) Insert the AC leads into the terminal block as indicated on the internal connections chart, and fix the terminal block screws accordingly.
- 14) Insert the DMX leads into the terminal block as indicated on the internal connections chart, and fix the terminal block screws accordingly.
- 15) Insert the outdoor conversion panel into the main body of the unit, making sure that the screw holes are aligned and the rubber seal is properly aligned to the outside perimeter of the outdoor conversion panel.
- 16) Insert the 4pcs. of countersunk screws that hold the outdoor conversion panel to the main unit, and tighten them with 0.6~0.7Nm torque. Note: Before inserting these screws, make sure that each of the is fitted with the provided rubber plain washers, as without these washers, the unit may not be waterproof.

■ Operation



User interface overview:

- | | |
|---|---|
| 1 | MODE selection button |
| 2 | UP-Button |
| 3 | DOWN-Button |
| 4 | Display showing the Mode, DMX-address, etc. |
| 5 | DMX input |
| 6 | DMX output |
| 7 | AC output |
| 8 | AC input |

Upon the user's choice, the unit can work in stand-alone automatic mode, or with fixed colors, or it may be controlled by an (optional) Infrared (IR) remote or by external DMX-controllers. Available modes:

"A" Auto Mode

Press the MODE button until the first digit on the display shows "Axx", indicating operation in "A" mode with chosen pattern "xx". Then choose by using the UP/DOWN buttons one of the 34 pattern presets as shown in the list below. Changing the setting becomes effective directly. The output level in this mode is always 100%.

In this mode, the unit does not receive any values from the DMX input but generates related DMX values on the output (3CH) according to the selected pattern, so that further units can show the same behaviour if they are connected by DMX signal cables and set to Slave Mode "SLA". If you leave mode "Axx" for any reason and come back

- Where required, secure the installation with an appropriate safety cable. Always use a certified safety cable according to EN60598-2-17 Section 17.6.6 that can hold 12 times the weight of the device when installing the unit. This secondary safety attachment should be installed in a way that no part of the installation can drop more than 20cm if the main attachment fails.
- Never stand directly below the device when mounting, removing, or servicing the fixture. Make sure the area below the installation place is free from unwanted persons during rigging, de-rigging and servicing.
- The operator has to make sure that the safety-relating and machine-technical installations are approved by an expert before using them for the first time. The installations should be re-inspected every year.
- Make sure to comply with applicable cooling requirements if any.

■ Getting started: making AC supply connections



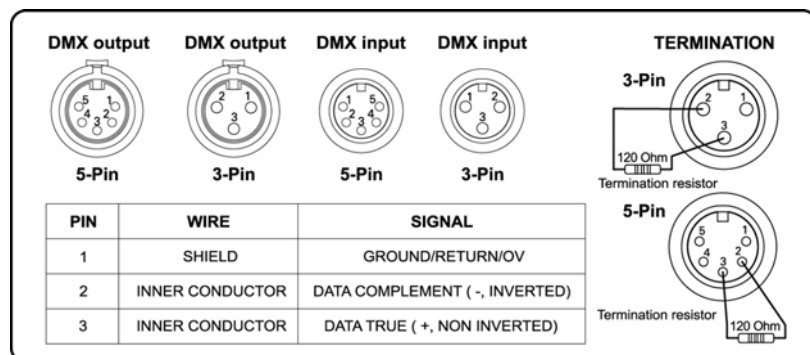
Risk of fire / Safety risk

The LEDLINE requires an AC power source with sufficient power carriage and correct grounding to ensure safe operation. The AC power source must be equipped with a circuit breaker and earth leakage detector. Make sure to only use compliant AC supply lines.

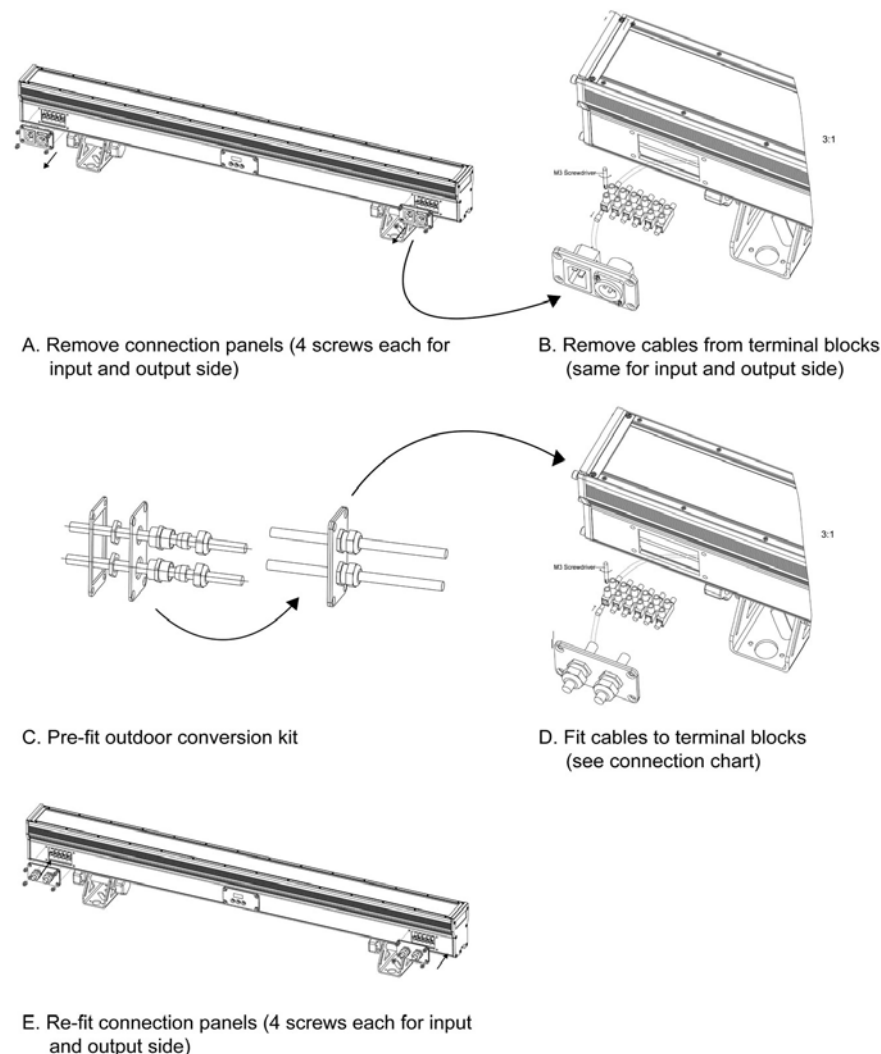
The LEDLINE has an AC outlet that is designed to carry loads of no more than 8A. Make sure that all connected devices in a chain fed by the first device do not exceed a maximum of 8A current consumption.

■ Getting started: making DMX control connections

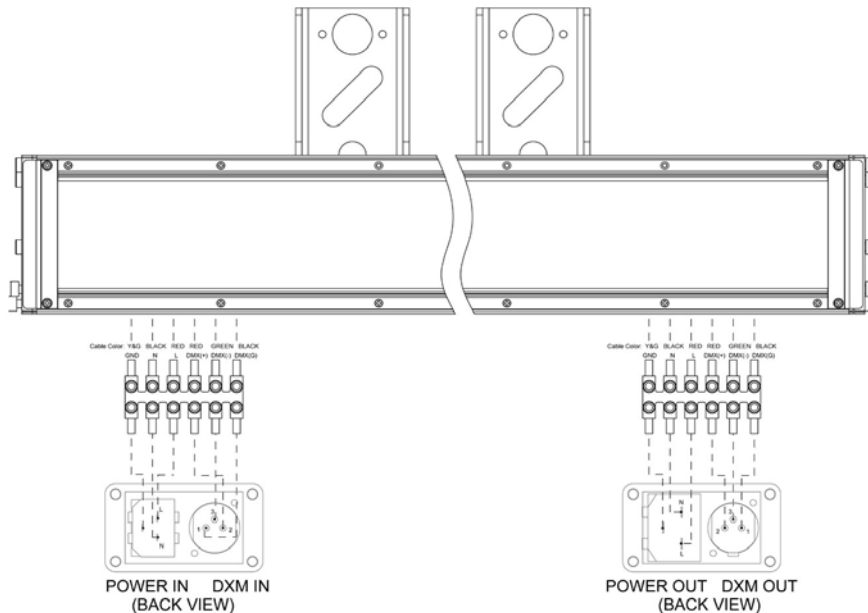
Connect the LEDLINE to a suitable DMX controller where needed, and interconnect several units by means of their DMX In/Outputs as required. The last unit shall be equipped with a proper 120 Ohm termination resistor equipped DMX-plug as shown in below drawing. Please make sure that all used DMX cables comply to below standard:



INDOOR/OUTDOOR CONVERSION



INTERNAL CONNECTIONS



DANGER! Safety hazard.
Risk of severe injury or death.



WARNING! Hazardous voltage.
Risk of lethal or severe electric shock.

NOTE:

Any internal work on this unit shall only be carried out by qualified technicians who are familiar with safe repair techniques. Disconnect AC before opening the unit.

■ Getting started: choosing a location



Risk of fire: The LEDLINE has been designed to work at environmental temperatures of up to 35 degrees Celsius. For proper operation, the unit must be operated with unobstructed air convection to its outside metal case.

Do not:

- Operate the LEDLINE in environments with more than 35 degrees environmental temperature.
- Operate the LEDLINE in any closed environment smaller than 10cbm, unless forced air convection is provided.

■ Getting started: secure mounting

The LEDLINE can be mounted in various ways:

Floor standing operation

- Turn the brackets on the lower side of the unit in an appropriate position.
- Place the unit in a secure position where it can neither be touched by anyone or could possibly become an objective for anyone to stumble.
- Make sure to comply with cooling requirements if any.

Hanging/Rigging, ceiling/wall-mounted operation



Risk of injury: Overhead or wall-mounting requires extensive experience, including among others calculating working load limits, good knowledge of the installation material being used, and periodic safety inspection of all installation material and the unit. If you lack such qualifications, do not attempt the installation yourself. Improper installation can result in body injury. Be sure to complete all rigging and installation procedures before applying power to the unit.

- Mount appropriate clamps to either the attached brackets or remove the brackets and mount appropriate clamps directly to the M10 screws in the lower nut slot of the unit. Fix the position of the brackets and the clamps tightly. Especially make sure that the M10 screws in the lower nut slot of the unit are fixed tightly so that the unit can not "slide" out of position.
- The unit should be installed out of reach of people and outside areas where persons may walk by or be seated.
- Make sure that the installation area can hold a minimum point load of 10 times the device's weight.
- In fixed installations, fix the unit with self-locking screws/nuts to the mounting point.