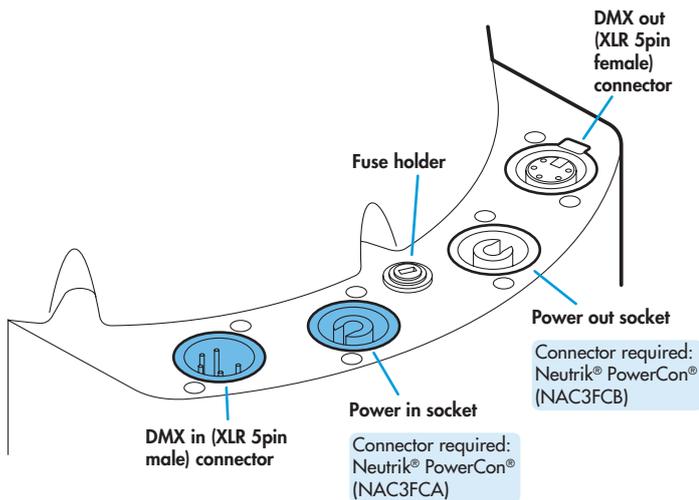


General set up

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

Important

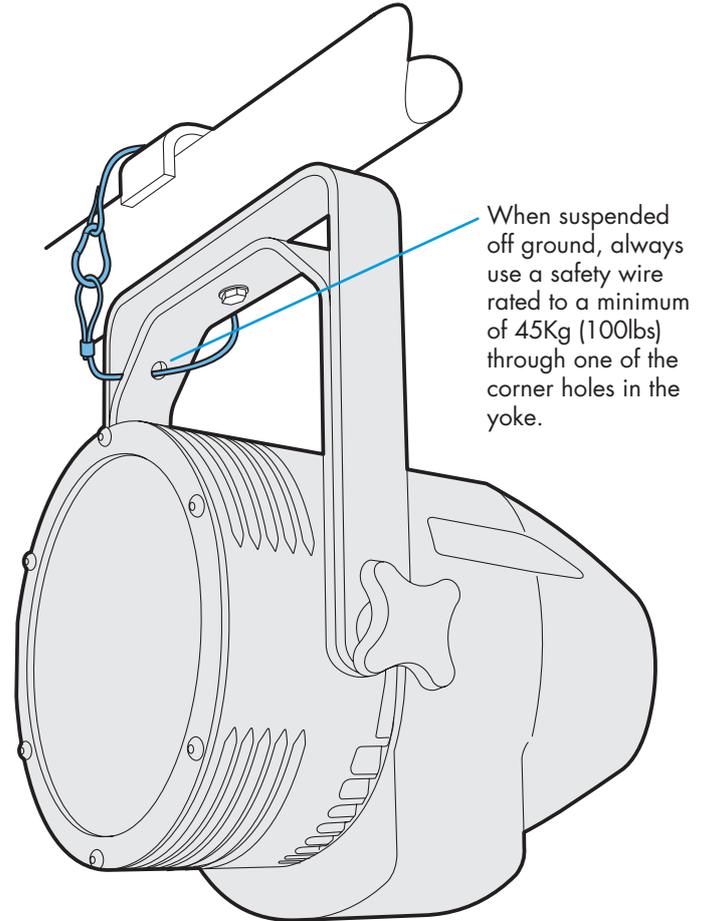
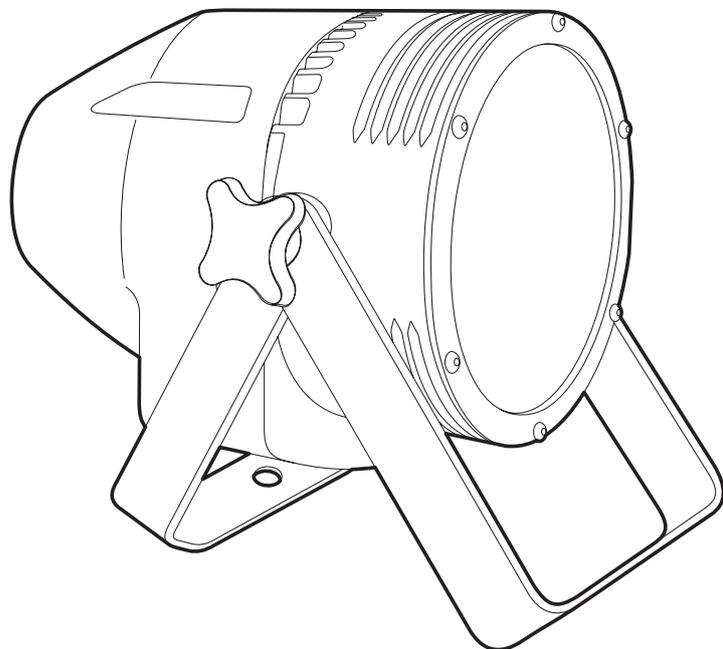
- When suspended off ground, always use a safety wire rated to a minimum of 45Kg (100lbs) through a corner hole of the yoke.
- 2 Where external control is to be used, connect a DMX lead (XLR 5-pin female) to the input socket on the underside of the fixture.



- 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 on the underside 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). Maximum power requirement per fixture: 185 Watts. See also the 'Start up (peak)' note on page 7.
- 5 Use the control panel to access the internal menu and choose the appropriate operation mode and related settings (see over).



Factory reset (perform this prior to new use)

To clear previous settings: At the rear panel, press the middle two buttons (▶ and ◀) 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).

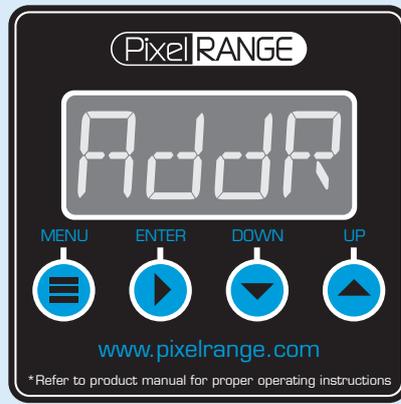
Operation modes

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

- DMX** Allows RGBWW control via DMX input. Internal chase effects are not available within this mode.
- MANU** Provides RGBWW colour mixing independently of any external control. Use the internal control menu (**MAN** 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.
- 4+E** Provides control of RGBW mixing and selection of the dual internal chase effects via DMX input. Requires 12 DMX channels.
- 5+E** Provides control of RGBWW mixing and selection of the dual internal chase effects via DMX input. Requires 13 DMX channels.
- 6 1+E** Provides control of individual RGBWW emitter mixing and selection of the dual internal chase effects via DMX input. Requires 69 DMX channels.
- 16bT** Allows RGBWW control via DMX input, using two 8bit channels per colour. Internal chase effects are not available within this mode.

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 **⏏**. To alter this mode use: **PEPS > 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 **⏏** to enter the menu. The four digit display will show **Addr**.
- Use **⬇** and **⬆** to move between menu options (or to change a value within an option).
- Press **➡** 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 **➡** to fix a value, operation will revert to the previously set mode at the next power on.*
- Press **⏏** 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 (**PEPS > EFEC**) or using DMX values sent from an external source. To use the internal effects, set the **MODE** option either to **EF 11** (for internal menu control) or **1+E**, **5+E** or **6 1+E** (for external DMX control).

DMX value	EFEC value	Chase effect description
0-3	00	Off
4-7	01	Rainbow chase upward
8-11	02	Rainbow chase downward
12-15	03	Cool white chase upward
16-19	04	Cool white chase downward
20-23	05	Cool white outer/inner strobe
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 cool white strobe
48-51	12	Pulse blue strobe
52-55	13	Pulse rainbow strobe
56-59	14	Pulse red/green/blue strobe
60-63	15	All emitter rainbow chase
64-67	16	All emitter rainbow chase reverse
68-71	17	All emitter yellow/blue chase
72-75	18	Horizontal split rainbow chase
76-79	19	Alternate lines yellow/blue chase
80-83	20	Alternate lines red/blue chase
84-87	21	Horizontal split red/yellow chase
88-91	22	Alternate lines rainbow chase
92-95	23	Horizontal split rainbow chase
96-99	24	Horizontal split rainbow pulse
100-103	25	Static warm white
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
132-135	33	Rainbow and white spread chase outw.
136-139	34	Red and white spread chase outward
140-143	35	Green and white spread chase outward
144-147	36	Blue and white spread chase outward
148-151	37	Warm & cool white spread chase outw.
152-155	38	Warm white spiral dot chase
156-159	39	Warm & cool white twinkle
160-255	40	Rainbow clockwise dot fill (test sequence)

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 **PEPS > 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 > Roff**), the data dot will remain active but at a lower brightness.

DMX links and termination

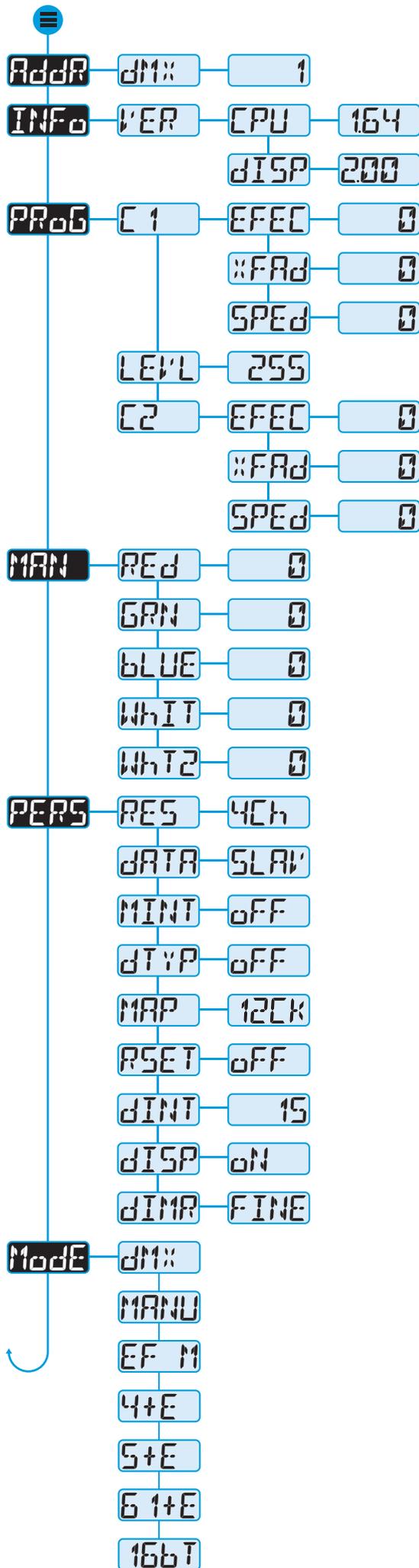
This section provides useful advice for gaining reliable operation from your DMX installation:

- 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. Not available when *PERS* > *RES* is set to *1Ch*.

Sets the blue intensity. Select *Mode* > *MANU* (manual) to show the result. Not available when *PERS* > *RES* is set to *1Ch*.

Sets the cool white intensity. Select *Mode* > *MANU* (manual) to show the result. Not available when *PERS* > *RES* is set to *1Ch*.

Sets the warm white intensity - only available when *PERS* > *RES* is set to *5Ch*. Select *Mode* > *MANU* (manual) to show the result.

Selects number of channels required to control all emitters. Options range from 1 through 4, 5 and 61. Emitters are grouped together accordingly (see channel layouts).

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 16-bit master intensity control (2 x 8-bit channels). For 8-bit control use the high channel alone (see channel layouts).

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'.

DMX mode only. Rotates DMX channel to emitter mapping by 90 degree increments to allow for units mounted on the side or inverted. See 'Rotating the emitter layout'.

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 25 seconds after the menu is exited. The data dot indicator will remain active.

Provides a choice of two dimmer responses (*FINE* or *TUNG*) to suit requirements. See 'Dimmer curve options' for descriptions of each option.

RGBWW control using an external DMX control input. *PERS* > *MINT* set to *ON* provides 16-bit master intensity control. No chase effects are selectable.

Displays the resulting RGBWW 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 & Ch12: 16-bit master intensity.

DMX Ch1 to 5: RGBWW colour mixing, Ch6 to 8: *C1* Effect, Speed & Xfade, Ch9 to 11: *C2* Effect, Speed & Xfade, Ch12 & Ch13: 16-bit master intensity.

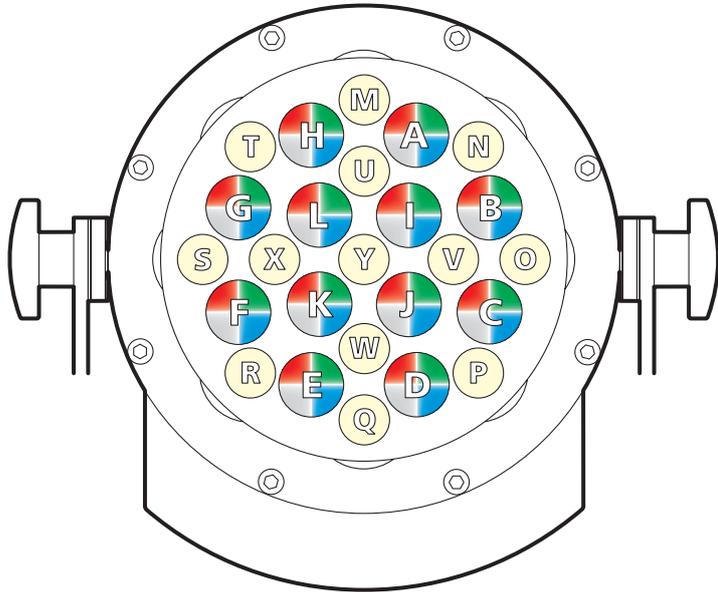
DMX Ch1 to 61: RGBWW colour mixing, Ch62 to 64: *C1* Effect, Speed & Xfade, Ch65 to 67: *C2* Effect, Speed & Xfade, Ch68 & Ch69: 16-bit master intensity.

16bit RGBWW control using two DMX channels per colour. *PERS* > *MINT* set to *ON* provides 16-bit master intensity control. No chase effects are selectable.

Emitter layouts

To provide a more complete gamut of primary, pastel and open white shades, PixelSmart uses twelve quad-colour emitters (red, green, blue and cool white) together with thirteen warm white emitters. The various operating modes (and the *PER5 > RES* setting) provide choices as to how the emitters are assigned to DMX control channels. When *E 1+E* or *dM* modes (the latter with *PER5 > RES=61*) are used, you can control individual emitters directly.

The emitters are addressed as shown in the diagram below. [A] to [L] are quad colour emitters and [M] to [Y] are warm white emitters:



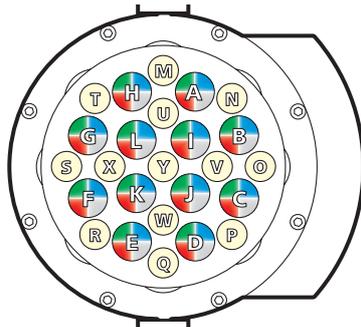
Rotating the emitter layout (*PER5 > MAP*)

When addressing the individual emitters (using either the *E 1+E* or *dM* modes), PixelSmart allows you to rotate the emitter addressing through either 90, 180 or 270 degrees so that units can be mounted on their sides or be fully inverted and still show the same patterns.

Use the *PER5 > MAP* option to select the appropriate rotation option: 12CK, 03CK, 06CK or 09CK. Each option represents the position (on the upright front face, using a clock analogy) where the initial [A] emitter will be located. The standard setting of 12CK (no rotation) is shown above. The other settings are shown below:

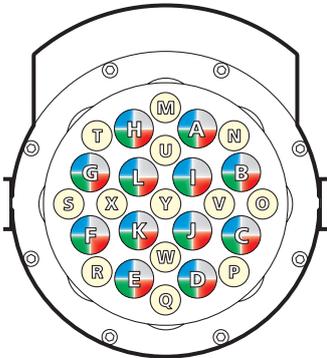
PER5 > MAP=03CK ↻

For units where the 3 o'clock position is now upright.



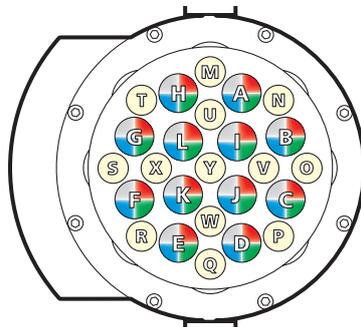
PER5 > MAP=06CK ↻

For inverted units where the 6 o'clock position is now upright.



PER5 > MAP=09CK ↻

For units where the 9 o'clock position is now upright.



Channel layouts for DMX mode

When using *dM* mode, the manner in which LED emitters are assigned to DMX channels is directly determined by the *PER5 > RES* option. The *dM* mode does not use chase effects. The first channel of the fixture occurs at the DMX address selected using *AddrP* and successive channels for the fixture follow from there.

Channel	<i>dM</i> (<i>RES=1</i>)	<i>dM</i> (<i>RES=4</i>)	<i>dM</i> (<i>RES=5</i>)	<i>dM</i> (<i>RES=61</i>)
1	All emitters	Red	Red	[A] Red
2	Mast. int. (c)*	Green	Green	[A] Green
3	Mast. Int. (f)*	Blue	Blue	[A] Blue
4		All whites	Cool white	[A] Cool w
5	Dimmer select** is chan. 2 if Mast. int. is OFF or chan. 4 if Mast. int. is ON	Mast. int. (c)*	Warm white	[B] Red
6		Mast. int. (f)*	Mast. int. (c)*	[B] Green
7			Mast. int. (f)*	[B] Blue
8				[B] Cool w
.				.
47				[L] Blue
48				[L] Cool w
49				[M] Warm w
50				[N] Warm w
.				.
61				[Y] Warm w
62				Master int. (c)*
63				Master int. (f)*

* The 16-bit master intensity channels are enabled only when the *PER5 > MINT* option is set to *on*. For 8-bit master intensity control, use the high (coarse) intensity channel.

** The dimmer select channel is enabled only when the *PER5 > dTYP* option is set to *on*. Values 0 to 85 select FINE dimmer response; values 86 to 255 select TUNGSTEN dimmer response. See 'Changing the dimmer curve via DMX'.

(c) = Coarse or high channel, (f) = Fine or low channel

Dimmer select** is chan. 62 if Mast. int. is OFF or chan. 64 if Mast. int. is ON

Dimmer curve options (*PER5 > DIMR*)

PixelSmart 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 *PER5* menu, choose the *dIMR* 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 (*PER5 > dTYP*)

PixelSmart 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: *dM*, *1E+T*, *4+E*, *5+E* and *E 1+E*.

To enable remote 'dimmer type' control: Go to the *PER5* 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 curves are used:

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

Channel layouts for 16-bit mode

When using 16-bit mode, the manner in which LED emitters are assigned to DMX channels is directly determined by the *PER5 > RES* option. The 16-bit mode does not use chase effects. The first channel of the fixture occurs at the DMX address selected using *ADDR* and successive channels for the fixture follow from there.

Channel	16bT (RES=1)	16bT (RES=4)	16bT (RES=5)	16bT (RES=61)
1	All emitters (c)	Red (c)	Red (c)	[A] Red (c)
2	All emitters (f)	Red (f)	Red (f)	[A] Red (f)
3	Mast. int.(c)*	Green (c)	Green (c)	[A] Green (c)
4	Mast. int.(f)*	Green (f)	Green (f)	[A] Green (f)
5		Blue (c)	Blue (c)	[A] Blue (c)
6		Blue (f)	Blue (f)	[A] Blue (f)
7		All whites (c)	Cool w (c)	[A] Cool w (c)
8		All whites (f)	Cool w (f)	[A] Cool w (f)
9		Mast. int. (c)*	Warm w (c)	[B] Red (c)
10		Mast int. (f)*	Warm w (f)	[B] Red (f)
11			Mast. int. (c)*	[B] Green (c)
12			Mast. int. (f)*	[B] Green (f)
13				[B] Blue (c)
14				[B] Blue (f)
15				[B] Cool w (c)
16				[B] Cool w (f)
17				[C] Red (c)
18				[C] Red (f)
19				[C] Green (c)
20				[C] Green (f)
.				.
95				[L] Cool w (c)
96				[L] Cool w (f)
97				[M] Warm w (c)
98				[M] Warm w (f)
99				[N] Warm w (c)
100				[N] Warm w (f)
.				.
119				[X] Warm w (c)
120				[X] Warm w (f)
121				[Y] Warm w (c)
122				[Y] warm w (f)
123				Mast. Int. (c)*
124				Mast. Int. (f)*

Dimmer select** is chan. 3 if Mast. int. is OFF or chan. 5 if Mast. int. is ON

Dimmer select** is chan. 9 if Mast. int. is OFF or chan. 11 if Mast. int. is ON

Dimmer select** is chan. 11 if Mast. int. is OFF or chan. 13 if Mast. int. is ON

Dimmer select** is chan. 123 if Mast. int. is OFF or chan. 125 if Mast. int. is ON

* The 16-bit master intensity channels are enabled only when the *PER5 > MINT* option is set to *on*. For 8-bit master intensity control, use the high (coarse) intensity channel.

** The dimmer select channel is enabled only when the *PER5 > DTP* option is set to *on*. Values 0 to 85 select FINE dimmer response; values 86 to 255 select TUNGSTEN dimmer response. See 'Changing the dimmer curve via DMX'.

(c) = Coarse or high channel, (f) = Fine or low channel

Channel layouts for remote effects modes

The table below shows how colour mixing, chase effects, master intensity and dimmer select controls are mapped to DMX channels for the 4+E, 5+E and 6+1+E modes. In all modes, the first channel of the fixture occurs at the DMX address selected using *ADDR* and successive channels for the fixture follow from there.

Channel	4+E	5+E	6+1+E
1	Red	Red	[A] Red
2	Green	Green	[A] Green
3	Blue	Blue	[A] Blue
4	All whites	Cool w	[A] Cool w
5	[1] Effect	Warm w	[B] Red
6	[1] Speed	[1] Effect	[B] Green
7	[1] Xfade	[1] Speed	[B] Blue
8	[2] Effect	[1] Xfade	[B] Cool w
9	[2] Speed	[2] Effect	[C] Red
10	[2] Xfade	[2] Speed	[C] Green
11	Master int. (c)	[2] Xfade	[C] Blue
12	Master int. (f)	Master int. (c)	[C] Cool w
13	Dimmer select**	Master int. (f)	[D] Red
14		Dimmer select**	[D] Green
15			[D] Blue
16			[D] Cool w
17			[E] Red
18			[E] Green
19			[E] Blue
20			[E] Cool w
.			.
48			[L] Cool w
49			[M] Warm w
50			[N] Warm w
.			.
61			[Y] Warm w
62			[1] Effect
63			[1] Speed
64			[1] Xfade
65			[2] Effect
66			[2] Speed
67			[2] Xfade
68			Master int. (c)
69			Master int. (f)
70			Dimmer select**

** The dimmer select channel is enabled only when the *PER5 > DTP* option is set to *on*. Values 0 to 85 select FINE dimmer response; values 86 to 255 select TUNGSTEN dimmer response. See 'Changing the dimmer curve via DMX'.

(c) = Coarse or high channel, (f) = Fine or low channel

Using master mode to drive other units

PixelSmart 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 > SLAVE`). Connect all fixtures via DMX daisy-chain.

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

- 2 Set each slave to `MODE > DM1`.
- 3 Set the master to either create chases or static colours:

Chases: Select `MODE > EF M` and then use `PRPG > C 1` and `C 2` to create the required effects (see page 2).

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

- 4 Set each slave DMX address (using `ADDR > DM1`) according to the following:

12 cells are output in groups of 4 DMX channels to give RGBW values per cell (48 channels in total). Set the address of each slave fixture according to which of the 12 cells you want them to appear within, or to begin with (for multi-cell fixtures):

• Cell 1	<code>ADDR 1</code>	• Cell 7	<code>ADDR 25</code>
• Cell 2	<code>ADDR 5</code>	• Cell 8	<code>ADDR 29</code>
• Cell 3	<code>ADDR 9</code>	• Cell 9	<code>ADDR 33</code>
• Cell 4	<code>ADDR 13</code>	• Cell 10	<code>ADDR 37</code>
• Cell 5	<code>ADDR 17</code>	• Cell 11	<code>ADDR 41</code>
• Cell 6	<code>ADDR 21</code>	• Cell 12	<code>ADDR 45</code>

Note: For best results, set `PER5 > RES` to `4CH` on each slave unit.

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`, `5+E` and `6+E` modes always require a master intensity input (channels 11, 12 and 68 respectively). `DM1` and `RGBT` have an optional master intensity, depending on the setting of `PER5 > MINT`. If the `MINT` setting is `DM` then no output will occur until a level greater than zero is applied to the master intensity channel.

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 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 the `FINE` dimmer mode to achieve a faster reaction.
- **Standalone chase effects not working:** Check that a chase has been programmed using `PRPG > C 1` and/or `PRPG > C 2` and also that `MODE > EF M` is selected. Check also that `PRPG > LEVEL` 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.

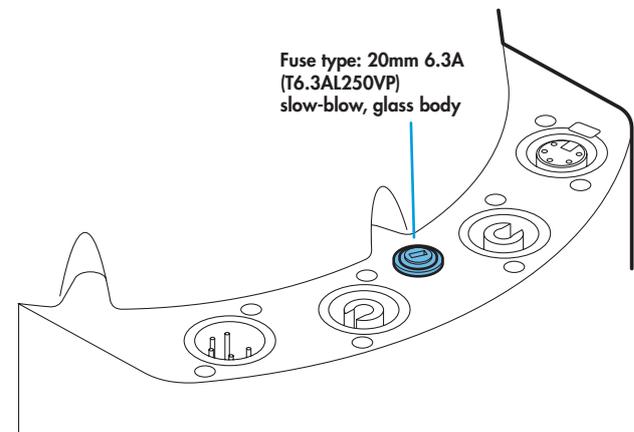
Firmware upgrades

Firmware upgrades are released from time to time in order to provide new operational features. The PixelSmart 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.

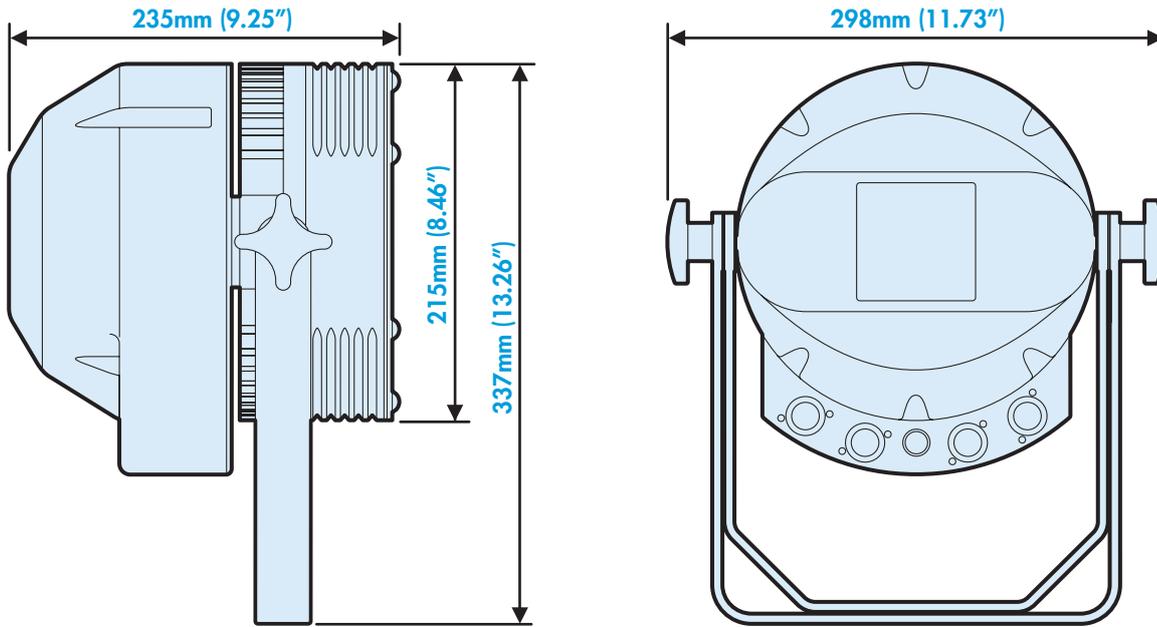
Fuse access

The single fuse is located on the underside of the fixture near to the power connectors. Use a small flat blade screw driver to twist the fuse holder anticlockwise until the carrier can be extracted to reveal the fuse.



Specifications

Dimensions



Weight

Fixture and yoke: 8.75kg (19.3 lbs)

Power

Input voltage: 90 to 264V AC, 47 to 63Hz autosensing

Connectors: Supplied with cable only: live, neutral & earth

Power requirements: @ 230V/50Hz @ 115V/60Hz

Standby 20 watts 20 watts

Maximum (const.) 185 watts 185 watts

Start up (peak*) 60 amps 30 amps

** The peak value occurs only at first power up and lasts only for a period measured in microseconds.*

Approvals



Miscellaneous

Enclosure rating: IP20 (not protected against moisture ingress)

Control input: USITT DMX512 (input connector pin out below)

