

FRONTLINE Lighting

Frontline Lighting has developed an integrated LED lighting technology for Military, Humanitarian and First Response applications called MFLEX. We are uniquely positioned to blend technology and requirements to create solutions that enable a more efficient and productive environment. By leveraging our patented technology, coupled with unique innovation, we deliver products that consistently exceed customer expectations.

The ergonomic design allows for rapid installation. Once the lights are hung in the tent, they may be left installed and the tent stored, allowing for one time setup. The MFlex Light Kit system has an integrated Power Supply and Dimmer Switch ensuring ease of use and all critical operating parts remain intact.

Frontline has built the MFlex Light Kit to operate in rugged environments. Delivering brighter light than traditional fluorescent lights, our MFlex technology is light weight and water resistant. It is environmentally responsible and reduces downtime and energy use.



Easy Installation



White and Blackout Lights



Full Dimming Capability



Patented LED Technology



Reduce Military SWaP-C



Development with NSR-DEC



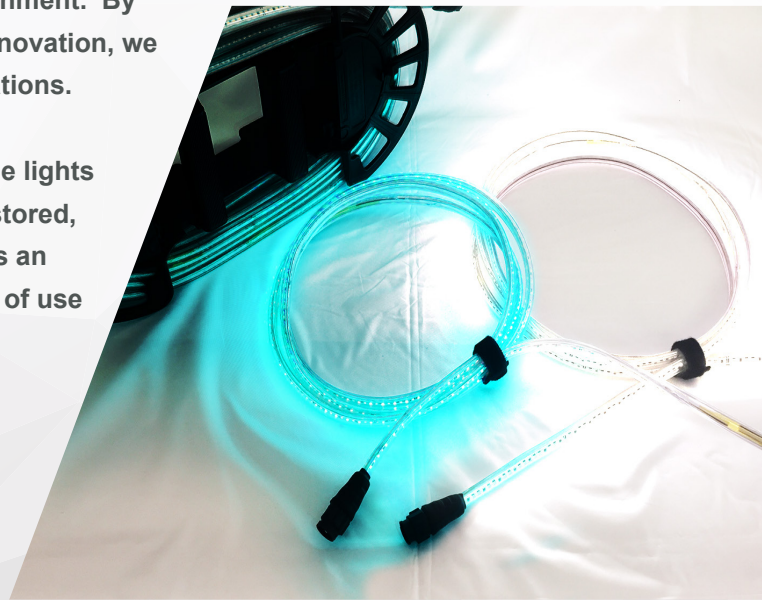
IP67 Rated Light and Power Supply



NO UV, Infrared or CO2 Emissions



50,000hr Life span



Frontline Lighting - Asia Pacific Regional Sales:



+61 414 937 212



jeff@frontlinelighting.com

Specifications

Physical Specifications;

Weight (Shipping Weight)	12lb / 5.5kg
Bag Dimensions (mm)	300 x 400 x 120

Light Characteristics;

Type	LED
Lifetime (typ)	>50,000 hrs
Light Strip Length	12 meters
Light Strip Dimensions (mm)	9 x 6.5
Power	24vdc
Amps	0.6 /m
Watts	15 /m
Lumens	900 /m
CCT	4200
CRI	94
IP Rating	IP67
IK Rating	IK16
Voltage Drop	<25% / 12m

Power Supply;

Type	LED Driver
Input	110 - 277 vac 50-60hz
Output	24vdc
Amps	8.4
Watts	200W
Operation	CC + CV
Power Factor	Active PFC: .95
IP Rating	IP67
IK Rating	IK16
Lifetime (typ)	>50,000hrs

Kit Contents;

	White/Blackout	White
Kit Bag	○	○
Power Supply	○	○
Control Box	○	○
White Light Strip	○	○
Blackout Light Strip	○	
Mounting Kit	○	○
Velcro Straps	○	○
Hanging Clips	○	○

Features



Kit Bag

- Made from Waterproof and Rugged Cordura
- Incorporated control box and power supply
- Molle and Velcro attachment system
- Internal secured component pouches

Control Box

- Two dimmable channels for white and black out light circuits
- Two IP67 USB ports
- IP68 Enclosure mounted inside Kit Bag

LED Rolls

- 12m Length of White light, 240LED's /m
- 12m Length of Blackout light, 240LED's /m
- Quality LED's incorporated into an IP67 extruded PVC
- Patented technology minimises voltage drop over extended lengths 12m < 25% drop
- Custom moulded connections with incorporated seal-locking system

Heavy Duty Cable

- Custom moulded connections with incorporated seal-locking system
- IP67 rated
- 6m Length to light
- Double Insulated
- Color Coded Connectors

IMPORTANT

READ THIS INSTRUCTION MANUAL

before attempting to operate the MFLEX Light Kit system.

STORE THIS INSTRUCTION MANUAL WITH THE KIT BAG

This manual contains important safety and operating instructions for the MFLEX Light Kit system.

WARNINGS

Failure to comply with the instructions may result in injuries, fatalities or permanent damage of the MFLEX Light Kit system and void the warranty.

- Only use an external power supply input within the following specifications:
100 – 277 Vac @ 50 / 60Hz.
- Never power MFLEX lights inside the Kit Bag.
- Never power MFLEX lights when coiled.

**EXCEPTION BELOW **

In freezing conditions (32°F / 0°C), apply power to the MFLEX lights for 1 minute before uncoiling for use.

- A maximum of 15 Meters of MFLEX lights can be run off each dc circuit.
- Do not store or operate the MFLEX Light Kit next to any open flame.
- Protect all MFLEX lights and wiring from being cut or stretched.
- Do not hang anything off the MFLEX lights or power cables.
- Always disconnect MFLEX lights from power source before servicing.
- Do not immerse the MFLEX Light Kit in water.
- Clean only with a soft dry cloth. Do not use solvents or abrasive materials.
- Avoid long term eye contact to the MFLEX lights when illuminated.

MFLEX KIT CONTENTS



- A** 1 - Water Resistant Kit Bag
- B** 1 - 12m Blackout Flexible Light Strip
- C** 1 - 12m White Flexible Light Strip
- D** 1 - 6M DC Power Cable
- E** 1 - Power Converter 100-277 Vac/24 Vdc
- F** 1 - Dimmer Switch Control Box
- G** 1 - Package of Paracord (15 lengths x .5m)
- H** 1 - Package MFLEX Holders (15 units)
- I** 1 - Package of Quick Snap Hooks (15 units)
- J** 1 - Package of Adjustment Clips (15 units)



**Images shown are not to scale*

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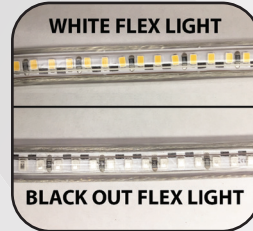
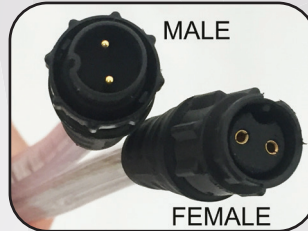


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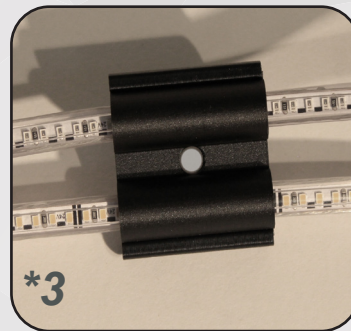
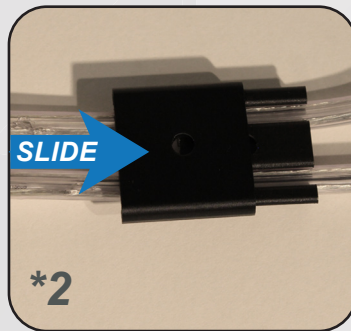
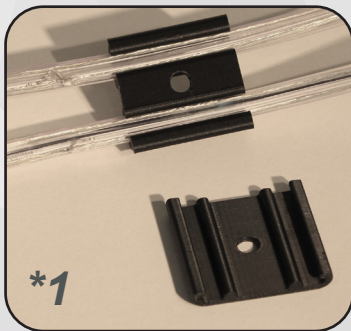
Assembly & Operation

Step 1) Open up the top of the kit bag (A) and remove the coiled flex lights (B) & (C). Uncoil and lay the flex lights straight on the floor. Ensure there are no twists in the flex lights. The flex lights have male and female connectors at opposite ends to enable the flex lights to be extended. The MALE connector connects to the dc power cable.

Step 2) Uncoil the dc power cable (D) from the bag. The dc power cable has colour coded connectors for the white and black out flex light. Connect the white coded dc power cable to the white flex light, then connect the black out flex light to the remaining dc power cable.



Step 3) *1 - Press each MFLEX light into the MFLEX holder (H). *2 - Slide backing plate over MFLEX light and into MFLEX holder. *3 - Ensure center hole is lined up in MFLEX holder. *4 - Insert the paracord (G) through the MFLEX holder as shown below. Clip, loop or tie off to a support structure using quick snap hook (I). Raise or lower the MFLEX lights by changing the adjustment clip on the paracord, tension and align the MFLEX light.



Step 4) Connect external ac power supply cable to the power converter plug inside the kit bag.

Step 5) Support dc power cable so it does not become a trip hazard and store unused dc cable inside the kit bag.

Step 6) Close kit bag lid around ac and dc cables and hang kit bag on wall.

Step 7) Turn power on to external ac power supply.

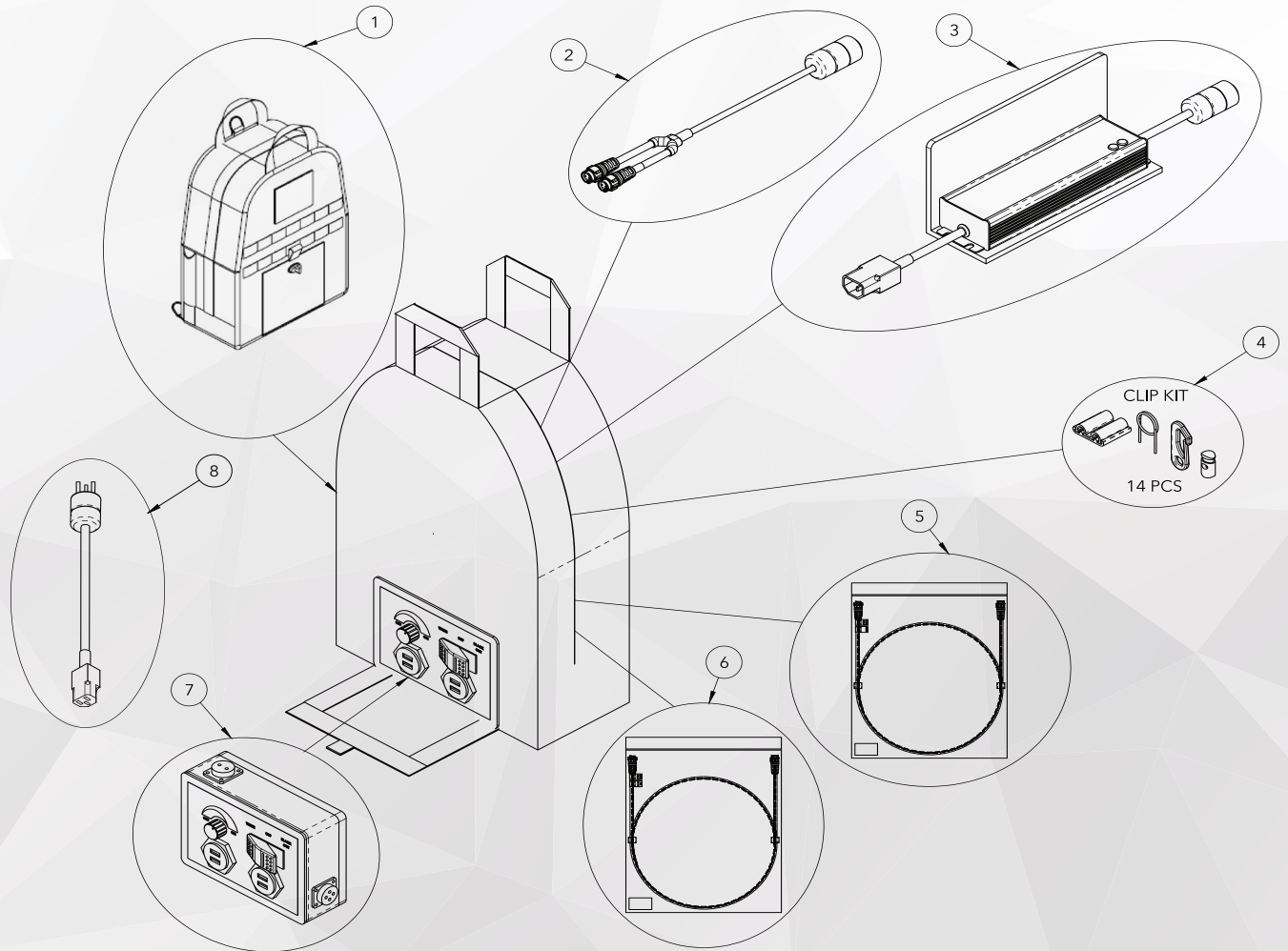
Step 8) Open front tab on the kit bag to expose light selection switch and dimmer control.

Step 9) Press light switch left for black out light, right for white light and centre for off position. To increase or decrease the brightness of the MFLEX lights, rotate dimmer knob.

NOTE: ONLY ONE MFLEX LIGHT CIRCUIT CAN BE OPERATED AT ANY ONE TIME.

Adjust length of paracord to desired height

MFLEX Light Kit components / part number index;



Description

Part Number

Required Tools (not supplied)

- 1 MFLEX Light Kit Carry Bag
- 2 Power Cable
- 3 Power supply with connectors
- 4 Hanging Clip Kit
- 5 24VDC White 12m Kit
- 6 24VDC Black Out 12m Kit
- 7 Main Control Box & Bracket
- 8 Universal Power Cable

- MFLK-Kit-Bag-0001
- MFLK-PWRCBL-0001
- MFLK-PS-0001
- MFLK-HNGKIT-0001
- WHT-CBL-12
- BLK-CBL-12
- MFLK-CNTL-BOX-0001
- MFLK-INT-POWER-CBL

- 1/8 inch allen key
- 5/16 inch open spanner
- #2 Phillips head screw driver



SECTION 1: Replacing MFLEX Light Kit Carry Bag

The carry bag contains all components of the MFLEX Light Kit system. In the event that the bag is badly damaged or contaminated, it can be replaced as follows:

- a) Remove and carefully store for reuse, the loose items 2, 4, 5, 6, 8 from the bag.
- b) Slide the input power cable from its sleeve and pull the cable through the slot in the bag so the cable is within the bag.
- c) Open the front flap to expose the controls. There are 4 Phillips head bolts located on the bag.



- d) Using the #2 Phillips head screw driver, unscrew the bolts and set aside for reuse.
- e) Open the bag, remove the main controller and bracket and connected power supply.
- f) Obtain the replacement bag and open the front face flap.
- g) Place the control box, bracket and power supply into the bag and align the face of the control box with the opening.
- h) Push the bolts through and align with the control box threaded holes. Loosely tighten, ensuring USB cap protectors are free. Finger tighten each bolt and then apply $\frac{1}{4}$ turn only to snug fit.
(if using torque wrench, tighten to 8lbs only)

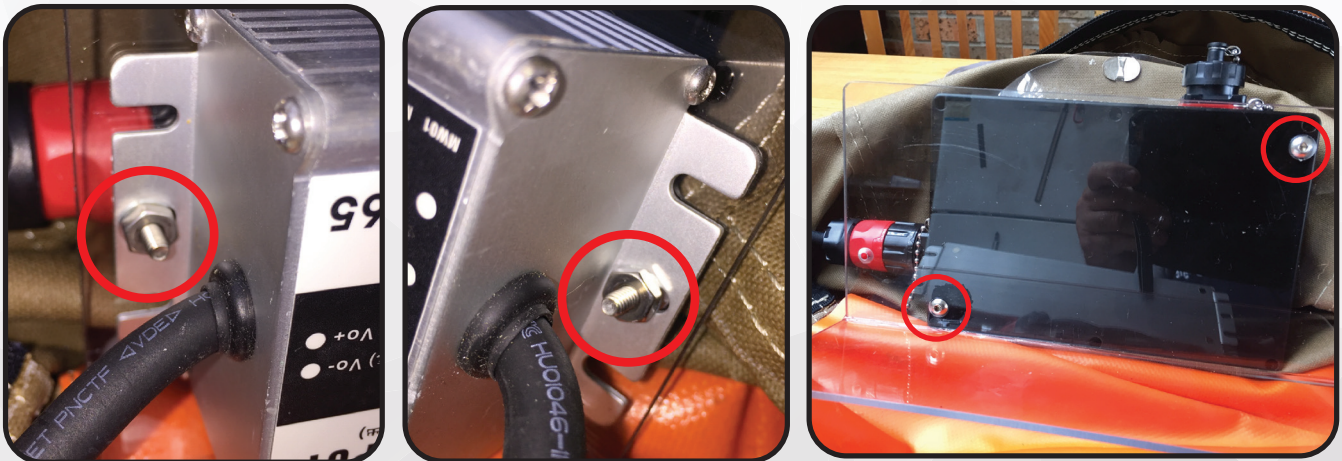
NOTE: DO NOT OVERTIGHTEN AS THREADS ON CONTROL BOX MAY BE IRREVERSIBLY DAMAGED

- i) Run input power cable through slot into sleeve. Install components 2, 4, 5, 6, and 8 back into bag.

SECTION 2: Replacing Control Box and Bracket

The Control Box contains the electronics to switch the light on and between the blackout and white light options. It contains the dimmer as well as 2 USB outputs. The control box has an input connector for 24v power inputs and an output connector for the power cable that connects to the MFLEX lights. The control box is a sealed unit and the components are not designed to be reused. In the event that the control box is badly damaged or has component failure, the entire unit should be replaced as follows;

- a) Remove and carefully store for reuse, the loose items 2,4, 5,6, 8 from the bag.
- b) Slide the input power cable from its sleeve and pull the cable through the slot in the bag so the cable is within the bag. Uncouple the input power lead and output power lead (if connected)
- c) Open the front flap to expose the controls. There are 4 Phillips head bolts located on the bag.



- d) Using the #2 Phillips head screw driver, unscrew the bolts and set aside for reuse.
- e) Open the bag, remove the main controller and bracket and connected power supply.
- f) Using a 5/16 open spanner, undo the 2 nuts at either end of the power supply. Carefully retain the nuts , star washers and bolts for reuse. Remove the power supply from the bracket.
- g) Replace the control box and bracket. Install the power supply onto the bracket by inserting the bolts into the holes, aligning and laying the power supply onto the bracket so the bolts pass through the retaining holes, install the star washers and nuts onto the bolts. Tighten the nuts to a snug fit only (8lbs of torque)
- h) If the bracket is to be reused and only the control box replaced, after step f, use a 1/8 inch allen key and remove the 2 allen bolts connecting the bracket and control box, replace the control box and inserting the 2 allen key bolts through the bracket and tighten to snug tightness only (8lbs of torque) before proceeding to reinstall the power supply as per step g.
- i) Place the control box , bracket and power supply into the bag and align the face of the control box with the opening.
- j) Push the bolts through and align with the control box threaded holes. Loosely tighten, ensuring USB cap protectors are free. Finger tighten each bolt and then apply ¼ turn only to snug fit. (if using torque wrench, tighten to 8lbs only)

NOTE: DO NOT OVERTIGHTEN AS THREADS ON CONTROL BOX MAY BE IRREVERSIBLY DAMAGED

- k) Run input power cable through slot into sleeve. Install components 2,4,5,6,and 8 back into bag.

SECTION 3: Replacing Power Supply Assembly

The power supply assembly converts ac power into 24VDC power. There is an IEC C14 straight male plug on the AC input and a DC connector on the output of the power supply. The power supply assembly has thermal and overvoltage protection.

The power supply is mounted to a plastic bracket that forms part of the control box assembly.

In the event of a failure of the power supply package or any damage to the AC mains input cable or plug;

- a) Remove and carefully store for reuse, the loose items 2,4, 5,6, 8 from the bag.
- b) Slide the input power cable from its sleeve and pull the cable through the slot in the bag so the cable is within the bag. Uncouple the DC output power lead from the controller.
- c) Using a 5/16 open spanner, undo the 2 nuts at either end of the power supply. Carefully retain the nuts , star washers and bolts for reuse. Remove the power supply from the bracket.
- d) Install the new power supply onto the bracket by inserting the bolts into the holes, aligning and laying the power supply onto the bracket so the bolts pass through the retaining holes, install the star washers and nuts onto the bolts. Tighten the nuts to a snug fit only. (8lbs of torque)
- e) Run input power cable through slot into sleeve. Connect the power supply DC output cable to the control unit.
- f) Place components 2,4,5,6,and 8 back into bag.

SECTION 4: Replacing Power Cable

The power cable connects the control box to the MFLEX light system. There are 2 circuits running through the power cable, one for the white light and one for the black out lights. The circuits are colour coded.

The connectors on either end are different and can only be connected in one way.

In the event of damage to the power cable, replace with a new unit.

SECTION 5 / 6 . Replacing MFLEX 24VDC lights

The MFLEX lights come with water proof connectors that mate with the connectors on the power cable. The MFLEX lights can be provided in a variety of lengths. White and black out light options are available.

In the event of damage to the MFLEX light, replace with a new unit.

SECTION 7: Replacing MFLEX support clips

The MFLEX lights are supplied with three types of support clips. 1. MFLEX Hanging supports, 2. Quick snap hooks, 3. Adjustment clips. The MFLEX Kit contains 15 units of each type of support clip.

In the event of damage to the Mflex support clips, replace with new support pack.

SECTION 8: Universal Mains Input Cable

The Mflex Light kit comes with an AC mains supply cable compatible to the country of use. The cable connects to the power supply input cable via the standard IEC C14 straight male plug.

In the event of damage to the Mains Input Cable, replace with a new unit.

WARNING: DO NOT ATTEMPT TO USE A DAMAGED MAINS INPUT CABLE UNDER ANY CIRCUMSTANCE.

WARRANTY AND REPLACEMENT PARTS

Warranty: Seller warrants the products it manufactures to be free from defects of material or workmanship for a period of one (1) year from date of shipment. Those products and/or components not manufactured by Seller shall be subject only to the warranty extended by the original manufacturer. Seller's warranty is restricted to the repair or replacement, at Seller's option, of any part which proves to be defective and for which claim was made in writing prior to the expiration date of the warranty. This warranty does not apply to any defect arising from accident, misuse, unauthorized repair, alteration, or negligent use. This warranty does not apply to normal wear and tear. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

PARTS SUPPLIER CONTACT DETAILS

FRONTLINE LIGHTING AUSTRALIA
3 Mahogany Blvd.
Warriewood, NSW • 2102
www.frontlinelighting.com
jeff@frontlinelighting.com
+61 414 937 212

FRONTLINE LIGHTING C/O
BAM International, LLC
1317 Grant Avenue
East Butler, PA • 16029
www.frontlinelighting.com
(724) 282-0416

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Lighting

Supporting our Military



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Lighting

www.frontlinelighting.com • Email: info@frontlinelighting.com