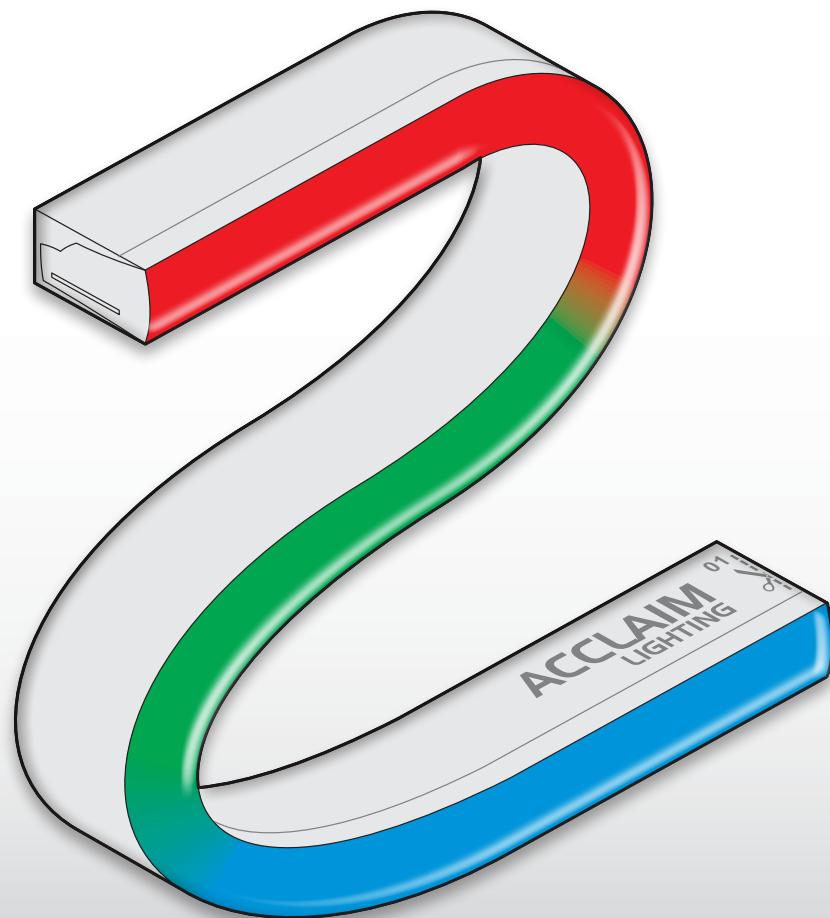


ACCLAIM
LIGHTING



Flex Tube Pixel™

User guide

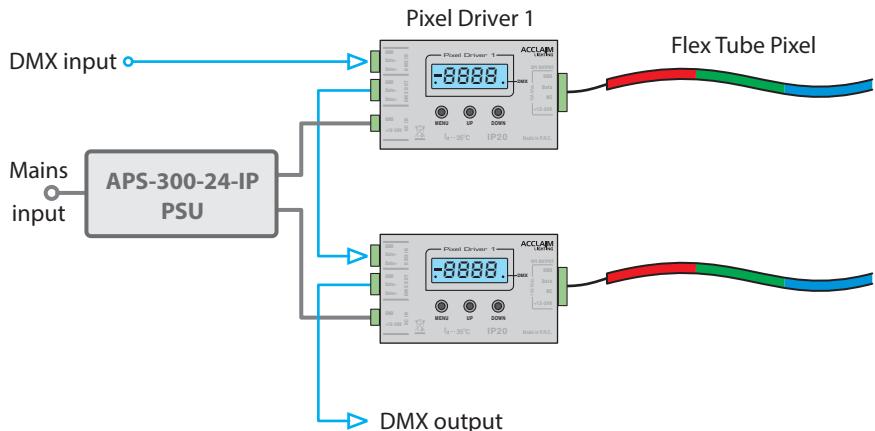
CONTENTS

INTRODUCTION	2
Welcome	2
Safety	2
Large scale installations	3
INSTALLATION.....	5
Flex Tube Pixel orientation	5
Bending a Flex Tube Pixel	6
Cutting a Flex Tube Pixel	6
Control and power	7
Connection and mounting kits	9
Feed cable kit	9
End cap kit	12
Self-locking mounting channel kit	15
OPERATION	17
Menu navigation	17
Setup shortcuts	18
Menu options	18
FURTHER INFORMATION	21
Troubleshooting	21
Flex Tube Pixel specifications	22
Limited product warranty	23

INTRODUCTION

WELCOME

Welcome to the Flex Tube Pixel from Acclaim Lighting. Like all Flex Tubes, these flexible LED powered strips produce a greatly homogenized light output along their full length. The difference with the Pixel variant is that it is internally split into 80 separate segments. Each segment is individually addressable so that you can apply different mixes of red, green and blue colors to each segment. The segments closely abut each other and, combined with the homogenizing effect of the tube optics, produce smooth color transitions between the segments. Designed from the outset for external applications, Flex Tube Pixels are rated to IP68 and can be submersed up to 3 feet (1m) in depth.



Each Flex Tube Pixel strip is controlled by its own dedicated Pixel Driver 1 module. Each Pixel Driver 1 module takes a standard DMX control input, plus a 24VDC power feed, at one end and supplies a specialized data signal, together with 24VDC power to the Flex Tube Pixel strip at the other. The data signal allows the 80 segments in each strip to be uniquely addressed and controlled. If a strip is cut and the new section is connected to a Pixel Driver 1 module, the first segment in the new strip will automatically be addressed as the first segment (rather than retaining whatever its original address designation was), with all the other segments following on sequentially.

The Acclaim Lighting APS-300-24-IP (IP67-rated) power supply is ideal for providing power for up to two Pixel Driver 1 modules and their respective full length Flex Tube Pixel strips. See the section "Control and power" on page 7 and also www.acclaimlighting.com for further details.

SAFETY

- Ensure that the power input is supplied from a correctly fused and environmentally protected location.

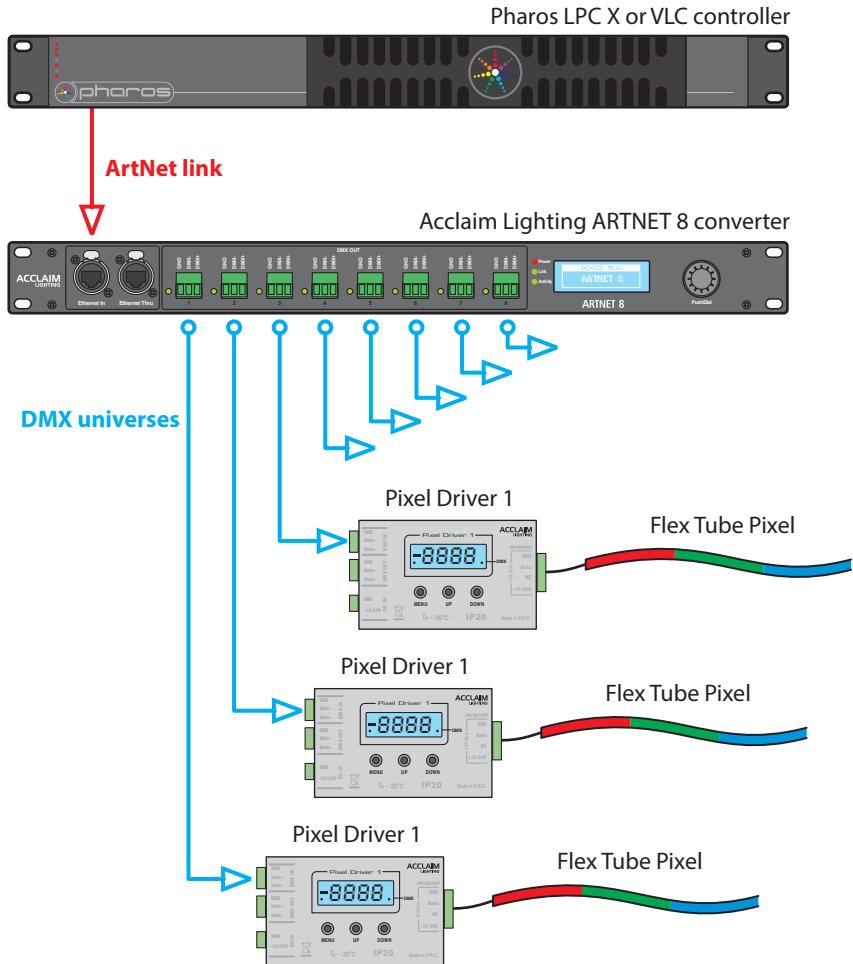
LARGE SCALE INSTALLATIONS

A common requirement is to drive large arrays of Flex Tube Pixel strips. To achieve this we offer a tried and trusted hybrid solution using Pharos controllers and multiple ARTNET 8 converters.

A base choice of two Pharos controllers is offered:

- **LPC X** - Capable of controlling multiple zones across a selectable number of DMX universes; from 10 to 100 (5,120 channels up to 51,200).
- **VLC** - Able to play video content across a single zone of many DMX universes, selectable from 50 DMX universes up to 1500 (25,600 channels up to 768,000).

Programming for both types is carried out using the free Pharos Designer 2 software.

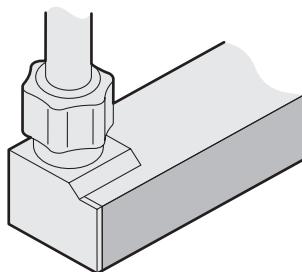


The ArtNet output from each Pharos controller is fed to multiple Acclaim Lighting ARTNET 8 converters, each of which splits out the individual universes and sends them to the appropriate Pixel Driver 1 units. Each Pixel Driver 1 then feeds its own Flex Tube Pixel strip.

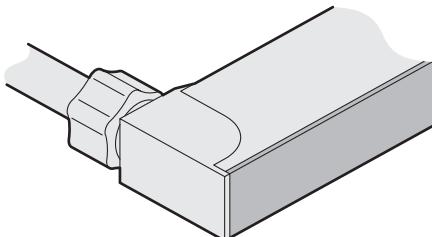
MOLDED INPUT STYLES

Flex Tube Pixel strips are available with a choice of three IP68-rated injection molded (IM) feed connection styles. In each case the 3-core feed cable is 9.84'(3m) in length and supplied with bare tails:

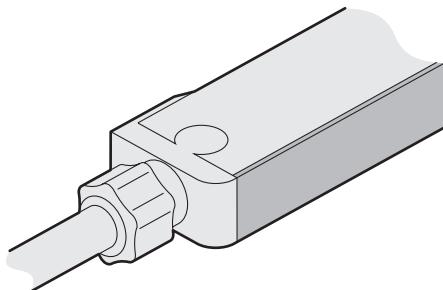
**Flex Tube Pixel with feed connection on the side face
(FTY-224-####)**



**Flex Tube Pixel with feed connection on the rear face
(FTY-225-####)**



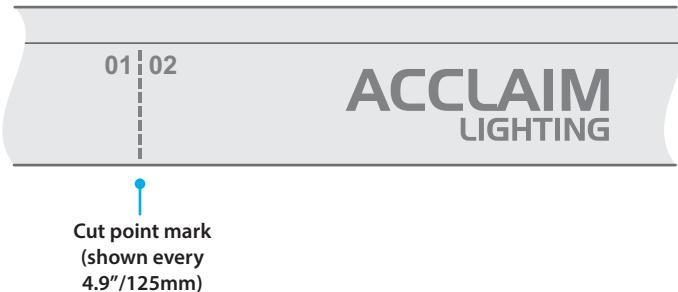
**Flex Tube Pixel with feed connection on the end
(FTY-226-####)**



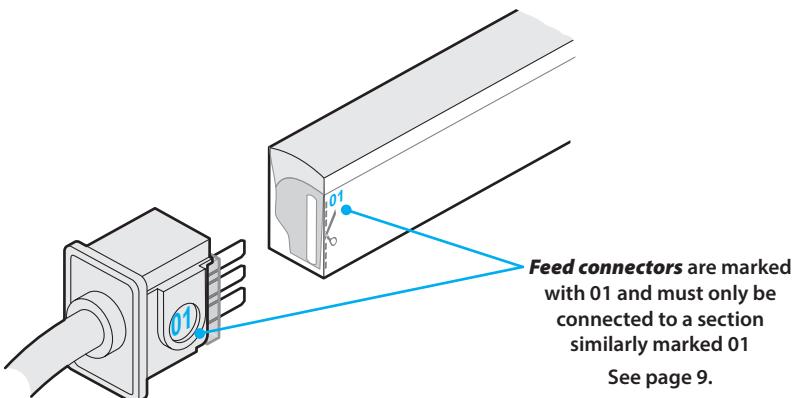
INSTALLATION

FLEX TUBE PIXEL ORIENTATION

When attaching connections to a Flex Tube Pixel (which has been cut) it is important to know which way it is orientated. Each Flex Tube Pixel has an 01 end and an 02 end; these are marked at each 4.9" (125mm) cut point:



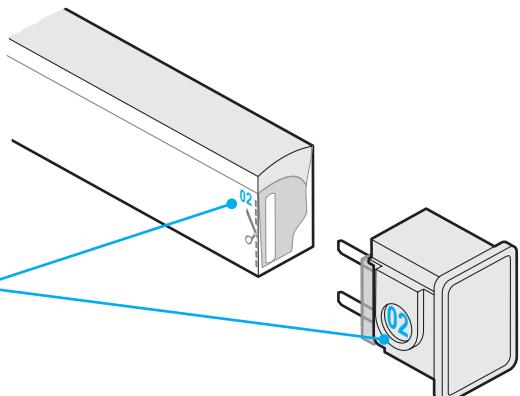
The optional feed connectors are marked with a 01 designation, while end caps are marked with 02. You must ensure that feed and end caps are fitted at the correct ends of the strip, so that their designations match that of the Flex Tube Pixel into which they are being inserted.



Note: When the injection molded ends of the Flex Tube Pixel are intact, the overall environmental protection rating is IP68. When a cut is made and a feed connector or end cap is correctly fitted, the rating must be considered as lowered slightly to IP67.

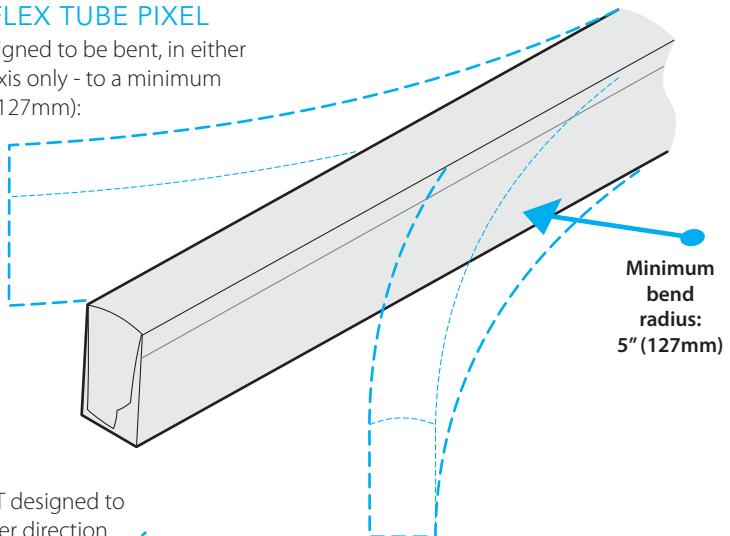
End caps are marked with 02 and must only be connected to a section similarly marked 02.

See page 12.



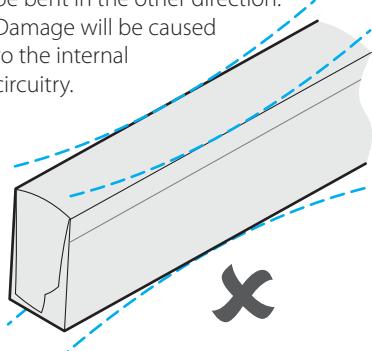
BENDING A FLEX TUBE PIXEL

Flex Tubes are designed to be bent, in either direction, of one axis only - to a minimum bend radius of 5" (127mm):

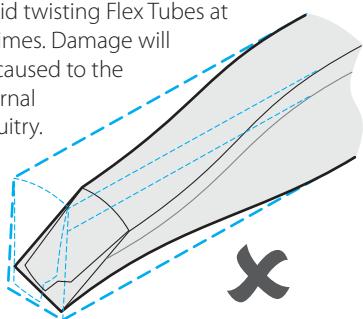


Flex Tubes are NOT designed to be bent in the other direction.

Damage will be caused to the internal circuitry.



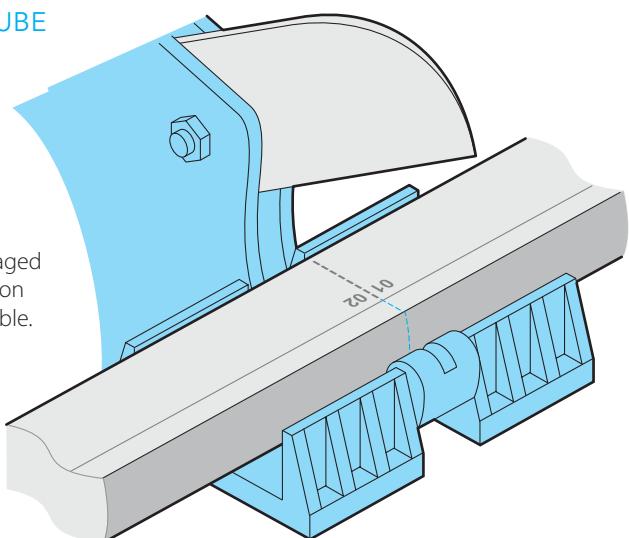
Avoid twisting Flex Tubes at all times. Damage will be caused to the internal circuitry.



CUTTING A FLEX TUBE PIXEL

Each Flex Tube Pixel is marked every 4.9" (125mm) with cut marks. It is important that cuts are only made at these points to ensure internal components are not damaged and also that the connection terminals are readily available.

All cuts should be made using the special shears supplied within the optional Flex Tube toolkit.



CONTROL AND POWER

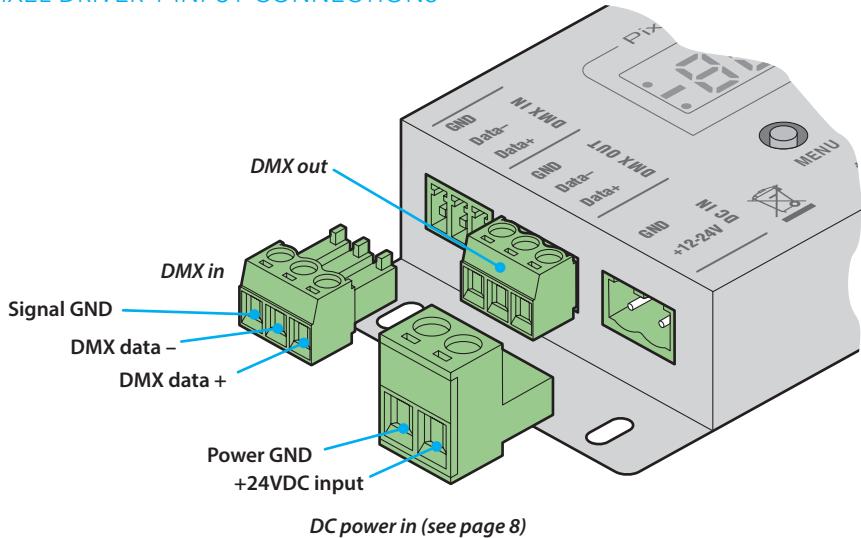
Flex Tube Pixel strips are run at 24VDC and consume 3.65W per foot (or 12W per meter) - 120W for a full length 32.8'/10m strip.

A 9.84'(3m) feed cable is supplied, injection molded to the strip. This 3-core cable has bare tails. Further connection cables (not supplied) used to link Flex Tube Pixel strips to the Pixel Driver 1 unit should follow these guidelines:

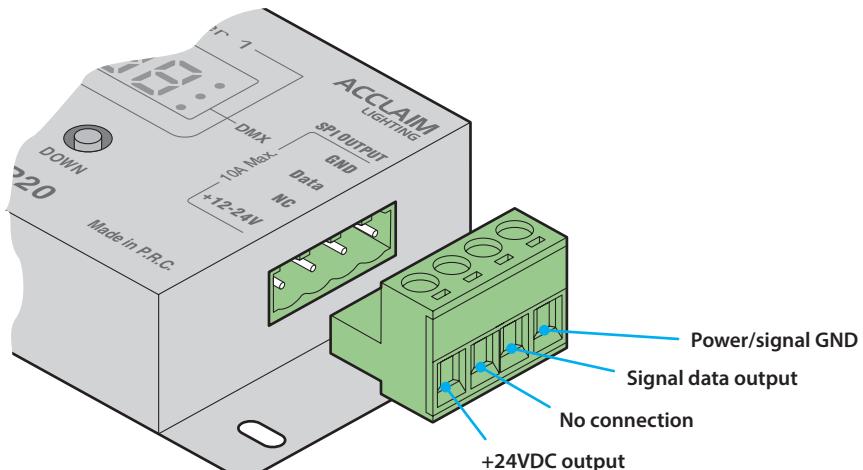
- Up to 98 feet (30m) 14 AWG (2.081mm²)

Ensure that the voltage drop at the fixture end of the link cable is no greater than 8% (1.92V) of the original 24VDC supply.

PIXEL DRIVER 1 INPUT CONNECTIONS

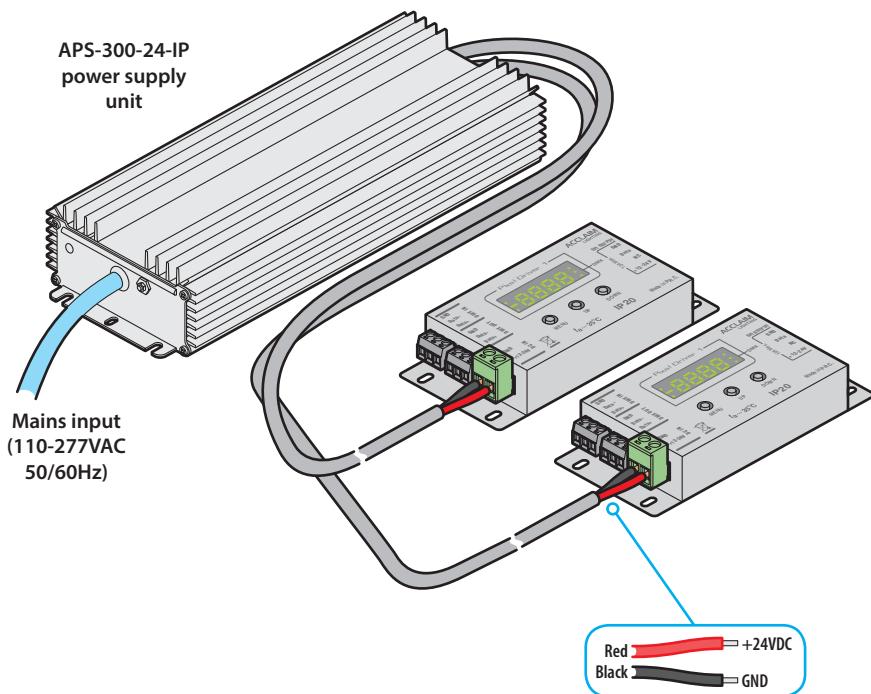


PIXEL DRIVER 1 OUTPUT CONNECTIONS



PIXEL DRIVER 1 POWER SUPPLY

This IP67-rated APS-300-24-IP power supply can power two Pixel Driver 1 units and their 32.8'(10m) Flex Tube Pixel strips.



CONNECTION AND MOUNTING KITS

Where cuts need to be made in the Flex Tube Pixel strip, optional feed cable and end cap kits are available. Several lengths of mounting channels are also available:

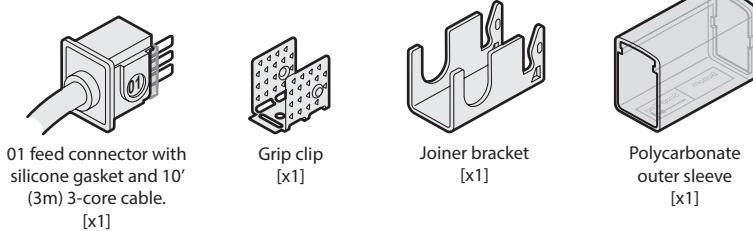
- **Feed cable kit** - used for linking a Flex Tube Pixel with driver circuitry. See below
- **End cap kit** - used to seal an open end of Flex Tube Pixel. See page 12
- **Mounting channel** - used to fix a Flex Tube Pixel to a surface. See page 15

FEED CABLE KIT

This optional kit adds a connection point to a Flex Tube Pixel strip which has been cut.

Notes: This kit can only be fitted at the '01' end of the strip. When the injection molded ends of the Flex Tube Pixel are intact, the overall environmental protection rating is IP68. When a cut is made and a feed connector or end cap is correctly fitted, the rating must be considered as lowered slightly to IP67.

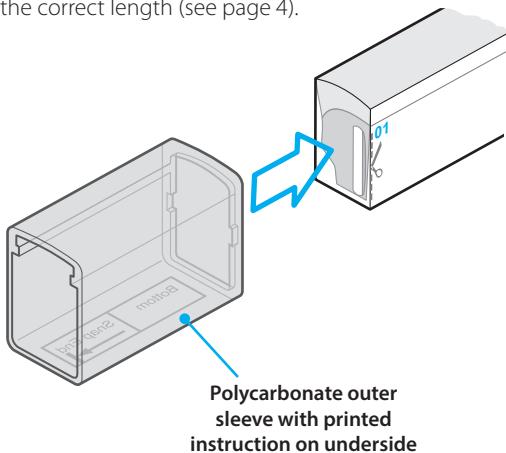
KIT CONTENTS



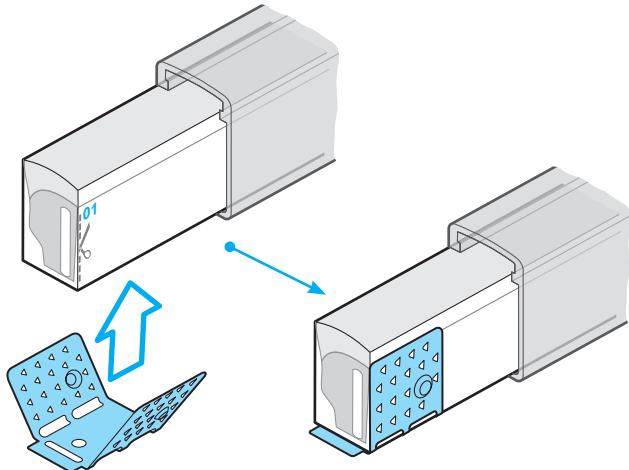
TO INSTALL A FEED CABLE KIT

- 1 Check the orientation of the Flex Tube Pixel (see page 3) and, if necessary, carefully cut the Flex Tube Pixel to the correct length (see page 4).

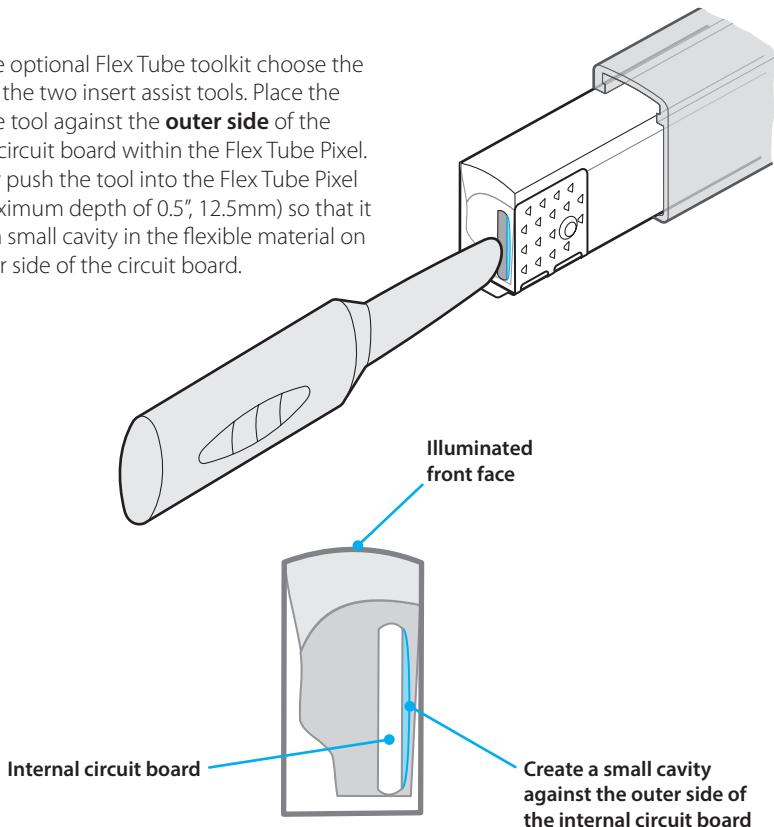
- 2 Locate the printed instruction on the underside of the polycarbonate outer sleeve. Orientate the sleeve so that the printed instruction aligns with the base of the Flex Tube Pixel strip and the 'Snap End' arrow points in the direction of the feed connector.



3 Fit the grip clip to the '01' end of the Flex Tube Pixel strip. Orientate the clip so that the extended tab (on its base) points in the direction of the feed connector. Align the leading edges of the clip wings with the cut face of the Flex Tube Pixel strip and ensure that the whole clip wraps tightly around the three white sides of the strip.

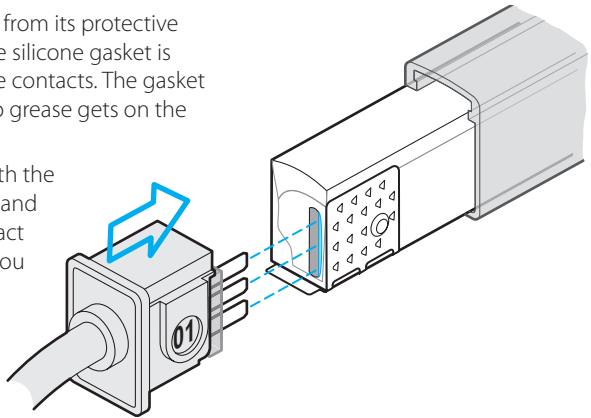


4 From the optional Flex Tube toolkit choose the larger of the two insert assist tools. Place the tip of the tool against the **outer side** of the internal circuit board within the Flex Tube Pixel. Carefully push the tool into the Flex Tube Pixel (to a maximum depth of 0.5", 12.5mm) so that it creates a small cavity in the flexible material on the outer side of the circuit board.



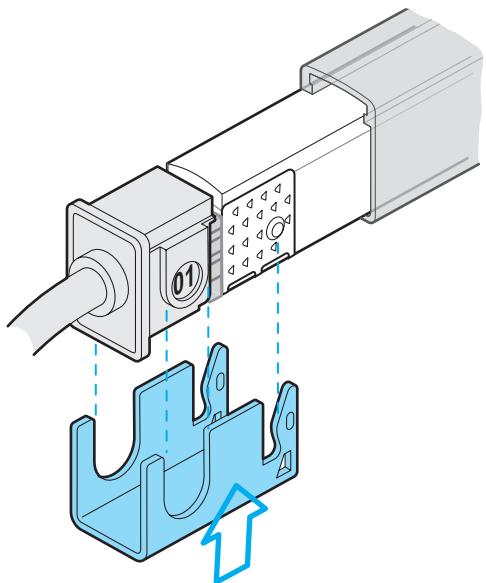
5 Remove the feed connector from its protective black box and check that the silicone gasket is correctly positioned over the contacts. The gasket is pre-greased; make sure no grease gets on the contacts.

6 Align the feed connector with the cut end Flex Tube Pixel strip and carefully push its three contact prongs into the cavity that you created with the tool.

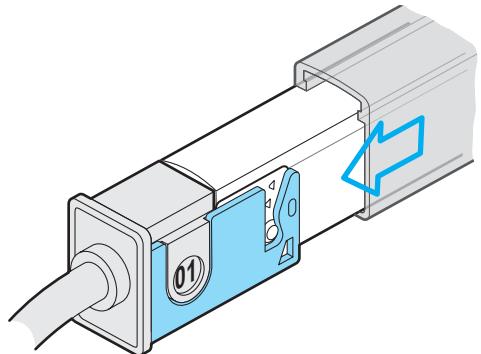


7 Remove the protective film from the joiner bracket and orientate it so that its cutouts align with the extruded parts of both the feed connector/strip assembly.

8 Gently yet firmly push the joiner bracket onto the feed connector/strip assembly. As the joiner bracket engages it should pull the two parts of the assembly close together and eventually lock them into place.



9 Slide the polycarbonate outer sleeve so that it completely covers the join and butts up to the flange of the feed connector.

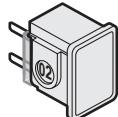


END CAP KIT

This optional is used to seal off the bare cut end of a Flex Tube Pixel strip.

Notes: This kit can only be fitted at the '02' end of the strip. When the injection molded ends of the Flex Tube Pixel are intact, the overall environmental protection rating is IP68. When a cut is made and a feed connector or end cap is correctly fitted, the rating must be considered as lowered slightly to IP67.

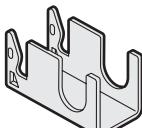
KIT CONTENTS



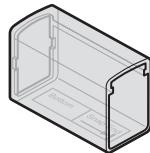
02 end cap with
silicone gasket
[x1]



Grip clip
[x1]



Joiner bracket
[x1]

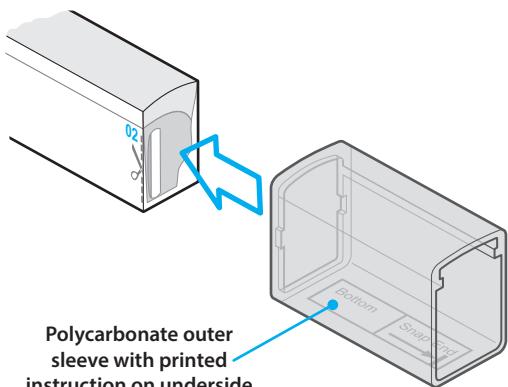


Polycarbonate
outer sleeve
[x1]

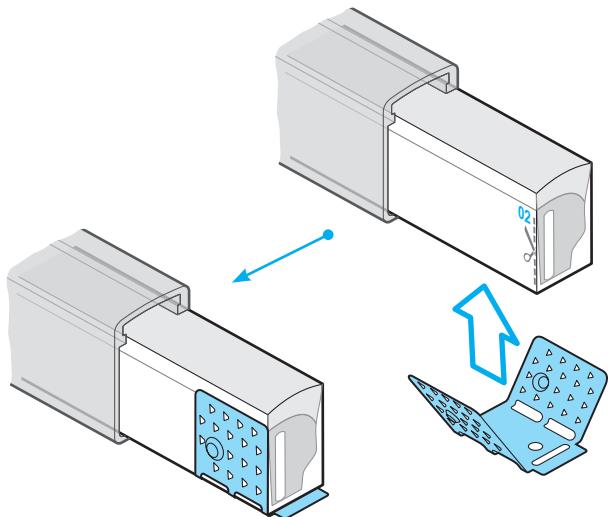
TO INSTALL A FEED CABLE KIT

1 Check the orientation of the Flex Tube Pixel (see page 3) and, if necessary, carefully cut the Flex Tube Pixel to the correct length (see page 4).

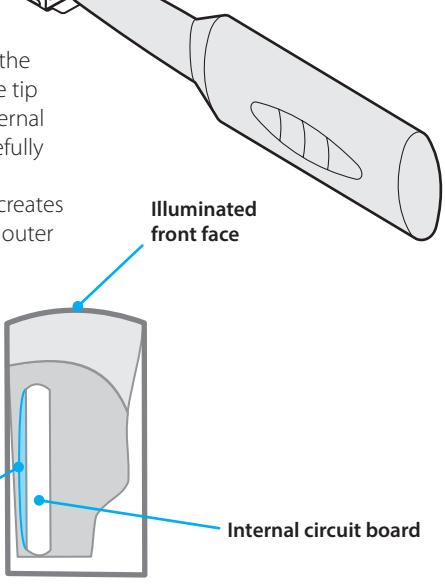
2 Locate the printed instruction on the underside of the polycarbonate outer sleeve. Orientate the sleeve so that the printed instruction aligns with the base of the Flex Tube Pixel strip and the 'Snap End' arrow points in the direction of the end cap.



3 Fit the grip clip to the '01' end of the Flex Tube Pixel strip. Orientate the clip so that the extended tab (on its base) points in the direction of the end cap. Align the leading edges of the clip wings with the cut face of the Flex Tube Pixel strip and ensure that the whole clip wraps tightly around the three white sides of the strip.

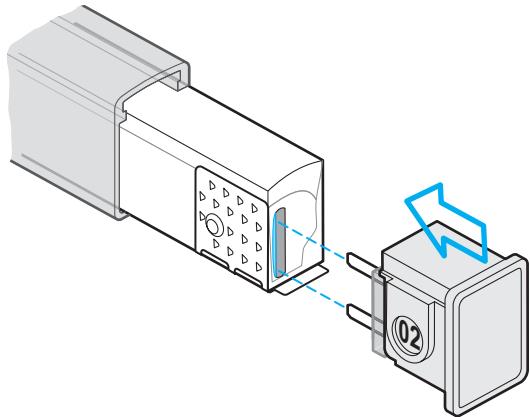


4 From the optional Flex Tube toolkit choose the larger of the two insert assist tools. Place the tip of the tool against the **outer side** of the internal circuit board within the Flex Tube Pixel. Carefully push the tool into the Flex Tube Pixel (to a maximum depth of 0.5", 12.5mm) so that it creates a small cavity in the flexible material on the outer side of the circuit board.



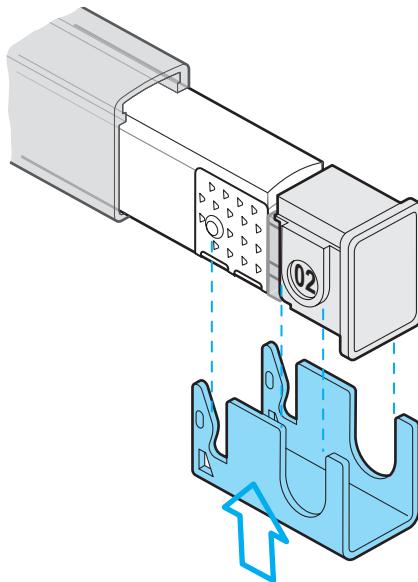
5 Remove the end cap from its protective black box and check that the silicone gasket is correctly positioned over the contacts. The gasket is pre-greased; make sure no grease gets on the contacts.

6 Align the end cap with the cut end Flex Tube Pixel strip and carefully push its three contact prongs into the cavity that you created with the tool.

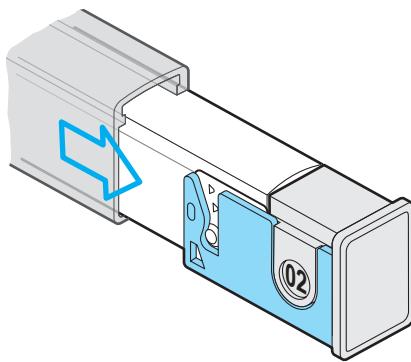


7 Remove the protective film from the joiner bracket and orientate it so that its cutouts align with the extruded parts of both the feed connector and the grip clip.

8 Gently yet firmly push the joiner bracket onto the feed connector/strip assembly. As the joiner bracket engages it should pull the two parts of the assembly close together and eventually lock them into place.



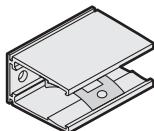
9 Slide the polycarbonate outer sleeve so that it completely covers the join and butts up to the flange of the feed connector.



SELF-LOCKING MOUNTING CHANNEL KIT

These kits are used to mount Flex Tube Pixel strips onto solid surfaces.

KIT CONTENTS



Mount channel with spring clips (1.38"/35mm, 3.28'/1m or 6.56'/2m lengths)

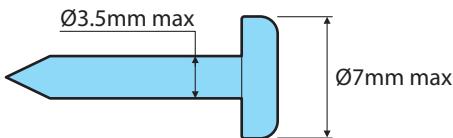


Mount screws
x2, 5 or 10 (depending on channel length)

TO INSTALL A SELF-LOCKING MOUNTING CHANNEL KIT

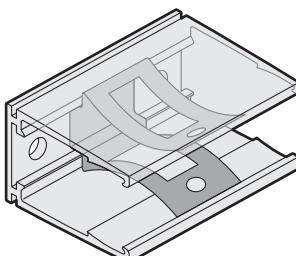
1 Use appropriate screws and fixings for the intended mounting surface. Each channel is supplied with an appropriate number of screws; these screws (M3 x 15) are best suited to mounting on wooden surfaces or possibly in other surfaces with the use of wall plugs.

If you need to source alternative screws, be aware that the limited space within the mount channel restricts the screws used to the following dimensions:



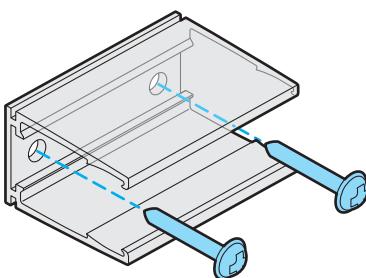
2 Ensure the spring clip(s) are in place within the mount channel and are not blocking the screw holes. Do not remove the spring clip(s) from the channel.

Note: Due to the tightness of their fit in the channel, the spring clips can be difficult to slide along. However, this is made easier if you insert a flat blade screw driver into the channel and engage it simultaneously with one side of the clip's base plus one of the two wings so that you can apply pressure to both as you slide it along.

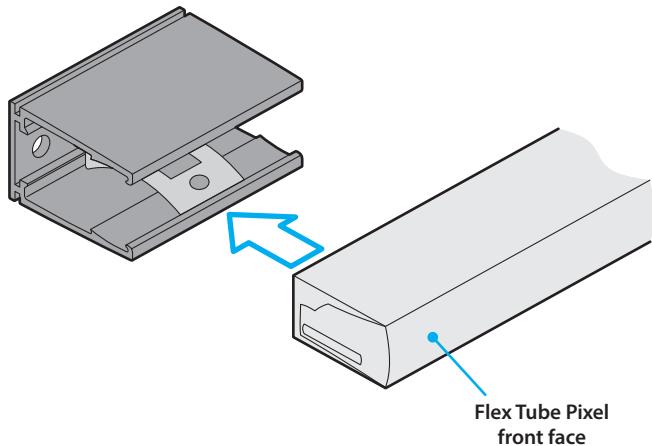


3 Attach the mount channel to the intended surface, taking all appropriate precautions as you do so.

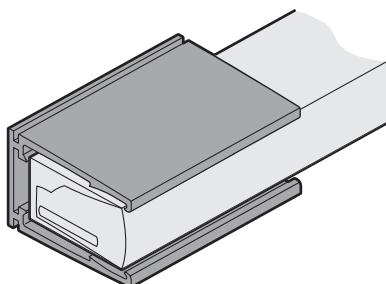
- 1.38" (35mm) mounts have two holes, spaced 1" (25mm) apart,
- 3.28' (1 meter) mounts have five holes, spaced 7.87" (200mm) apart,
- 6.56' (2 meter) mounts have ten holes, spaced 7.87" (200mm) apart.



4 Push the Flex Tube Pixel (front face outwards) fully into the mount channel until it engages fully with the spring clip(s).



- If you should need to remove the Flex Tube Pixel, gently pull it out from the mount channel, taking care not to twist the strip.



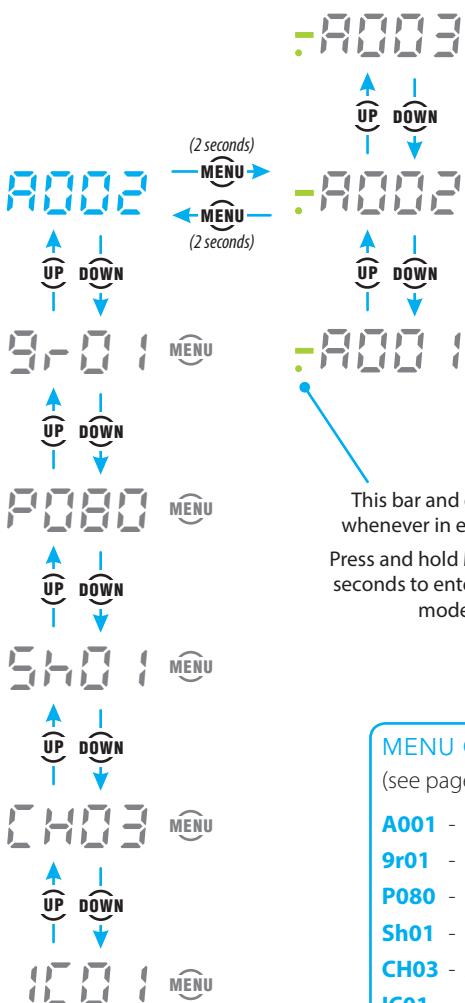
OPERATION

The Pixel Driver 1 controller can drive up to 32.8' (10m) of Flex Tube Pixel tape. The behavior of the connected Flex Tube Pixel is determined using the control menu.

MENU NAVIGATION

Use the three control buttons to navigate around the menu and alter settings as necessary. Press and hold the **MENU** button for two seconds to enter and exit edit mode within a menu option.

Note: You must exit from edit mode within one menu option before you can move to a different menu option.



This bar and dot flash whenever in edit mode

This dot flashes to indicate a valid DMX input



MENU: Press and hold for 2 seconds to enter/exit edit mode for the current menu option.

UP/DOWN: Use to move between menu options and to change values within a menu option in edit mode.

MENU OPTIONS SUMMARY

(see page 18 and page 19 for details)

A001 - DMX base address

9r01 - Segment grouping (determines pixel size)

P080 - Defines total pixels under control

Sh01 - Self test (see page 19)

CH03 - Do not change

IC01 - Do not change

SETUP SHORTCUTS

If you're in a hurry, apply these settings to achieve common configurations:

32.8'(10m) length
with 80 small pixels
(DMX addr: 001)

A001
9r01
P080
CH03
IC01

16.4'(5m) length
with 40 small pixels
(DMX addr: 001)

A001
9r01
P040
CH03
IC01

32.8'(10m) length
with 40 medium pixels
(DMX addr: 001)

A001
9r02
P040
CH03
IC01

32.8'(10m) length
with 10 large pixels
(DMX addr: 001)

A001
9r08
P010
CH03
IC01

MENU OPTIONS

During configuration, three options determine how the Flex Tube Pixel will operate:

- **A001** - The DMX base address,
- **9r01** - The segment grouping (pixel size),
- **P080** - The total number of pixels.

Two of the remaining three options (**IC01** and **CH03**) must remain in their default settings and the **Shxx** option is used for performing self tests (see page 19).

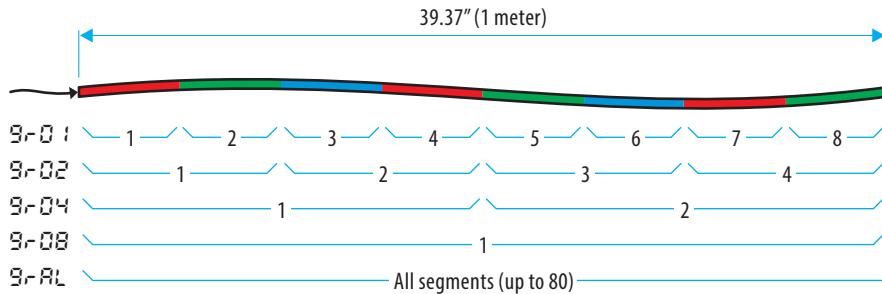
DMX BASE ADDRESS (Axxx)

Configures the base DMX address for the first color (red) of the first segment, or group of segments* of the Flex Tube Pixel. Successive DMX channels control the remaining colors within the various segments. When setting the base address, ensure sufficient channels remain at the upper end to control all of the pixels. For instance, a 10 meter Flex Tube Pixel strip with 80 pixels requires 240 DMX channels, so the base address in such a case cannot be greater than 273.

* As determined by the **9rxx** setting.

SEGMENT GROUPING (9rxx)

Determines how the various segments of the Flex Tube Pixel are matched to the incoming group(s) of three (RGB) DMX channels to form the controllable pixels (i.e. pixel resolution). The options range from the assignment of a set of RGB channels for each individual segment (i.e. a pixel size of 1 segment: **9r01**); up to assigning one set of RGB channels to control the whole strip (i.e. up to 80 segments as one pixel, controlled by just 3 channels: **9rAL**).



The diagram above shows how the eight segments within each meter section are affected by the **9rxx** option; these settings would be repeated across the remaining length of the Flex Tube Pixel strip.

PIXEL RANGE (Px_{xx})

Defines the total number of pixels under control. This option is interdependent with the **9r_{xx}** segment grouping setting, which determines how many segments form each pixel, and how many DMX channels are required to control them.

9r _{xx}	Px _{xx}	Number of DMX channels required for 32' (10 meters)
01	080	240
02	040	120
04	020	60
08	010	30
AL	010	3

This option has a minimum setting of **010**. There are no major issues with setting the **Px_{xx}** value too high for a given number of pixels*; however, if set too low, the pixels which lie beyond the stated limit will most likely illuminate beyond control.

** The only minor issue caused by setting the Px_{xx} value higher than the actual number of pixels becomes apparent when the self tests Sh03 and Sh04 are performed. In Sh03, the scrolling pixel will disappear at the upper end (while it visits non-existent segments) before running back down the length of the strip. In Sh04, the halfway split in the strip will move toward the upper end.*

SELF TEST MODE (Sh_{xx})

This menu option provides self test routines designed to help check for stuck or failed emitters within an installation. No DMX input is required to run these tests.

TO RUN A SELF TEST

- 1 Configure the required segment grouping and pixel range settings for the installed Flex Tube Pixel strip.
- 2 Use the **DOWN** button repeatedly until the display shows **Sh_{xx}** (where *xx* is a value between 01 and 04).
- 3 Press and hold the **MENU** button for roughly two seconds until the bar and dot on the left side of the display start flashing.
- 4 Use the **UP/DOWN** buttons to choose any of the four test sequences:
 - **Sh01** - Shows a rapid sequential strobing through all red, green and blue emitters,
 - **Sh02** - Slowly fades between all red, green and blue emitters,
 - **Sh03** - Shows a band of pixels which scroll from end to end and back again, alternately using the red, green and blue emitters*,
 - **Sh04** - Shows two separate slow fades in each half of the strip, alternately using the red, green and blue emitters*.

** The exact manner in which the Flex Tube Pixel strip responds to these tests is determined by the 9r_{xx} and Px_{xx} menu settings, see page 19.*

- 5 Press and hold the **MENU** button for roughly two seconds until the bar and dot on the left side of the display stop flashing.

Note: The last state of the test pattern will remain until either a DMX input is applied or the power input is cycled.

CHANNEL MODE (CH03)

Determines the type of strip being controlled and the type of LED emitters contained within each segment: *01* for single color, *02* for dynamic white, *03* for RGB and *04* for RGBW. Flex Tube Pixel strips are currently available only in RGB, so this option should remain at **CH03**.

INTEGRATED CIRCUIT (IC01)

Determines the type of addressable driver ICs used within the connected Flex Tube Pixel. Currently the only valid option is **IC01** and this setting should not be changed.

FURTHER INFORMATION

TROUBLESHOOTING

NO LIGHT OUTPUT IS VISIBLE WHEN EXPECTED.

- Check that power is correctly applied to the fixture and that there is no damage to the power input cord.
- Check that the connections to the feed cable have the correct polarity.
- Check that the DMX address set within the Pixel Driver 1 module matches that being output by the controlling source device.

FLEX TUBE PIXEL SPECIFICATIONS

Emitters	Red, green and blue
Beam angle	134°
Lumens per foot	85.4
Maximum Candela	23.9
Lumens per Watt	15
Operating voltage	24VDC
Power consumption	3.65W per foot 12W per metre 120W per 32'(10m) spool
Control	Pulse Width Modulation via DMX input and SPI link via Pixel Driver 1 controller
Segments (pixels)	4.9"(125mm) segment length, 80 RGB segments per 32.8'(10m) spool, 2.4 segments per foot (8 segments per m)
Maximum overall length	32'(10m)
Operation temperature	-40°F to 122°F (-40°C to 50°C)
Housing	White PVC
Feed cable	Injection molded 9.84'(3m) 3-core with bare tails
Ingress protection	IP68 wet location submersible* to 3'(1m)
Impact resistance	IK08 protected up to a 5 Joule impact
Dimensions (L x W x H)	32.8'(10m) x 0.45"(11.5mm) x 0.88"(22.5mm)
Weight	7.6lbs (3.5kg)
Certifications	 

* UL approval limits submersible installation to non-human occupied and freshwater locations only. All cables must be landed in environmentally suitable junction boxes.

Note: If a cut is made and a feed connector or end cap is correctly fitted, the rating must be considered as lowered slightly to IP67.

LIMITED PRODUCT WARRANTY

A. Acclaim Lighting™ hereby warrants, to the original purchaser, Acclaim Lighting finished products to be free of manufacturing defects in material and workmanship for a standard period of:

- Fixtures: 5 Years (1,825 days) from the date of purchase.
- Drivers, power supplies and accessories: 5 Years (1,825 days) from the date of purchase.
- Flex Products: 3 Years (1,095 days) from the date of purchase.
- Controllers: 2 Years (730 days) from the date of purchase.

It is the owner's responsibility to establish the date and place of purchase and warranty terms by acceptable evidence, at the time service is sought.

B. For warranty service, send the product only to the Acclaim factory. All shipping charges must be pre-paid. If the requested repairs or service (including parts replacement) are within the terms of this warranty, Acclaim Lighting will pay return shipping charges only to a designated point within the United States. If the entire instrument is sent, it must be shipped in its original package. No accessories should be shipped with the product. If any accessories are shipped with the product, Acclaim Lighting shall have no liability whatsoever for loss of or damage to any such accessories, nor for the safe return thereof. Acclaim reserves the right to replace the item with same or similar product at its discretion.

C. This warranty is void if the serial number has been altered or removed; if the product is modified in any manner which Acclaim concludes, after inspection, affects the reliability of the product; if the product has been repaired or serviced by anyone other than the Acclaim Lighting factory unless prior written authorization was issued to purchaser by Acclaim Lighting; if the product is damaged because not properly maintained as set forth in the instruction manual.

D. This is not a service contract, and this warranty does not include maintenance, cleaning or periodic check-up nor do we guarantee as part of this warranty any lumen performance during period. Parts not covered by this warranty include: fuses, external power supplies, third party items not manufactured by Acclaim lighting. During the period specified above, Acclaim Lighting will replace defective parts at its expense, and will absorb all expenses for warranty service and repair labor by reason of defects in material or workmanship. The sole responsibility of Acclaim Lighting under this warranty shall be limited to the repair of the product, or replacement thereof, including parts, at the sole discretion of Acclaim Lighting. At no time will installation or re-installation or products labor or liability costs will be assumed by Acclaim Lighting. All products covered by this warranty were manufactured after January 1, 2012, and bear identifying serial number marks to that effect.

E. Acclaim Lighting reserves the right to make changes in design and/or improvements upon its products without any obligation to include these changes in any products theretofore manufactured. No warranty, whether expressed or implied, is given or made with respect to any accessory supplied with products describe above. Except to the extent prohibited by applicable law, all implied warranties made by Acclaim Lighting in connection with this product, including warranties of merchantability or fitness, are limited in duration to the warranty period set forth above. And no warranties, whether expressed or implied, including warranties of merchantability or fitness, shall apply to this product after said period has expired.

F. Marine or extreme weather location applications using Acclaim lighting products are subject to a 2 year limited warranty and Acclaim must be notified prior to delivery of units for such applications so that preventative treatment can be made to the products to ensure proper performance and product life with a special marine code coating / sealing process at an additional cost.

G. The consumer's and or dealer's sole remedy shall be such repair or replacement as is expressly provided above; and under no circumstances shall Acclaim Lighting be liable for any loss or damage, direct or consequential, arising out of the use of, or inability to use, this product. This warranty is the only written warranty applicable to Acclaim Lighting products and supersedes all prior warranties and written descriptions of warranty terms and conditions heretofore published.

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