STORM

TECHNICAL SERVICES FOR
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PixelPar 90

User Manual

PixelRANGE

General set up

1 Mount the fixture in the required position. The integral yoke can act as a floor stand or hanger.
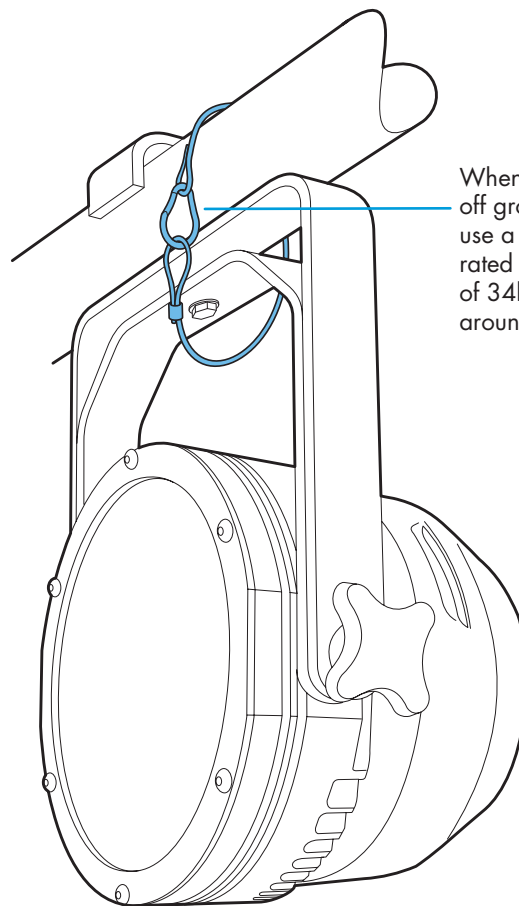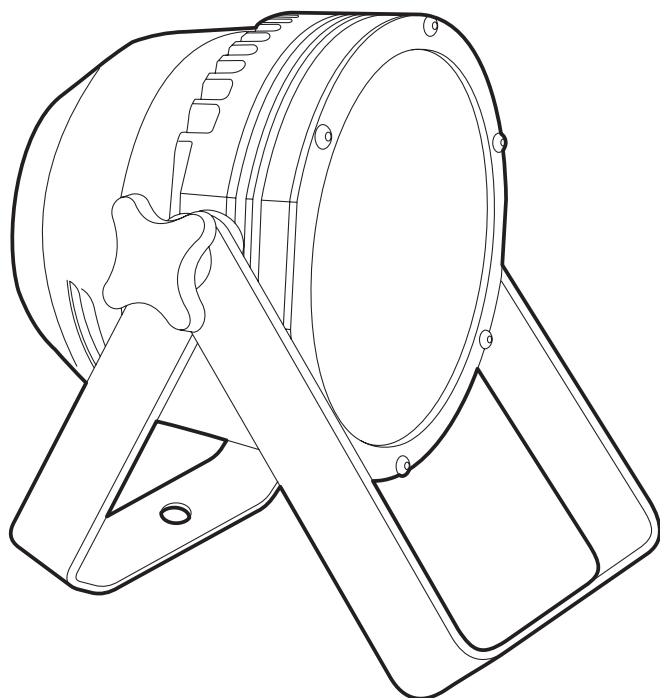
> **Important**
>
> • When suspended off ground, always use a safety wire rated to a minimum of 34kg (75lbs) around the yoke.
>
> • Do not position the fixture close to fog machines. The fog oil mist will be drawn in by the cooling fan and will short out important components. The warranty will be void for all fixtures returned in such a condition.

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.

Control panel

Fuse holder

DMX in (XLR 5pin male) connector

DMX out (XLR 5pin female) connector

Circuitry cooling vent

LED heat sink

Power lead

When suspended off ground, always use a safety wire rated to a minimum of 34kg (75lbs) around the yoke.
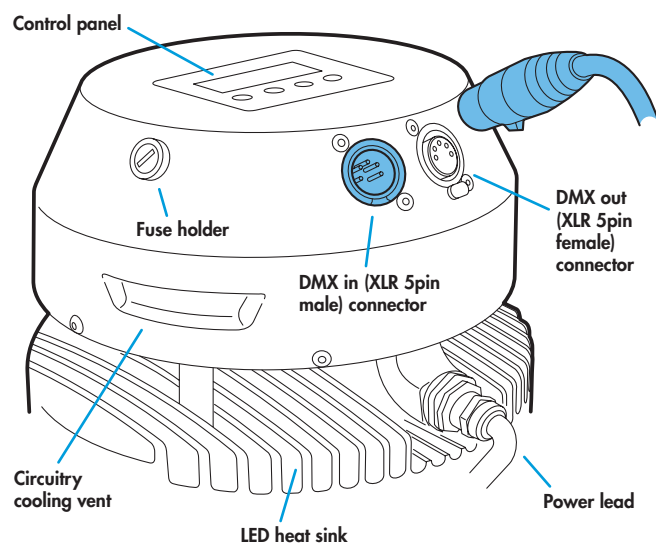
3 Where other fixtures are to be used in a control daisy-chain, connect a DMX lead (XLR 5-pin male) to the output socket at the rear of the fixture.

4 Connect power to the fixture.

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 *FACT* then *SET* 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 PixelPar 90 provides a range of operation modes. These are selected using the *ModE* section of the control menu:

dMX Allows RGB control via DMX input. Internal chase effects are not available within this mode.

MANU Provides RGB colour mixing independently of any external control. Use the internal control menu (*MAN* section) to select the required colour values.

EF d Superseded by *MAX2* and operates in a similar manner except that only chase effects can be selected via DMX input (no RGB mixing). Requires 7 DMX channels.

EF M Allows the display of the dual internal chase effects, independently of any external control. Use the internal control menu (*PRoG* section) to select the required chase effects, speeds and cross fades.

MAX2 Provides control of RGB mixing and selection of the dual internal chase effects via DMX input. Requires 10 DMX channels.

16bT Allows RGB control via DMX input, using two 8bit channels per colour. Internal chase effects are not available within this mode.

PixelPar 90 personalities are available for a variety of controllers. Please see **www.pixelrange.com** for details.

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 `00 1`.

- The four digit display can be set to switch off when not in use. To restore, press ☰. To alter this mode use: `PERS > dISP`.

PixelRANGE

`AddR`

MENU   ENTER   DOWN   UP

www.pixelrange.com

*Refer to product manual for proper operating instructions

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 31 internal chase effects that are selectable either via the control menu (`PRoG > C 1/C2 > EFEC`) or using DMX values sent from an external source. To use the internal effects, set the `ModE` option either to `EF M` (to control effects via the menu) or `MAX2` (to control effects externally via DMX).

DMX value	EFEC value	Chase effect description
0-7	`00`	Off
8-15	`01`	Rainbow chase forward
16-23	`02`	Rainbow chase reverse
24-31	`03`	10/90 duty cycle strobe white
32-39	`04`	10/90 duty cycle strobe white
40-47	`05`	10/90 duty cycle strobe white
48-55	`06`	50/50 duty cycle strobe white
56-63	`07`	50/50 duty cycle strobe red
64-71	`08`	50/50 duty cycle strobe blue
72-79	`09`	50/50 duty cycle strobe yellow
80-87	`10`	50/50 duty cycle strobe green
88-95	`11`	Pulse strobe white
96-103	`12`	Pulse strobe blue
104-111	`13`	Pulse strobe rainbow
112-119	`14`	Pulse strobe red/green/blue
120-127	`15`	Rainbow chase
128-135	`16`	Rainbow chase
136-143	`17`	Yellow/blue chase
144-151	`18`	Rainbow chase
152-159	`19`	Yellow/blue chase
160-167	`20`	Red/blue chase
168-175	`21`	Red/green chase
176-183	`22`	Red/green/blue chase
184-191	`23`	Purple/white/green chase
192-199	`24`	Rainbow chase
200-207	`25`	Static orange
208-215	`26`	Static yellow
216-223	`27`	Static light blue
224-231	`28`	Static purple
232-239	`29`	Static red
240-247	`30`	Static green
248-255	`31`	Static blue

Channel layouts within operation modes

The table below shows how colour mixing, chase effects and master intensity controls are mapped to DMX channels for each mode. The `dMX` and `16bT` modes do not use chase effects. 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	dMX	16bT	MAX2	EF d
1	Red	Red (coarse)	Red	`C 1` Effect
2	Green	Red (fine)	Green	`C 1` Speed
3	Blue	Green (coarse)	Blue	`C 1` Xfade
4	Master intensity*	Green (fine)	`C 1` Effect	`C2` Effect
5	-	Blue (coarse)	`C 1` Speed	`C2` Speed
6	-	Blue (fine)	`C 1` Xfade	`C2` Xfade
7	-	Master intensity*	`C2` Effect	Master intensity
8	-	-	`C2` Speed	-
9	-	-	`C2` Xfade	-
10	-	-	Master intensity	-

* Master intensity for `dMX` and `16bT` modes are available only when the `PERS > MINT` option is set to `oN`. Master intensity is always 8-bit.

coarse = High channel for 16-bit, **fine** = Low channel for 16-bit

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:

`AddR.`

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 `PERS > 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 > AoFF`), the data dot will remain active but at a lower brightness.*

Control menu contents

Menu				Description
AddR	dMX		1	Sets the base DMX address from which the control channels will begin.
INFo	VER	CPU	1.64	Shows the main processor software revision. No changes are possible within this option.
		dISP	2.00	Shows the display controller software revision. No changes are possible within this option.
PRoG	C 1	EFEC	0	Selects the primary internal chase effect. See *Chase effects* for descriptions. Select ModE > EF M to show the selected chase.
		XFAd	0	Selects the cross fade speed between the steps of the selected C 1 chase effect.
		SPEd	0	Selects the speed of the selected C 1 chase effect.
	LEVL		255	Selects the master intensity level of chase effects C 1 and C2.
	C2	EFEC	0	Selects the secondary internal chase effect. See *Chase effects* for descriptions. Select ModE > EF M to show the selected chase.
		XFAd	0	Selects the cross fade speed between the steps of the selected C2 chase effect.
		SPEd	0	Selects the speed of the selected C2 chase effect.
MAN	REd		0	Sets the red intensity. Select ModE > MANU (manual) to show the result.
	GRN		0	Sets the green intensity. Select ModE > MANU (manual) to show the result.
	bLUE		0	Sets the blue intensity. Select ModE > MANU (manual) to show the result.
PERS	dATA		SLAV	Determines whether this fixture will act as a master controlling others. When controlled via DMX this fixture must be set to SLAV.
	MINT		oFF	dMX and 16bT modes only. When set oN this enables the master intensity channel.
	STRT		oFF	When set oN, this option scrolls through the primary colours at power on to demonstrate correct operation of the emitters.
	dINT		15	Determines the intensity of the four digit control panel display. Values range from 0 (dimmest) to 15 (brightest).
	dISP		oN	When set to AoFF, the control panel display will blank out 60 seconds after the menu is exited. The data dot indicator will remain active.
	WbAL		Y/N	Allows you to balance the intensities of the red, green and blue emitters in order to achieve a particular open white colour temperature. See next page for details.
	dIMR		FINE	Provides a selection of dimmer curves (FINE, TV, TUNG or LGCY) to suit particular circumstances. See next page for descriptions of each option.
ModE	dMX			RGB 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.
	MANU			Displays the resulting RGB levels that are set via the MAN section of the internal menu. External DMX control is not possible in this mode.
	EF d			Ch1 to 3: C 1 Effect, Speed & Xfade, Ch4 to 6: C2 Effect, Speed & Xfade, Ch7: Master intensity
	EF M			Displays the chase effect(s) determined within the PRoG section. External DMX control is not possible in this mode.
	MAX2			DMX Ch1 to 3: RGB colour mixing, Ch4 to 6: C 1 Effect, Speed & Xfade, Ch7 to 9: C2 Effect, Speed & Xfade, Ch10: Master intensity.
	16bT			16bit RGB control using 2x the number of DMX channels determined by PERS>PES. PERS>MINT set to oN provides a master intensity. No chase effects are selectable.

3

White balance (PERS > WbAL)

Using different intensity mixes of the red, green and blue channels, it is possible to create a range of open white colour temperatures. The PixelPar 90 provides a white balance feature to assist you to quickly reproduce any particular 'white' mix.

This feature requires you to first mix your white by adjusting the emitter intensities, using either an external DMX input or the manual controls from the menu. When the required white is achieved, you then capture it. From that point, the PixelPar 90 will recreate your white mix whenever all channels are faded to 100%.

To create a white balance

1 Ensure that the white balance is initially switched off - failure to do this will result in an incorrect colour mix. To switch off, go to PERS > WbAL > Y/N and select the No option.

2 According to how you will initially mix the colours - either by external DMX input or by manual menu control - use the menu to select the appropriate mode: ModE > dMX or ModE > MANU.

3 Using either a DMX controller or the manual colour settings (MAN > REd / GRN / bLUE), first set all the outputs to maximum and then reduce the individual intensities until you reach the desired white.

4 In the menu, go to PERS > WbAL > CAPT and press the ▶ button to capture the current mix. The display will show doNE.

5 Your mix is now stored. To enable it, go to PERS > WbAL > Y/N and select the YES option.

Notes:

- You can enable/disable the white balance feature at any time by setting PERS > WbAL > Y/N to either No or YES, as required.

- White balance settings will work with any dimmer curve option (PERS > dIMR) and the stored settings are unaffected by factory resets.

- To reset the white balance calibration, go to PERS > WbAL > RSET and press the ▶ button.

- When white balance is enabled, during normal operation, the four digit display will show the current mode prefixed with C+.

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 often 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.

Dimmer curve options (PERS > dIMR)

The PixelPar 90 provides four separate dimmer curve options which determine exactly how the digital values received via the DMX link are converted into emitter intensities. To alter the dimmer curve, go to the PERS menu option, choose the dIMR option, select the required setting and then press the ▶ button to save.

Note: Dimmer curve selection has no effect in 16bT mode, where a single fixed high resolution curve is used.

The four dimmer curve options are as follows:

- FINE Closely resembles the original PixelPar 90 dimmer curve with improved responses to low end values.

- TV Uses dimming frequencies that will eradicate any visible flicker when viewed by video cameras and broadcast systems.

- TUNG Alters the dimming response to closely emulate the very smooth action of standard tungsten bulbs. The TUNG setting can be used with all operation modes.

- LGCY Provides full compatibility with the dimmer curves of previous Pixel Range fixtures. Use this mode when mixing PixelPar 90 fixtures with original PixelRange fixtures.

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** (PERS > dATA > MAST) and ensure all others are set to **slave** (PERS > dATA > SLAV). 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' left.*

2 Set each slave to ModE > dMX.

3 Set the master to either create chases or static colours:

   Chases: Select ModE > EF M and then use PRoG > C1 and C2 to create the required effects (see page 2).

   **Static colours**: Select ModE > MANU and then use MAN > REd, GRN and bLUE to mix the colour.

4 Set each slave DMX address (using AddR > dMX) according to the following:

   18 cells are output in groups of 3 DMX channels to give RGB values per cell (54 channels in total). Set the address of each slave fixture according to which of the 18 cells you want them to appear within, or to begin with (for multi-cell fixtures): (A001 for cell 1, A004 for cell 2, … A052 for cell 18).

Fuse access

The single fuse is located at the rear of the fixture near to the DMX input connector. Use a small flat blade screw driver to twist the fuse holder anticlockwise until the carrier can be extracted to reveal the fuse.

Fuse type: 20mm 2A (T2AH) anti-surge, ceramic body
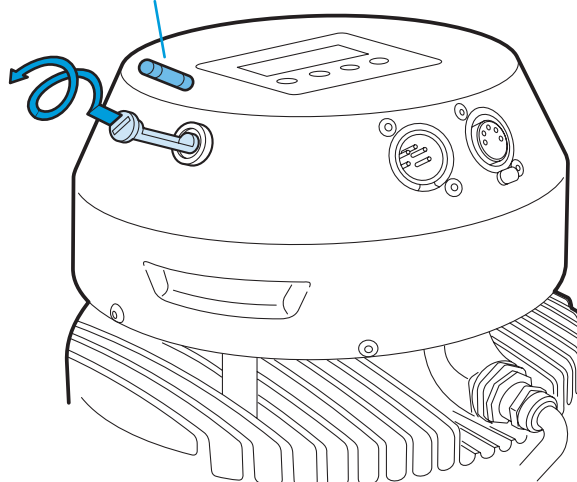
Troubleshooting

- **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. $MAX2$ and $EF\ d$ modes always require a master intensity input (channels 10 and 7 respectively). dMX and $16bT$ have an optional master intensity, depending on the setting of $PERS > MINT$ (channels 4 and 7 respectively). If the $MINT$ setting is oN then no output will occur until a level greater than zero is applied to the master intensity channel. See pages 2 and 3 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 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 occuring:** Check whether the tungsten dimmer mode is selected ($PERS > dIMR > TUNG$). This would slow the reaction times of the emitters and could mean that rapid changes are blended into each other. Choose a faster reacting dimmer mode.

- **Standalone chase effects not working:** Check that a chase has been programmed using $PRoG > C\ 1$ and/or $PRoG > C2$ and also that $ModE > EF\ M$ is selected. Check also that $PRoG > LEVL$ is not set at zero.

- **Standalone RGB 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 PixelPar 90 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.

Specifications

Dimensions

181mm
(7¼")

317mm
(12½")

275mm
(10¾")
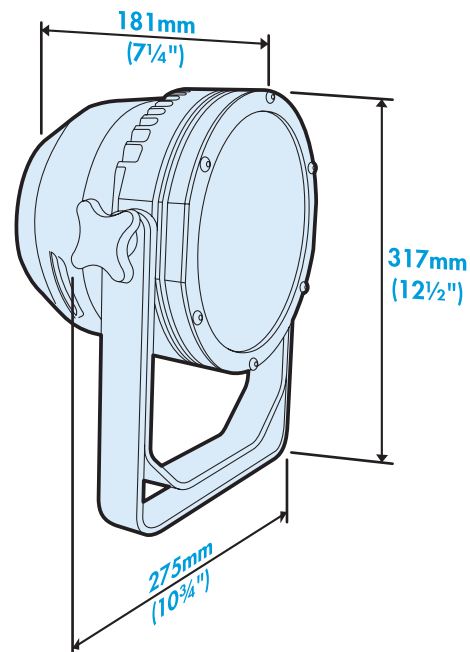
Weight

Fixture and yoke: 6.8kg (15 lbs)

Power

Input voltage:	90 to 264V AC, 47 to 63Hz autosensing	
Earth leakage	0.39mA	
Connectors:	Supplied with cable only: live, neutral & earth	
Power requirements:	*@ 230V/50Hz*	*@ 115V/60Hz*
Standby	10 watts	10 watts
Maximum (const.)	120 watts	120 watts
Start up (peak*)	30 amps	15 amps

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

Approvals

$C\epsilon$

Miscellaneous

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

PIN 1 — Ground
PIN 5 — Not used
PIN 2 — Data −
PIN 3 — Data +
PIN 4 — Not used

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