

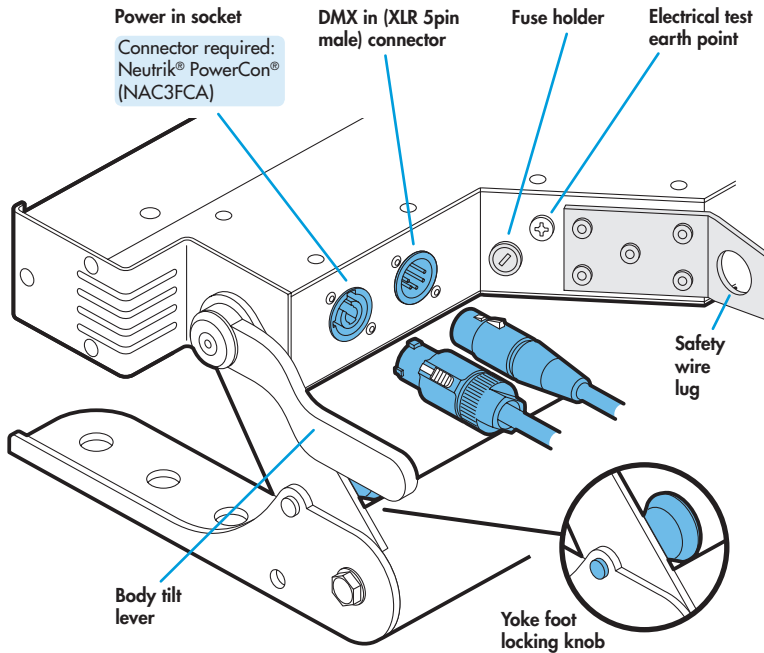
### General set up

**1** Mount the fixture in the required position. The integral yoke can act as a floor stand or hanger.

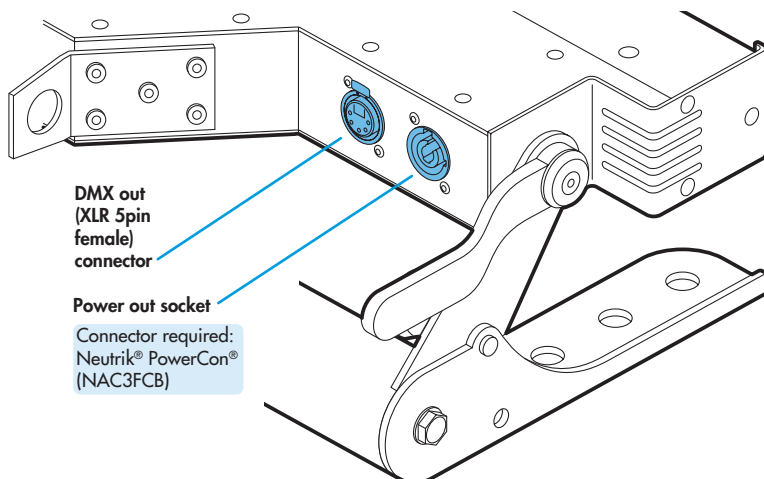
#### Important

- When suspended off ground, always use two independent fixing points. Also always use two safety wires rated to a minimum of 40kg (88lbs) **SL6** or 30Kg (66lbs) **SL4** through the wire lugs.

**2** Where external control is to be used, connect a DMX lead (XLR 5-pin female) to the input socket at the rear of the fixture.



**3** Where other fixtures are to be used in a control daisy-chain, connect a DMX lead (XLR 5-pin male) to the output socket at the rear of the fixture.



**4** Connect power to the fixture using a Neutrik® PowerCon® connector. Insert the connector and twist it clockwise until it clicks into place.

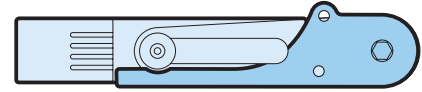
#### Important

- If power daisy-chaining fixtures, do not exceed a total load of 3kW in a single daisy chain (subject to supply and cabling restrictions). Please see page 10 for maximum power requirements per fixture.

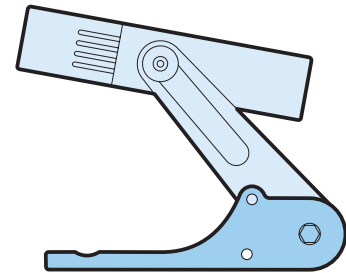
**5** Use the control panel to access the internal menu and choose the appropriate operation mode and related settings (see over).

### Using the yoke

The SmartLine yoke has an adjustable foot at each end to allow it to function as an effective floor stand or be folded away to allow multiple units to be closely stacked.



Yoke folded flat



Yoke feet extended for use as a floor stand

#### Important

Please see the warning on page 10 regarding the stacking of SmartLine fixtures.

### Operation modes

The SmartLine provides a range of operation modes. These are selected using the *Mode* section of the control menu:

- DMX** Allows RGBW control via DMX input. Internal chase effects are not available within this mode.
- MANU** Provides RGBW colour mixing independently of any external control. Use the internal control menu (*MANU* section) to select the required colour values.
- EF M** Allows the display of the dual internal chase effects, independently of any external control. Use the internal control menu (*PRG* section) to select the required chase effects, speeds and cross fades.
- 96+E  
144+** Provides control of individual emitter RGBW mixing and selection of the dual internal chase effects via DMX input. Requires 104 (SL4) or 152 (SL6) DMX channels.
- 4+E** Provides control of RGBW mixing and selection of the dual internal chase effects via DMX input. Requires 11 DMX channels.
- 16bT** Allows RGBW control via DMX input, using two 8bit channels per colour. Internal chase effects are not available within this mode.

SmartLine personalities are available for a variety of controllers. Please see [www.pixelrange.com](http://www.pixelrange.com) for details.

### Factory reset (perform this prior to new use)

To clear previous settings: At the rear panel, press the middle two buttons ( and ) for two seconds while the current address and mode are being displayed. The four digit display will show *F R E T* then *S E T* to indicate that the fixture has been returned to its default condition. This is useful to remove any settings that might cause confusion in a new configuration (e.g. master intensity settings).

## General notes

- Ensure that only one DMX device in the chain is set as master (e.g. the lighting desk). This fixture is usually set to slave mode.
- This fixture is shipped with the DMX address set to 001.
- The four digit display can be set to switch off when not in use. To restore, press **MENU**. To alter this mode use: **PER5 > DISP**.



## Using the menu

- When not in the menu, the four digit display scrolls the current DMX address and mode. The display's right hand decimal point (data dot) is used to indicate status (see below).
- Press **MENU** to enter the menu. The four digit display will show **Addr**.
- Use **DOWN** and **UP** to move between menu options (or to change a value within an option).
- Press **ENTER** to enter an option (or to fix a changed value within an option and return to the previous option level). *Note: If you do not press **ENTER** to fix a value, operation will revert to the previously set mode at the next power on.*
- Press **MENU** to exit from a menu option (and eventually exit the menu completely).

## Chase effects

This section describes each of the internal chase effects that are selectable either via the control menu (**PER5 > EFEC**) or using DMX values sent from an external source. To use the internal effects, set the **Mode** option either to **EF M** (for internal menu control) or **4+E**, **5+E** or **6+E** (for external DMX control).

DMX value	EFEC value	Chase effect description
0-3	00	Off
4-7	01	Rainbow forward chase
8-11	02	Rainbow reverse chase
12-15	03	Cool white forward chase
16-19	04	Cool white reverse chase
20-23	05	Cool white outer/inner/outer chase
24-27	06	50/50 duty cycle cool white strobe
28-31	07	50/50 duty cycle red strobe
32-35	08	50/50 duty cycle purple strobe
36-39	09	50/50 duty cycle yellow strobe
40-43	10	50/50 duty cycle green strobe
44-47	11	Pulse white strobe
48-51	12	Pulse light blue strobe
52-55	13	Pulse rainbow strobe
56-59	14	Pulse red/green/blue strobe
60-63	15	Rainbow forward strobe (cells together)
64-67	16	Rainbow reverse strobe (cells together)
68-71	17	Yellow/blue strobe (cells together)
72-75	18	Horizontal split rainbow chase
76-79	19	Multi cell yellow/blue chase
80-83	20	Multi cell red/blue chase
84-87	21	Multi cell red/yellow chase
88-91	22	Multi cell RGB forward chase
92-95	23	Multi cell rainbow forward chase
96-99	24	Multi cell RGB reverse chase
100-103	25	Static salmon pink
104-107	26	Static yellow
108-111	27	Static light blue
112-115	28	Static purple
116-119	29	Static red
120-123	30	Static green
124-127	31	Static cool white
128-131	32	Random colour dots - all emitters on
132-135	33	Random white dots - few emitters on
136-255	34	RGBW spread forward chase

## Master/slave/data indication

The right hand decimal point (data dot) of the display is used to indicate the master/slave settings and also the presence of a DMX input signal, as shown below:



Data dot ON	Master mode
Data dot FLASHING	Slave mode (DMX data input present)
Data dot OFF	Slave mode (no DMX data present)

### Notes:

- Ensure that only one DMX device in the chain is set as master (e.g. the desk).
- Use **PER5 > DATA** to change between master and slave modes.
- When set to master mode, the fixture will scroll **MASTER** in place of a DMX address (when not within the menu).
- If the display has been set to auto off (**DISP > PAFF**), the data dot will remain active but at a lower brightness.

## DMX links and termination

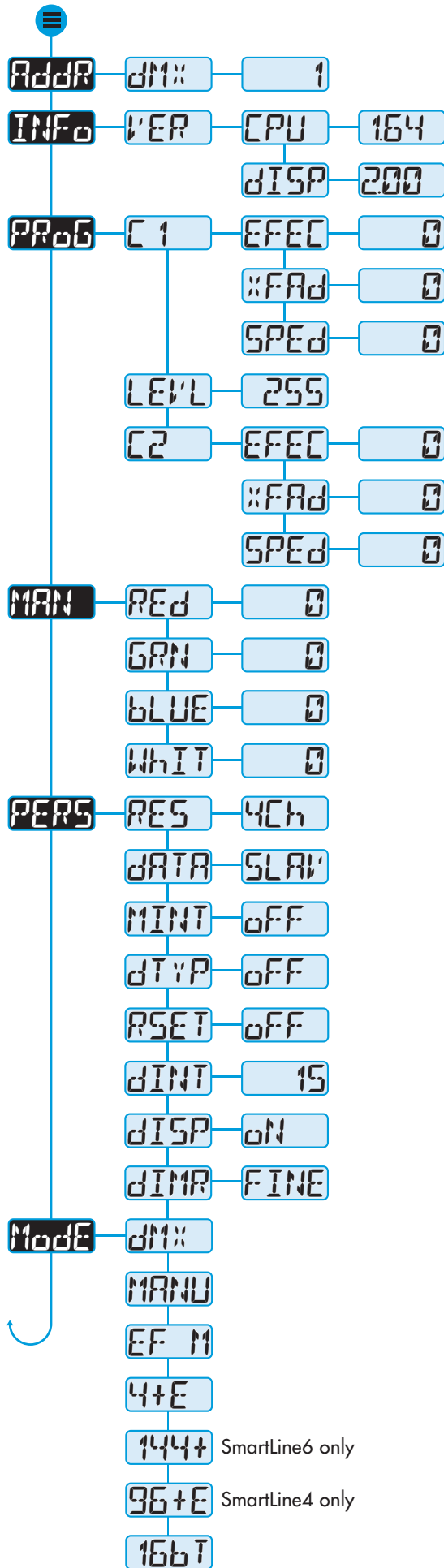
This section provides useful advice for gaining reliable operation from your DMX installation:

- Use good quality flexible twisted pair cable that has a nominal characteristic impedance of 120 ohms. Microphone cables have a lower impedance and a higher capacitance, which can lead to data errors.
- Use a daisychain arrangement to link fixtures together, so that the output of one fixture is connected to the input of the next.
- Connect no more than 32 devices to a single DMX run. If further fixtures are needed, then use a DMX booster to allow up to 32 more fixtures to be attached.
- Never split a DMX cable to form two branches (a Y-split). If separate branches are required, use a powered DMX splitter.
- Ensure that the devices at each end of the daisychain are both terminated using a 120 ohm resistor (usually contained within a separate XLR connector that has no cable - the resistor forms a link between pins 2 and 3). Control desks are usually internally terminated.

It is possible to get away with breaking some of the above rules, particularly on smaller installations that have short cable runs and few fixtures. However, results can be unpredictable and problems will inevitably hit you at the very worst time: During your show.

Please see the 'Troubleshooting' section for useful fault finding tips.

## Control menu contents



Sets the base DMX address from which the control channels will begin.

Shows the main processor software revision. No changes are possible within this option. Press while viewing this option to see the software sub-revision.

Shows the display controller software revision. No changes are possible within this option.

Selects the primary internal chase effect. See Chase effects for descriptions. Select *ModE* > *EF M* to show the selected chase.

Selects the cross fade speed between the steps of the selected *C1* chase effect.

Selects the speed of the selected *C1* chase effect.

Selects the master intensity level of chase effects *C1* and *C2*.

Selects the secondary internal chase effect. See Chase effects for descriptions. Select *ModE* > *EF M* to show the selected chase.

Selects the cross fade speed between the steps of the selected *C2* chase effect.

Selects the speed of the selected *C2* chase effect.

Sets the red intensity. Select *ModE* > *MANU* (manual) to show the result.

Sets the green intensity. Select *ModE* > *MANU* (manual) to show the result.

Sets the blue intensity. Select *ModE* > *MANU* (manual) to show the result.

Sets the white intensity. Select *ModE* > *MANU* (manual) to show the result.

Selects number of channels required to control all emitters. Options range from 1 to 144 (SL6) or 96 (SL4). Emitters are grouped together accordingly.

Determines whether this fixture will act as a master controlling others. When controlled via DMX this fixture must be set to *SLAV*.

*dMx* and *16bT* modes only. When set *ON* this enables the master intensity channel. The master intensity is always 16bit. For 8bit control use the high (coarse) int. channel.

*dMx* mode only. When set *ON*, allows you to determine the dimmer type via DMX. This channel is always the final DMX channel. See 'Changing dimmer curve via DMX'.

When set *ON*, this option scrolls through the primary colours at power on to demonstrate correct operation of the emitters.

Determines the intensity of the four digit control panel display. Values range from 0 (dimmiest) to 15 (brightest).

When set to *FlOFF*, the control panel display will blank out 60 seconds after the menu is exited. The data dot indicator will remain active.

Provides a choice of two dimmer curves (*FINE* or *TUNG*) to suit particular circumstances. See next page for descriptions of each option.

RGBW control using an external DMX control input. *PERS* > *MINT* set to *ON* provides a master intensity in *dMx* and *16bT* modes. No chase effects are selectable.

Displays the resulting RGBW levels that are set via the *MAN* section of the internal menu. External DMX control is not possible in this mode.

Displays the chase effect(s) determined within the *PRoG* section. External DMX control is not possible in this mode.

DMX Ch1 to 4: RGBW colour mixing, Ch5 to 7: *C1* Effect, Speed & Xfade, Ch8 to 10: *C2* Effect, Speed & Xfade, Ch11 to 12: Master intensity (16 bit).

DMX Ch1 to 144: RGBW colour mixing, Ch145 to 147: *C1* Effect, Speed & Xfade, Ch148 to 150: *C2* Effect, Speed & Xfade, Ch151 to 152: Master intensity (16bit).

DMX Ch1 to 96: RGBW colour mixing, Ch97 to 99: *C1* Effect, Speed & Xfade, Ch100 to 102: *C2* Effect, Speed & Xfade, Ch103 to 104: Master intensity (16 bit).

16bit RGBW control using 2x the number of DMX channels determined by *PERS* > *RES*. *PERS* > *MINT* set to *ON* provides a master intensity. No chase effects are selectable.

- (Jd)
- (Jc)
- (Jb)
- (Ja)
- (Hd)
- (Hc)
- (Hb)
- (Ha)
- (Gd)
- (Gc)
- (Gb)
- (Ga)
- (Fd)
- (Fc)
- (Fb)
- (Fa)
- (Ed)
- (Ec)
- (Eb)
- (Ea)
- (Dd)
- (Dc)
- (Db)
- (Da)
- (Cd)
- (Cc)
- (Cb)
- (Ca)
- (Bd)
- (Bc)
- (Bb)
- (Ba)
- (Ad)
- (Ac)
- (Ab)
- (Aa)

### SmartLine 6 channel layouts (DMX mode)

The SmartLine 6 has 36 separate emitters, each of which is a quad-colour unit. The various operating modes (and the  $PER5 > RES$  setting) provide choices as to how the emitters are assigned to DMX control channels. When the  $dm1$  mode is used and the  $PER5 > RES$  option is set to 144, you can control the colour mix of all the individual emitters directly.

The first emitter (Aa) is always closest to the end where the power and DMX input connectors are located.

The  $dm1$  mode does not use chase effects. The first channel of the fixture occurs at the DMX address selected using  $AddP$  and successive channels for the fixture follow from there.

#### Channel layouts for DMX ( $PER5 > RES = 1Ch$ )

When  $PER5 > RES$  is set to 1Ch, all colours within all emitters are controlled by a single DMX channel.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 2 (coarse) and 3 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 2 if master intensity is off or channel 4 if master intensity is on.

#### Channel layouts for DMX ( $PER5 > RES = 4Ch$ )

When  $PER5 > RES$  is set to 4Ch, all emitters of the same colour are controlled collectively. Four DMX channels are required to control the Red, Green, Blue and White aspects of the whole fixture.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 5 (coarse) and 6 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 5 if master intensity is off or channel 7 if master intensity is on.

DMX Channels				Emitter groups
R	G	B	W	
1	2	3	4	Aa to Jd

#### Channel layouts for DMX ( $PER5 > RES = 24Ch$ )

When  $PER5 > RES$  is set to 24Ch, the emitters are controlled as groups of six as indicated below. Four DMX channels are required per group to control the Red, Green, Blue and White aspects of the emitters.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 25 (coarse) and 26 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 25 if master intensity is off or channel 27 if master intensity is on.

DMX Channels				Emitter groups
R	G	B	W	
1	2	3	4	Aa Ab Ac Ad Ba Bb
5	6	7	8	Bc Bd Ca Cb Cc Cd
9	10	11	12	Da Db Dc Dd Ea Eb
13	14	15	16	Ec Ed Fa Fb Fc Fd
17	18	19	20	Ga Gb Gc Gd Ha Hb
21	22	23	24	Hc Hd Ja Jb Jc Jd

#### Channel layouts for DMX ( $PER5 > RES = 36Ch$ )

When  $PER5 > RES$  is set to 36Ch, the emitters are controlled as groups of four as indicated below. Four DMX channels are required per group to control the Red, Green, Blue and White aspects of the emitters.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 37 (coarse) and 38 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 37 if master intensity is off or channel 39 if master intensity is on.

### Channel layouts for DMX (36Ch) cont.

DMX Channels				Emitter groups
R	G	B	W	
1	2	3	4	Aa Ab Ac Ad
5	6	7	8	Ba Bb Bc Bd
9	10	11	12	Ca Cb Cc Cd
13	14	15	16	Da Db Dc Dd
17	18	19	20	Ea Eb Ec Ed
21	22	23	24	Fa Fb Fc Fd
25	26	27	28	Ga Gb Gc Gd
29	30	31	32	Ha Hb Hc Hd
33	34	35	36	Ja Jb Jc Jd

#### Channel layouts for DMX ( $PER5 > RES = 72Ch$ )

When  $PER5 > RES$  is set to 72Ch, the emitters are controlled in pairs as indicated below. Four DMX channels are required per pair to control the Red, Green, Blue and White aspects of the emitters.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 73 (coarse) and 74 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 73 if master intensity is off or channel 75 if master intensity is on.

DMX Channels				Emitter pairs
R	G	B	W	
1	2	3	4	Aa Ab
5	6	7	8	Ac Ad
9	10	11	12	Ba Bb
13	14	15	16	Bc Bd
17	18	19	20	Ca Cb
21	22	23	24	Cc Cd
25	26	27	28	Da Db
29	30	31	32	Dc Dd
33	34	35	36	Ea Eb
37	38	39	40	Ec Ed
41	42	43	44	Fa Fb
45	46	47	48	Fc Fd
49	50	51	52	Ga Gb
53	54	55	56	Gc Gd
57	58	59	60	Ha Hb
61	62	63	64	Hc Hd
65	66	67	68	Ja Jb
69	70	71	72	Jc Jd

#### Channel layouts for DMX ( $PER5 > RES = 144Ch$ )

When  $PER5 > RES$  is set to 144Ch, the emitters are controlled individually. Four DMX channels are required per emitter to control the Red, Green, Blue and White aspects.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 145 (coarse) and 146 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 145 if master intensity is off or channel 147 if master intensity is on.

DMX Channels				Emitter
R	G	B	W	
1	2	3	4	Aa
5	6	7	8	Ab
9	10	11	12	Ac
.	.	.	.	.
132	134	135	136	Jb
137	138	139	140	Jc
141	142	143	144	Jd

continued

## SmartLine 6 channel layouts (16bit mode)

### Channel layouts for 16bit (PER5 > RES = 1Ch)

When PER5>RES is set to 1Ch, all colours within all emitters are controlled by two DMX channels: 1 coarse, 2 fine.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 3 (coarse) and 4 (fine). The dimmer select channel (when enabled, PER5 > dTVP = on) will use channel 3 if master intensity is off or channel 5 if master intensity is on.

### Channel layouts for 16bit (PER5 > RES = 4Ch)

When PER5>RES is set to 4Ch, all emitters of the same colour are controlled collectively. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 9 (coarse) and 10 (fine). The dimmer select channel (when enabled, PER5 > dTVP = on) will use channel 9 if master intensity is off or channel 11 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter groups
1/2	3/4	5/6	7/8	Aa to Jd

### Channel layouts for 16bit (PER5 > RES = 24Ch)

When PER5>RES is set to 24Ch, the emitters are controlled as groups of six as indicated below. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects of each group.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 49 (coarse) and 50 (fine). The dimmer select channel (when enabled, PER5 > dTVP = on) will use channel 49 if master intensity is off or channel 51 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter groups
1/2	3/4	5/6	7/8	Aa Ab Ac Ad Ba Bb
9/10	11/12	13/14	15/16	Bc Bd Ca Cb Cc Cd
17/18	19/20	21/22	23/24	Da Db Dc Dd Ea Eb
25/26	27/28	29/30	31/32	Ec Ed Fa Fb Fc Fd
33/34	35/36	37/38	39/40	Ga Gb Gc Gd Ha Hb
41/42	43/44	45/46	47/48	Hc Hd Ja Jb Jc Jd

### Channel layouts for 16bit (PER5 > RES = 36Ch)

When PER5>RES is set to 36Ch, the emitters are controlled as groups of four as indicated below. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects of each group.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 73 (coarse) and 74 (fine). The dimmer select channel (when enabled, PER5 > dTVP = on) will use channel 73 if master intensity is off or channel 75 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter groups
1/2	3/4	5/6	7/8	Aa Ab Ac Ad
9/10	11/12	13/14	15/16	Ba Bb Bc Bd
17/18	19/20	21/22	23/24	Ca Cb Cc Cd
25/26	27/28	29/30	31/32	Da Db Dc Dd
33/34	35/36	37/38	39/40	Ea Eb Ec Ed
41/42	43/44	45/46	47/48	Fa Fb Fc Fd
49/50	51/52	53/54	55/56	Ga Gb Gc Gd
57/58	59/60	61/62	63/64	Ha Hb Hc Hd
65/66	67/68	69/70	71/72	Ja Jb Jc Jd

### Channel layouts for 16bit (PER5 > RES = 72Ch)

When PER5>RES is set to 72Ch, the emitters are controlled in pairs as indicated below. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects of each group.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 145 (coarse) and 146 (fine). The dimmer select channel (when enabled, PER5 > dTVP = on) will use channel 145 if master intensity is off or channel 147 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter pairs
1/2	3/4	5/6	7/8	Aa Ab
9/10	11/12	13/14	15/16	Ac Ad
17/18	19/20	21/22	23/24	Ba Bb
25/26	27/28	29/30	31/32	Bc Bd
33/34	35/36	37/38	39/40	Ca Cb
41/42	43/44	45/46	47/48	Cc Cd
49/50	51/52	53/54	55/56	Da Db
57/58	59/60	61/62	63/64	Dc Dd
65/66	67/68	69/70	71/72	Ea Eb
73/74	75/76	77/78	79/80	Ec Ed
81/82	83/84	85/86	87/88	Fa Fb
89/90	91/92	93/94	95/96	Fc Fd
97/98	99/100	101/102	103/104	Ga Gb
105/106	107/108	109/110	111/112	Gc Gd
113/114	115/116	117/118	119/120	Ha Hb
121/122	123/124	125/126	127/128	Hc Hd
129/130	131/132	133/134	135/136	Ja Jb
137/138	139/140	141/142	143/144	Jc Jd

### Channel layouts for 16bit (PER5 > RES = 144Ch)

When PER5>RES is set to 144Ch, the emitters are controlled individually. Eight DMX channels are required per emitter to control the Red, Green, Blue and White aspects.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 287 (coarse) and 288 (fine). The dimmer select channel (when enabled, PER5 > dTVP = on) will use channel 287 if master intensity is off or channel 289 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter
1/2	3/4	5/6	7/8	Aa
9/10	11/12	13/14	15/16	Ab
17/18	19/20	21/22	23/24	Ac
.	.	.	.	.
265/266	267/268	269/270	271/272	Jb
273/274	275/276	277/278	279/280	Jc
281/282	283/284	285/286	287/288	Jd

#### Key to channel numbering in this section

DMX Channels			
R	G	B	W
1/2	3/4	5/6	7/8

Coarse or high channel — **3/4** — Fine or low channel

## SmartLine 4 channel layouts (DMX mode)

The SmartLine 4 has 24 separate emitters, each of which is a quad-colour unit. The various operating modes (and the  $PER5 > RES$  setting) provide choices as to how the emitters are assigned to DMX control channels. When the  $dm1$  mode is used and the  $PER5 > RES$  option is set to 96, you can control the colour mix of all the individual emitters directly.

The first emitter (Aa) is always closest to the end where the power and DMX input connectors are located.

The  $dm1$  mode does not use chase effects. The first channel of the fixture occurs at the DMX address selected using  $AddP$  and successive channels for the fixture follow from there.

### Channel layouts for DMX ( $PER5 > RES = 1Ch$ )

When  $PER5 > RES$  is set to 1Ch, all colours within all emitters are controlled by a single DMX channel.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 2 (coarse) and 3 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 2 if master intensity is off or channel 4 if master intensity is on.

### Channel layouts for DMX ( $PER5 > RES = 4Ch$ )

When  $PER5 > RES$  is set to 4Ch, all emitters of the same colour are controlled collectively. Four DMX channels are required to control the Red, Green, Blue and White aspects of the whole fixture.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 5 (coarse) and 6 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 5 if master intensity is off or channel 7 if master intensity is on.

DMX Channels				Emitter groups
R	G	B	W	
1	2	3	4	Aa to Fd

### Channel layouts for DMX ( $PER5 > RES = 16Ch$ )

When  $PER5 > RES$  is set to 16Ch, the emitters are controlled as groups of six as indicated below. Four DMX channels are required per group to control the Red, Green, Blue and White aspects of the emitters.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 17 (coarse) and 18 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 17 if master intensity is off or channel 19 if master intensity is on.

DMX Channels				Emitter groups
R	G	B	W	
1	2	3	4	Aa Ab Ac Ad Ba Bb
5	6	7	8	Bc Bd Ca Cb Cc Cd
9	10	11	12	Da Db Dc Dd Ea Eb
13	14	15	16	Ec Ed Fa Fb Fc Fd

### Channel layouts for DMX ( $PER5 > RES = 24Ch$ )

When  $PER5 > RES$  is set to 24Ch, the emitters are controlled as groups of four as indicated below. Four DMX channels are required per group to control the Red, Green, Blue and White aspects of the emitters.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 25 (coarse) and 26 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 25 if master intensity is off or channel 27 if master intensity is on.

## Channel layouts for DMX (24Ch) cont.

DMX Channels				Emitter groups
R	G	B	W	
1	2	3	4	Aa Ab Ac Ad
5	6	7	8	Ba Bb Bc Bd
9	10	11	12	Ca Cb Cc Cd
13	14	15	16	Da Db Dc Dd
17	18	19	20	Ea Eb Ec Ed
21	22	23	24	Fa Fb Fc Fd

## Channel layouts for DMX ( $PER5 > RES = 48Ch$ )

When  $PER5 > RES$  is set to 48Ch, the emitters are controlled in pairs as indicated below. Four DMX channels are required per pair to control the Red, Green, Blue and White aspects of the emitters.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 49 (coarse) and 50 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 49 if master intensity is off or channel 51 if master intensity is on.

DMX Channels				Emitter pairs
R	G	B	W	
1	2	3	4	Aa Ab
5	6	7	8	Ac Ad
9	10	11	12	Ba Bb
13	14	15	16	Bc Bd
17	18	19	20	Ca Cb
21	22	23	24	Cc Cd
25	26	27	28	Da Db
29	30	31	32	Dc Dd
33	34	35	36	Ea Eb
37	38	39	40	Ec Ed
41	42	43	44	Fa Fb
45	46	47	48	Fc Fd

## Channel layouts for DMX ( $PER5 > RES = 96Ch$ )

When  $PER5 > RES$  is set to 96Ch, the emitters are controlled individually. Four DMX channels are required per emitter to control the Red, Green, Blue and White aspects.

The 16-bit Master intensity (when enabled,  $PER5 > MINT = on$ ) will occupy channels 97 (coarse) and 98 (fine). The dimmer select channel (when enabled,  $PER5 > dTVP = on$ ) will use channel 97 if master intensity is off or channel 99 if master intensity is on.

DMX Channels				Emitter
R	G	B	W	
1	2	3	4	Aa
5	6	7	8	Ab
9	10	11	12	Ac
.	.	.	.	.
85	86	87	88	Fb
89	90	91	92	Fc
93	94	95	96	Fd

continued

## SmartLine 4 channel layouts (16bit mode)

### Channel layouts for 16bit (PER5 > RES = 1Ch)

When PER5>RES is set to 1Ch, all colours within all emitters are controlled by two DMX channels: 1 coarse, 2 fine.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 3 (coarse) and 4 (fine). The dimmer select channel (when enabled, PER5 > dT vP = on) will use channel 3 if master intensity is off or channel 5 if master intensity is on.

### Channel layouts for 16bit (PER5 > RES = 4Ch)

When PER5>RES is set to 4Ch, all emitters of the same colour are controlled collectively. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 9 (coarse) and 10 (fine). The dimmer select channel (when enabled, PER5 > dT vP = on) will use channel 9 if master intensity is off or channel 11 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter groups
1/2	3/4	5/6	7/8	Aa to Fd

### Channel layouts for 16bit (PER5 > RES = 16Ch)

When PER5>RES is set to 16Ch, the emitters are controlled as groups of six as indicated below. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects of each group.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 33 (coarse) and 34 (fine). The dimmer select channel (when enabled, PER5 > dT vP = on) will use channel 33 if master intensity is off or channel 35 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter groups
1/2	3/4	5/6	7/8	Aa Ab Ac Ad Ba Bb
9/10	11/12	13/14	15/16	Bc Bd Ca Cb Cc Cd
17/18	19/20	21/22	23/24	Da Db Dc Dd Ea Eb
25/26	27/28	29/30	31/32	Ec Ed Fa Fb Fc Fd

### Channel layouts for 16bit (PER5 > RES = 24Ch)

When PER5>RES is set to 24Ch, the emitters are controlled as groups of four as indicated below. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects of each group.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 49 (coarse) and 50 (fine). The dimmer select channel (when enabled, PER5 > dT vP = on) will use channel 49 if master intensity is off or channel 51 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter groups
1/2	3/4	5/6	7/8	Aa Ab Ac Ad
9/10	11/12	13/14	15/16	Ba Bb Bc Bd
17/18	19/20	21/22	23/24	Ca Cb Cc Cd
25/26	27/28	29/30	31/32	Da Db Dc Dd
33/34	35/36	37/38	39/40	Ea Eb Ec Ed
41/42	43/44	45/46	47/48	Fa Fb Fc Fd

### Channel layouts for 16bit (PER5 > RES = 48Ch)

When PER5>RES is set to 48Ch, the emitters are controlled in pairs as indicated below. Eight DMX channels are required to control the coarse and fine levels for the R, G, B and W aspects of each group.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 97 (coarse) and 98 (fine). The dimmer select channel (when enabled, PER5 > dT vP = on) will use channel 97 if master intensity is off or channel 99 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter pairs
1/2	3/4	5/6	7/8	Aa Ab
9/10	11/12	13/14	15/16	Ac Ad
17/18	19/20	21/22	23/24	Ba Bb
25/26	27/28	29/30	31/32	Bc Bd
33/34	35/36	37/38	39/40	Ca Cb
41/42	43/44	45/46	47/48	Cc Cd
49/50	51/52	53/54	55/56	Da Db
57/58	59/60	61/62	63/64	Dc Dd
65/66	67/68	69/70	71/72	Ea Eb
73/74	75/76	77/78	79/80	Ec Ed
81/82	83/84	85/86	87/88	Fa Fb
89/90	91/92	93/94	95/96	Fc Fd

### Channel layouts for 16bit (PER5 > RES = 96Ch)

When PER5>RES is set to 96Ch, the emitters are controlled individually. Eight DMX channels are required per emitter to control the Red, Green, Blue and White aspects.

The 16-bit Master intensity (when enabled, PER5 > MINT = on) will occupy channels 193 (coarse) and 194 (fine). The dimmer select channel (when enabled, PER5 > dT vP = on) will use channel 193 if master intensity is off or channel 195 if master intensity is on.

DMX Channels				
R	G	B	W	Emitter
1/2	3/4	5/6	7/8	Aa
9/10	11/12	13/14	15/16	Ab
17/18	19/20	21/22	23/24	Ac
.	.	.	.	.
169/170	171/172	173/174	175/176	Fb
177/178	179/180	181/182	183/184	Fc
185/186	187/188	189/190	191/192	Fd

### Key to channel numbering in this section

DMX Channels			
R	G	B	W
1/2	3/4	5/6	7/8

Coarse or high channel — **3/4** — Fine or low channel

## Channel layouts for remote effects modes

The 4+E, 96+E (SL4 only) and 144+ (SL6 only) modes provide combined colour mixing and chase effects via DMX control. In all modes, the first channel of the fixture occurs at the DMX address selected using **FADER** and successive channels for the fixture follow from there.

### 4+E (SL6 and SL4 models)

DMX Channels					Other	Emitters/Control
R	G	B	W			
1	2	3	4			Aa to Jd
				5		[ 1 Effect
				6		[ 1 Speed
				7		[ 1 Xfade
				8		[ 2 Effect
				9		[ 2 Speed
				10		[ 2 Xfade
				11		Master int. (coarse)
				12		Master int. (fine)
				13		Dimmer select (if enabled)

### 96+E (SL4 models only)

DMX Channels					Other	Emitters/Control
R	G	B	W			
1	2	3	4			Aa
5	6	7	8			Ab
9	10	11	12			Ac
.	.	.	.			.
85	86	87	88			Fb
89	90	91	92			Fc
93	94	95	96			Fd
				97		[ 1 Effect
				98		[ 1 Speed
				99		[ 1 Xfade
				100		[ 2 Effect
				101		[ 2 Speed
				102		[ 2 Xfade
				103		Master int. (coarse)
				104		Master int. (fine)
				105		Dimmer select (if enabled)

### 144+E (SL6 models only)

DMX Channels					Other	Emitters/Control
R	G	B	W			
1	2	3	4			Aa
5	6	7	8			Ab
9	10	11	12			Ac
.	.	.	.			.
132	134	135	136			Jb
137	138	139	140			Jc
141	142	143	144			Jd
				145		[ 1 Effect
				146		[ 1 Speed
				147		[ 1 Xfade
				148		[ 2 Effect
				149		[ 2 Speed
				150		[ 2 Xfade
				151		Master int. (coarse)
				152		Master int. (fine)
				153		Dimmer select (if enabled)

## Dimmer curve options (PERS > DIMP)

SmartLine provides two dimmer curve options to determine exactly how the digital values received via the DMX link are converted into emitter intensities. The dimmer curve setting affects all modes.

To alter the dimmer curve, go to the **PERS** menu, choose the **DIMP** option, select the required setting and then press the **▶** button to save.

The dimmer curve options are as follows:

- **FINE** Provides a square law dimmer curve with fast reaction to changing DMX values.
- **TUNG** Alters the dimming response to closely emulate the smooth thermal lag action of standard tungsten bulbs. The **TUNG** setting can be used with all operation modes. *Note: This mode can affect the way that fast chase sequences appear.*

## Changing the dimmer curve via DMX (PERS > DTYP)

SmartLine allows you to change the dimming response curve remotely via DMX control. When enabled, the 'dimmer type' channel will be added as the last channel for the fixture, after the Master Intensity channels, if enabled. The dimmer curve via DMX setting affects the following modes: **DM1**, **16BT**, **4+E** and **96+E/144+**.

To enable remote 'dimmer type' control: Go to the **PERS** menu, choose the **DTYP** option and change its setting to **ON**.

Once enabled, the value sent to the 'dimmer type' channel will dynamically affect which dimmer curve is used:

- Values 0 to 85 select the FINE dimmer response,
- Values 86 to 255 select the TUNGSTEN dimmer response.



## Troubleshooting

- **Display panel is blank:** Press a control panel button, if the display still does not show, check the input power and fuse.
- **No response during DMX control:** Check whether a master intensity input is required. `4+E`, `9E+E` and `144+` modes always require a master intensity input. `dM+` and `1E6T` have an optional master intensity, depending on the setting of `PER5 > MINT`. If the `MINT` setting is `oN` then no output will occur until a level greater than zero is applied to the master intensity channel(s). See pages 4 and 5 for details.

*Note: It is good practice to perform a factory reset before these fixtures are used on any new installation.*

*This will ensure that settings like the `MINT` option are set to off and do not create the potential for confusion. See page 1 for details of how to perform a factory reset.*

- **No response during DMX control:** If live DMX is connected, the right hand decimal point on the display should flash - if not, check the DMX cable(s) and the desk output.
- **Erratic operation during DMX control:** Check that the final fixture within the DMX daisy chain is correctly terminated with a 120 ohm terminator plug.
- **Erratic operation during DMX control:** Check the cabling for damage. Also check that all cables used are 120 ohm data cables and not microphone cables. Microphone cables have a lower impedance and higher capacitance which can adversely affect data transmission, particularly on longer runs with numerous fixtures.
- **Erratic operation during DMX control:** Check that the selected `ModE` matches the personality being used on the control desk.
- **Erratic operation during DMX control:** Ensure that only one DMX device in the daisy chain is set as master.
- **Rapid colour/intensity changes not occurring:** Check whether the tungsten dimmer mode is selected (`PER5 > dIMP > TUNG`). This would slow the reaction times of the emitters and could mean that rapid changes are blended into each other. Choose `FINE` for a faster reacting dimmer mode.
- **Standalone chase effects not working:** Check that a chase has been programmed using `PRoG > C 1` and/or `PRoG > C 2` and also that `ModE > EF M` is selected. Check also that `PRoG > LEVL` is not set at zero.
- **Standalone RGBW mixing not working:** Check that one or more colour values have been set within `MAN` section and also that the `ModE > MANU` is selected.

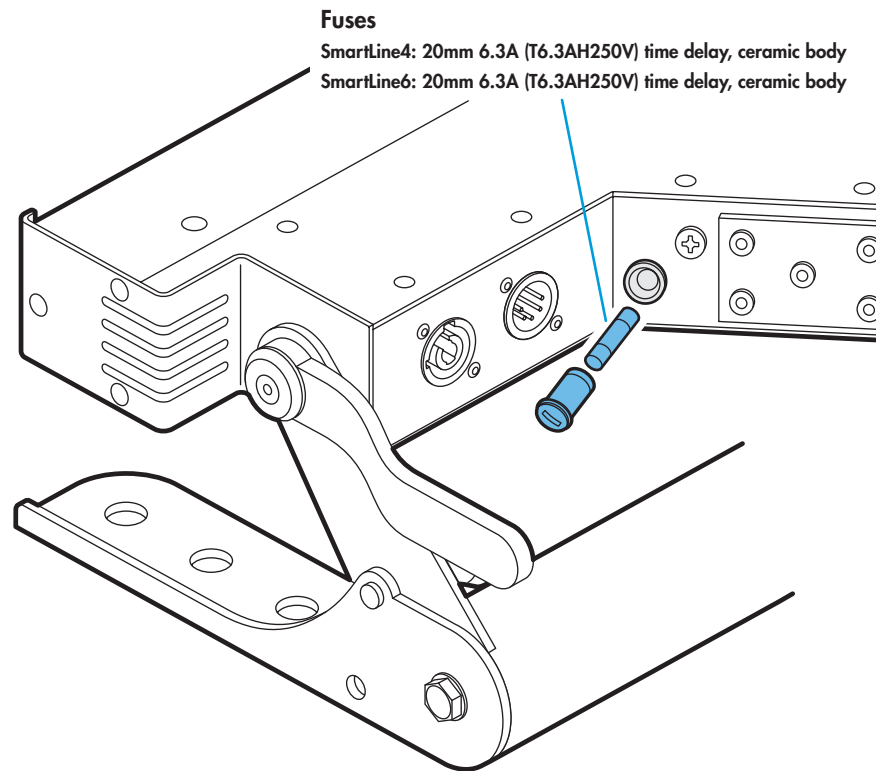
## Firmware upgrades

Firmware upgrades are released from time to time in order to provide new operational features. The SmartLine has been designed to allow straightforward firmware upgrading via its DMX interface, a PixelU2D USB device and a computer.

Please contact PixelRange technical support for details.

## Fuse access

The single fuse is located near to the power and DMX input connectors. Use a small flat blade screw driver to twist the fuse holder anti-clockwise until the carrier can be extracted to reveal the fuse.



## Using master mode to drive other units

This unit can control any number of other PixelRange fixtures via DMX links, without the need for a control desk.

- 1 Set this unit as **master** (`PER5 > dATA > MAST`) and ensure all others are set to **slave** (`PER5 > dATA > SLAV`). Connect all fixtures via DMX daisy-chain.

*Note: Don't forget to terminate the devices at either end of the chain - see the section 'DMX links and termination'.*

- 2 Set each slave to `ModE > dM+`.
- 3 Set the master to either create chases or static colours:

**Chases:** Select `ModE > EF M` and then use `PRoG > C 1` and `C 2` to create the required effects (see the 'Chase effects' table).

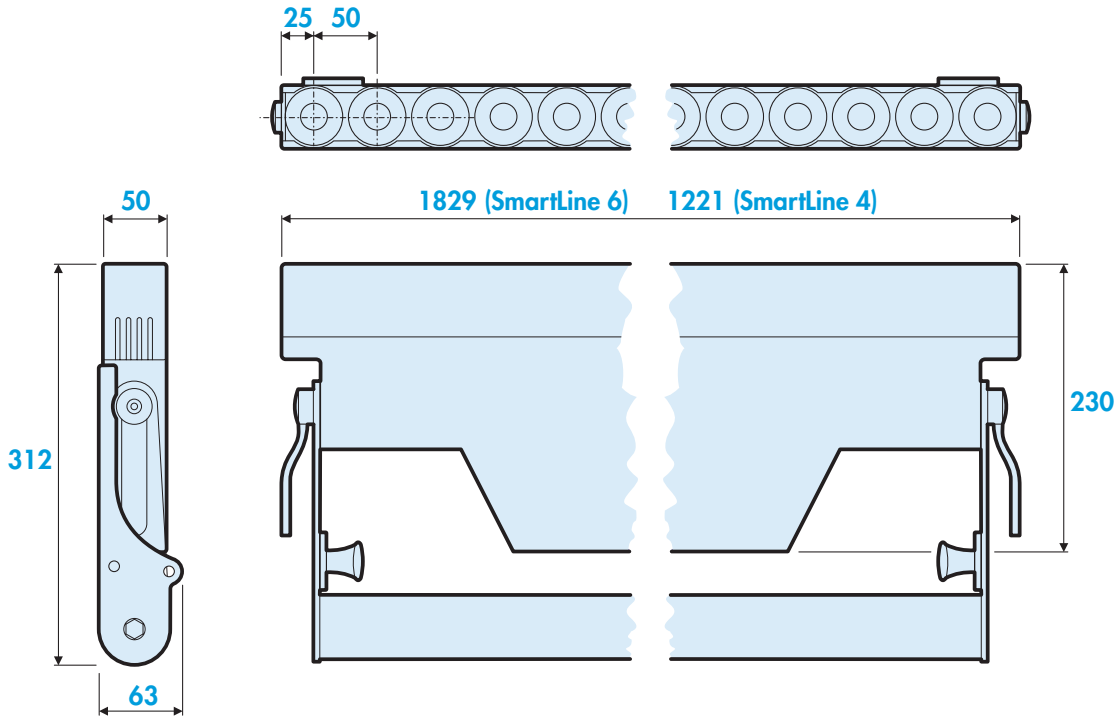
**Static colours:** Select `ModE > MANU` and then use `MAN > RED, GRN, BLUE` and `WHIT` to mix the colour.

*Note: The setting of `PER5 > RES` determines how the DMX channels are output when mixing static colours: `PER5 > RES=4` (or 16, 24, 48, 96 or 144) sends out separate red, green, blue and white levels in repeated 4 channel blocks: i.e. 1 to 4, 5 to 8, etc. The `RES=1` setting links all DMX output channels so that all emitters can be controlled by a single setting (`MAN > RED`).*

- 4 Set each slave DMX address (using `Addr > dM+`) as appropriate:
  - For static colour mixing you can either set all fixtures to DMX channel 1 or position them at the beginning of the four channel cells: `ADD 1`, `ADD5`, `ADD9`, `ADD13`, `ADD17`, `ADD21`, etc. The outputs within each cell will be the same.
  - For chases, six separate cells are output in groups of 4 DMX channels to give RGBW values per cell. Set the address of each slave fixture according to which of the 6 cells you want them to appear within, or to begin with (for multi-cell fixtures): (`ADD 1` or `ADD5` for cell A, `ADD9` or `ADD13` for cell B, `ADD17` or `ADD21` for cell C, `ADD25` or `ADD29` for cell D, `ADD33` or `ADD37` for cell E or `ADD41` or `ADD45` for cell F).

# Specifications

## Dimensions



## Weight

Fixture and yoke: approx. 16kg (35.3 lbs) (SmartLine 6)  
 approx. 12kg (26.5 lbs) (SmartLine 4)

## Power

Input voltage: 100 to 240V AC, 47 to 63Hz autosensing  
 Connectors: Supplied with cable only: live, neutral & earth  
 Power requirements:

	@ 230V/50Hz	@ 115V/60Hz	
Standby	3 watts	3 watts	
Maximum (const.)	330 watts	330 watts	(SmartLine 6)
Maximum (const.)	220 watts	220 watts	(SmartLine 4)

## Important

When closely stacking SmartLine units (e.g. to form a video wall), it is important to reduce the output intensity to no more than 30% of the maximum, in order to prevent overheating.

The SmartLine units are equipped with heat sensors throughout their circuitry to ensure protection. The units will begin to reduce output automatically (in stages) once the internal temperature exceeds 60°C. When the temperature level exceeds 60°C, the units will also begin showing the temperature on their displays, e.g. T063 = 63°C.

## Approvals



## Miscellaneous

Enclosure rating: IP20 (not protected against moisture ingress)  
 Control input: USITT DMX512 (input connector pin out below)

