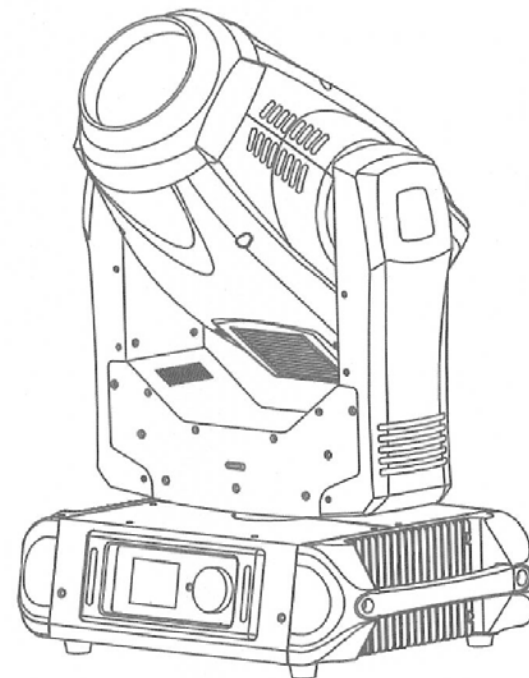


ML-1536 LED SPOT



USER MANUAL

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1. INTRODUCTION

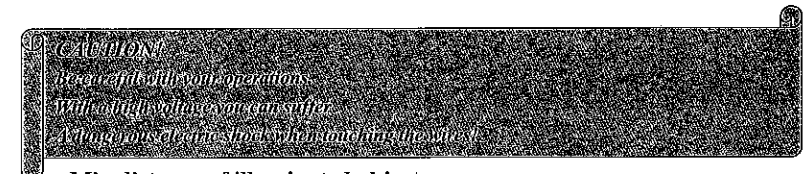
Thank you for selecting the LED spot 600, an awesome lighting fixture from Max Lighting Equipment Company Limited. Please carefully read this user manual in its entirety and keep it well for using reference. This manual contains the installation and relative using information of this product. Please obey to this when using this equipment.

For library, documentation, and other information about this lighting fixture and all Max lighting professional products, pls visit the Max lighting website at www.maxlighting.net.

2. SAFETY INSTRUCTIONS

Every person involved with installation and maintenance of this device has to:

- be qualified
- follow the instructions of this theatrical performance, the theater, the performance hall etc.



Min distance of illuminated objects

The projector needs to be positioned so that the objects hit by the beam of light are at least 12metres from the lens of the projector.

Minimum distance from flammable materials

The projector must be positioned so that any flammable materials are at least 0.20metres from every point on the surface of the fitting.

• Mounting surfaces

It isn't allowed to mount the fitting on normally flammable surfaces.

• Maximum ambient temperature

Do not operate the projector if the maximum ambient temperature $T_a=40^{\circ}\text{C}$ must never be exceeded. The maximum housing temperature $T_b=80^{\circ}\text{C}$ must never be exceeded.

• IP20 protection rating

The fitting is protected against penetration by solid bodies of over 12mm (0.47") in diameter (first digit 2), but not against dripping water, rain, splashes or jets of water (second digit 0).

- **Protection against electrical shock**

Connection must be made to a power supply system fitted with efficient earthing.

Moreover, recommended to protect the supply lines of the projectors from indirect contact and/or shorting to earth by using appropriately sized residual current devices.

- **Connection to mains supply**

Connection to the electricity mains must be carried out by a qualified electrical installer.

Check that the mains frequency and voltage correspond to those for which the projector is designed as given on the electrical data label.

This label also gives the input power to which you need to refer to evaluate the maximum number of fittings to connect to the electricity line, in order to avoid overloading.

- **Maintenance**

Before starting any maintenance work or cleaning the projector, cut off power from the mains supply.

After switching off, do not remove any parts of the fitting, to avoid getting burnt for at least 35 minutes. After this time the likelihood of the lamp exploding is virtually nill.

The fitting is designed to hold in any splinters produced by a lamp exploding. The lenses must be mounted and, if visibly damaged, they have to be replaced with genuine spares.



3. INSTALLATION AND START-UP

Make sure all parts for fixing the projector are in a good state of repair.

Make sure the point of anchorage is stable before positioning the projector.

The safety chain must be properly hooked onto the fitting and secured to the framework, so that, if the primary support system fails, the fitting falls as little as possible. If the safety chain gets used, it needs to be replaced with a genuine spare.

The projector can be installed on the floor resting on special rubber feet, on a truss or on the ceiling or wall.



This must be securely fixed to the support structure of the projector and then connected to the fixing point at the centre of the base.

4. CONTROL PANEL

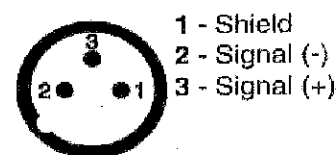
The fixture is equipped with both 3-pin and 5-pin XLR sockets for DMX input and output. The sockets are wired in parallel. Only use a shielded twisted-pair cable designed for RS-485 and 3-pin or 5-pin XLR-plugs and connectors in order to connect the controller with the fixture or one fixture with another.

Occupation of the XLR-connection:

DMX - output

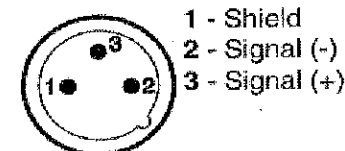
XLR mounting-sockets (rear view):

view):



DMX-input

XLR mounting-plugs (rear view):



If you are using the standard DMX controllers, you can connect the DMX output of the controller directly with the DMX input of the first fixture in the DMX chain. If you wish want to connect DMX controllers with other XLR outputs, you need to use a adapter-cables.

Building a serial DMX chain:

Connect the DMX output of the first fixture in the DMX chain with the DMX input of the next fixture. Always connect one output with the input of the next fixture until all fixtures are connected.

Caution: At the last fixture, the DMX cable has to be terminated with a terminator. Solder a 120 Ω resistor between Signal (-) and Signal (+) into a XLR plug and plug it in the DMX output of the last fixture.

IMPORTANT: The wires must not make contact with each other or with the metal casing of the connectors. The casing itself must be connected to the shield braid and to pin 1 of the connectors.

Switching on the projector

Press the switch. The projector starts resetting the effects. At the same time, the following information scrolls on the display:

On conclusion of resetting in case of absence of the DMX signal, Pan and Tilt move to the "Home" position (Pan 50% - Tilt 50%). The control panel has a display and buttons for the complete programming and management of the projector menu. The display can be in one of two conditions: rest status and setting status. When it is in the rest status, the display shows the projector's DMX address .

During menu setting status, after a wait time (about 30 seconds) without any key having been pressed, the display automatically returns to rest status.

It should be noted than when this condition occurs, any possible value that has

been modified but not yet confirmed with the F key will be cancelled.

Setting the projector starting address

On each projector, the starting address must be set for the control signal (addresses from 1 to 512).

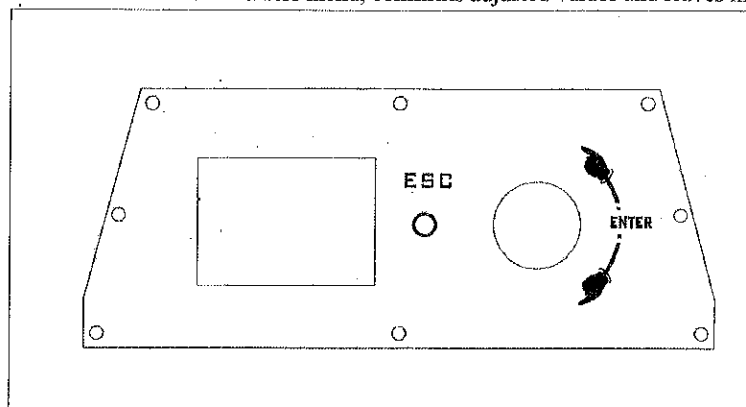
The address can also be set with the projector switched off.

5. FUNCTIONS OF THE BUTTONS

"RNS"—Encoder wheel moves between menu items on the same level, scrolls between values.

"ESC"—Button-leaves menu without saving changes

"ENTER"—button enters menu, confirms adjusted values and leaves menu.



Setting addresses and options with the projector disconnected

The projector's DMX address, as well as other possible operating options, can also be set when the appliance is disconnected from the electricity supply.

All that is needed is to press "ENTER" to momentarily activate the display and thus access the settings. Once the required operations have been carried out, the display will switch off again after a wait time of 30 seconds.

6. MENU SETTING V1.4

Fixture Address	DMX Address	001—512	
Fixture information	Software Version		
	Product IDs	MAC Adr.	
		Code	
	Fixture Temperatures	Temperature Unit	°C, °F
		Current Temp.	Ambient Temp.[°C]
			Neat Lamp Temp.[°C]
		Maximum Temp.	Ambient Temp.[°C]
			Neat Lamp Temp.[°C]
	Power On Time	Total Hours	
		Resetable Hours	
Personality	Display Adjusting	Display Permanent On (ON/Off)	
		Display Intensity (1..10)	
		Display Backlight (1..5..10)	
		Display turned (On/Off)	
	DMX Presetting	Mode 1	Ch.1
			Ch.16
			Set Active
		Mode 2	Ch.1
			Ch.24
			Set Active
		Mode 3	Ch.1

			Ch.16
			Set Active
	Pan/Tilt Presetting	Pan Reverse(On,Off)	
		Tilt Reverse(On,Off)	
		Pan/Tilt Feedback (On,Off)	
		Pan/Tilt mode	Time Mode
			Speed Mode
		Pan/Tilt Speed	High Speed
			Standard Speed
	Active Blackout While	Blackout D.M.C. (On,Off)	
		Pan/Tilt Moving (On,Off)	
		Colour Wheel Moving (On/Off)	
		Gobo Wheels Moving (On/Off)	
	Dimmer Curve	(curve1,curve 2)	
	Default Setting		
	Init Effect Positions	Pan (0-255)	
		
		Dimmer fine (0-255)	
		Save	
Test sequences	Mode 1	Pan (0-255)	
		Tilt(0-255)	
		Zoom(0-255)	
		Focus(0-255)	
		Run Test Program	
	Mode 2	Run Test Program	
Manual Mode	Manual Effect Control	Pan(0-255)	
		
		Dimmer fine (0-255)	
Stand-alone setting	Presetting Playback	Disabled	
		Test Program	
		Program1	
		Program2	
		Program3	
	Playing Program	Test Program In Loop	

		Program 1In Loop	
		Program 2In Loop	
		Program 3In Loop	
	Editing Program	Program1	
		Program2	
		Program3	
		Edit Steps	Step1~Step99
			Pan (0-255)
		
			Dimmer fine (0-255)
			Step Time (0.1-25.5s)
			Save
	Save and copy		
Start Step (1-99)			
End Step (1-99)			
Reset functions	Reset All		
	Pan/Tilt		
	Focus/Zoom/Prism		
Special functions	Lamp Adjustment	Pan (0-255)	
		Tilt (0-255)	
		Zoom (0-255)	
		Focus (0-255)	
	Effect Adjustment	DMX Values	Pan (0-255)
		
			Dimmer (0-255)
		Calibrate Values	Colour (0-255)
		
			Save and Reset
			Load Default Values

7. DMX PROTOCOL V1.2

Mode/channel				DMX Value	Function	Type of Control
1	2	3	4			
1	1	1	10	0-255	Pan Pan movement by 540°	proportional
2	2	2	11	0-255	Pan Fine Fine control of pan movement	proportional
3	2	3	12	0-255	Tilt Tilt movement by 270°	proportional
4	4	4	13	0-255	Tilt fine Fine control of tilt movement	proportional
5	5	5	14		Pan/Tilt speed ,Pan/Tilt time	
				0	Standard mode	step
					Pan/Tilt speed mode	
				1-255	Speed from max. to min.	proportional
					Pan/Tilt time mode	
6	6	6	1		Color wheel 1	
				0-13	White / Deep Red	proportional
				14-26	Deep Red / Deep Blue	proportional
				27-39	Deep Blue / Yellow	proportional
				40-52	Yellow / Green	proportional
				53-65	Green / Purple	proportional
				66-78	Purple / Azure	proportional
				79-90	Azure / _Orange	proportional
				91-103	Orange / Dark green	proportional
				104-115	Dark green / Pink	proportional
				116-127	Pink / White	proportional
				128-129	White	step
				130-135	Deep Red	step
				136-141	Deep Blue	step
				142-147	Yellow	step
				148-153	Green	step
				154-159	Purple	step
				160-165	Azure	step
				166-171	Orange	step
				172-177	Dark green	step

*	7	7	17	178-189	Pink	step
				190-215	Forwards rainbow effect from fast to slow	proportional
				216-219	No rotation	step
				220-249	Backwards rainbow effect from slow to fast	proportional
				250-255	Reserved (Backwards rainbow effect)	proportional
					Color wheel 2	
				0-13	White / Deep orange	proportional
				14-26	Deep orange / Purple	proportional
				27-39	Purple / Green	proportional
				40-52	Green / Orange	proportional
				53-65	Orange/ CTB1	proportional
				66-78	CTB1/ CTO2	proportional
				79-90	CTO2/ CTO1	proportional
				91-103	CTO1 / CTB2	proportional
				104-115	CTB2/Dark blue	proportional
				116-127	Dark blue/ White	proportional
				128-129	White	step
				130-135	Deep orange	step
7	8	8	4	136-141	Purple	step
				142-147	Green	step
				148-153	Orange	step
				154-159	CTB1	step
				160-165	CTO2	step
				166-171	CTO1	step
				172-177	CTB2	step
				178-189	Dark blue	step
				190-215	Forwards rainbow effect from fast to slow	proportional
				216-219	No rotation	step
				220-249	Backwards rainbow effect from slow to fast	proportional
				250-255	Reserved (Backwards rainbow effect)	proportional
					Static gobo wheel	
				0-9	Open/hole	step
				10-19	Gobo 1	step
				20-29	Gobo 2	step
				30-39	Gobo 3	step
				40-49	Gobo 4	step

				50~59	Gobo 5	step
				60~69	Gobo 6	step
				70~79	Gobo 7	step
				80~89	Gobo 8	step
				Shaking gobos from slow to fast		
				90~103	Gobo 1	proportional
				104~117	Gobo 2	proportional
				118~131	Gobo 3	proportional
				132~145	Gobo 4	proportional
				146~159	Gobo 5	proportional
				160~173	Gobo 6	proportional
				174~187	Gobo 7	proportional
				188~199	Gobo 8	proportional
				200-201	Open/hole	step
				202-221	Forwards gobo wheel rotation from fast to slow	proportional
				222-223	No rotation	
				224-243	Backwards gobo wheel rotation from slow to fast	proportional
				244-255	Reserved	step
				Static gobo time		
				0	Function is off	step
				1-255	Time of static gobo wheel movement (0.1sec. -->5 sec.)	proportional
				Rotating gobo wheel		
				Index - set indexing on channel 9/11/15		
				0~3	Open /Hole	step
				4~7	Gobo 1	step
				8~11	Gobo 2	step
				12~15	Gobo 3	step
				16-19	Gobo 4	step
				20-23	Gobo 5	step
				24-27	Gobo 6	step
				28-31	Gobo 7	step
				Rotation-set rotation on channel		

				9/11/15		
				32-35	Gobo 1	step
				36-39	Gobo 2	step
				40-43	Gobo 3	step
				44-47	Gobo 4	step
				48-51	Gobo 5	step
				52-55	Gobo 6	step
				56-59	Gobo 7	step
				Shaking gobos from slow to fast		
				Index-set indexing on channel 9/11/15		
				60-69	Gobo 1	proportional
				70-79	Gobo 2	proportional
				80-89	Gobo 3	proportional
				90-99	Gobo 4	proportional
				100-109	Gobo 5	proportional
				110-119	Gobo 6	proportional
				120-129	Gobo 7	proportional
				Shaking gobos from slow to fast		
				Roatation -set rotation on channel 9/11/15		
				130-139	Gobo 1	proportional
				140-149	Gobo 2	proportional
				150-159	Gobo 3	proportional
				160-169	Gobo 4	proportional
				170-179	Gobo 5	proportional
				180-189	Gobo 6	proportional
				190-199	Gobo 7	proportional
				200-201	Open /Hole	step
				202-221	Forwards gobo wheel rotation from fast to slow	proportional
				222-223	No rotation	step
				224-243	Backwards gobo wheel rotation from slow to fast	proportional
				244-255	Reserved	step
				Rot. gobo indexing and rotation		
				Gobo indexing- set position on channel 8/10/8		
				0-255	Gobo indexing	proportional
				Gobo rotation - set position on channel 8/10/8		
				0	No rotation	step

				1-127	Forwards gobo rotation from fast to slow	proportional
				128-129	No rotation	step
				130-255	Backwards gobo rotation from slow to fast	proportional
*	*	12	*	Rot. gobo indexing and rotation-fine		
				0-255	Fine Indexing (rotation)	proportional
1 0	11	13	5	Prism		
				0-19	Open position (hole)	step
				20-73	3-facet circular rotating prism-indexing	step
				74-127	3-facet circular rotating prism-rotation	step
				Prism/gobo macros /prism - rotation		
				128-135	Macros 1	step
				136-143	Macros 2	step
				144-151	Macros 3	step
				152-159	Macros 4	step
				160-167	Macros 5	step
				168-175	Macros 6	step
				176-183	Macros 7	step
				184-191	Macros 8	step
				192-199	Macros 9	step
				200-207	Macros 10	step
				208-215	Macros 11	step
				216-223	Macros 12	step
				224-231	Macros 13	step
				232-239	Macros 14	step
				240-247	Macros 15	step
				248-255	Macros 16	step
1 1	12	14	6	Prism rotation and indexing		
				Prism indexing - set position on channel /10/13/5		
				0-255	Prism indexing	proportional
				Prism rotation - set position on channel 10/13/5		
				0	No rotation	step
				1-127	Forwards prism rotation from fast to slow	proportional
				128-129	No rotation	step

				130-255	Backwards prism rotation from slow to fast .	proportional
1 2	13	15	7	Zoom		
				0-255	Zoom from max. to min. beam angle	proportional
*	*	16	*	Zoom -fine		
				0-255	Fine zooming	proportional
1 3	14	17	9	Focus		
				0-255	Continuous adjustment from far to near.	proportional
*	*	18	*	Focus- fine		
				0-255	Fine focusing	proportional
1 4	15	19	2	Shutter /strobe		
				0-3	Shutter closed	step
				4-103	Strobe-effect from slow to fast	proportional
				104-107	Shutter open	step
				108-155	Opening pulse in sequences from slow to fast	proportional
				156-207	Closing pulse in sequences from fast to slow	proportional
				208-212	Shutter open	step
				213-250	Random strobe-effect from slow to fast	proportional
				251-255	Shutter open	step
				Dimmer intensity		
1 5	16	20	3	0-255	Dimmer intensity from 0% - 100%	proportional
*	17	21	*	Dimmer intensity-fine		
				0-255	Fine dimming	proportional
*	*	22	*	Effect Speed		
				0-255	Speed of Rot. Gobo selection	step
1 6	18	23	16	Reset/Special functions		
				0-49	Reserved	
				50-59	Pan/Tilt speed mode	step
				60-69	Pan/Tilt time mode	step
				70-79	Blackout while pan/tilt moving	step
				80-89	Disabled blackout while pan/tilt moving	step
				90-129	Reserved	step
				130-139	Total reset except pan/tilt reset	step
				140-149	Pan/Tilt reset	step
				150-159	Color system reset	step
				160-169	Gobo wheel reset	step

				170-179	Dimmer/Shutter	step
				180-189	Zoom/focus/prism reset	step
				190-199	Reserved	step
				200-209	Total reset	step
				210-255	Reserved	
*	*	24	*		Auto-focus (priority & distance selection)	

8. TECHNICAL INFORMATION

AC Power Supplies: 100-240V 50/60Hz

Maximum total power consumption: 400W,

Lamp: 250W High Power White LED emitters,

Color temperature: 8000 K

Minimum LED lifetime: > 60 000 hours

Control channels: 3 DMX protocol modes 16/24/ 16

3user editable programs, each up to 100 steps

Color wheel 1: 9 dichroic filters+ white

Color wheel 2: 9 dichroic filters+ white

Static Gobo wheel: 8 metal gobos + white

Rotating gobo wheel: 7 replaceable gobos can be indexed and rotated in both directions at different speeds

Prisms: 3 facet circular prism with continuous rotation in both directions

Zoom: linear motorized zoom, zoom angle 10°~ 30°

Focus: Remotely controllable motorized focus

Pan/Tilt movement: Pan: 540, Tilt: 270

Control resolution: 8-bit, with 16-bit control of pan & tilt

Resolution: PAN=2.11°, PAN FINE=0.008°, TILT=0.98°, TILT FINE=0.004°

Pan/Tilt used 3-Phase 1.2° ENCAPSULATED STEPPING MOTOR

Motors: 10 high quality stepping-motors controlled by microprocessors

Strobe: Strobe effect with variable speed (0.3 - 20Hz), Random strobe pulse-effect with variable speed

Dimmer: Smooth dimmer from 0%-100%

Display: Blue/White LCD graphic

Color: Black

Housing: High-impact flame-retardant thermoplastic

Protection rating: IP20

Weight: 18 Kgs

9. MAINTENANCE AND CLEANING

CAUTION!

Disconnect from the mains before starting any maintenance work.

To ensure optimal operation and performance for a long time it is essential to periodically clean the parts subject to dust and grease deposits. The frequency with which the following operations are to be carried out depends on various factors, such as the amount of the effects and the quality of the working environment (air humidity, presence of dust, salinity, etc.).

Use a soft cloth dampened with any detergent liquid for cleaning glass to remove the dirt from the reflectors and filters. It is recommended that the projector undergoes an annual service by a qualified technician for special maintenance involving at least the following operations:

- General cleaning of internal parts.
- Restoring lubrication of all parts subject to friction, using lubricants specifically
- General visual check of the internal components, cabling, mechanical parts, etc.
- Electrical, photometric and functional checks; eventual repairs