

CLAIR LIGHTING

Tyrant 440W Moving head

User's Manual



Contents

1. INTRODUCTION	1
2. SAFETY INSTRUCTIONS	1
3. INSTALLATION AND START-UP	2
4. CONTROL PANEL	3
5. FUNCTIONS OF THE BUTTONS - USING THE MENU	4
6. MENU SETTING	5
7. DMX PROTOCOL	7
8. TECHNICAL INFORMATION	13
9. MAINTENANCE AND CLEANING	16

1. INTRODUCTION

Thank you for selecting our 20R spot beam, an awesome lighting fixture from Max Lighting Equipment Company Limited. Please note that this product has been designed and made with total quality to ensure excellent performance and best meet your expectations and requirements.

Carefully read this user manual in its entirety and keep it well for using reference. It is essential to know the information and comply with the instructions given in this manual to ensure the fitting is installed, used and serviced correctly.

For library, documentation, and other information about this lighting fixture and all Max lighting professional products, please 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.

CAUTION!

Be careful with your operations.

With a high voltage you can suffer

A dangerous electric shock when touching the wires!

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.

- **Temperature of the external surface**

The maximum temperature that can be reached on the external surface of the fitting, in a thermally steady state, is 100° (212°F)

- **Lamp**

The fitting mounts a high-pressure lamp that needs an external igniter. This igniter is fitted onto the apparatus.

-Carefully read the operating instructions provided by the lamp manufacturer.

- Immediately replace the lamp if damaged or deformed by heat.

- **Photobiological Safety**

CAUTION. Do not look directly at the light source.

Do not look at the light beam with optical devices or any other tool that could cause light convergence.

The fixture must be positioned so that the minimum distance between the front lens and human eye is at least 3 meters to prevent personal photobiological risks.

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.

CAUTION!

With the exception of when the projector is positioned on the floor, the safety cable must be fitted.

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:

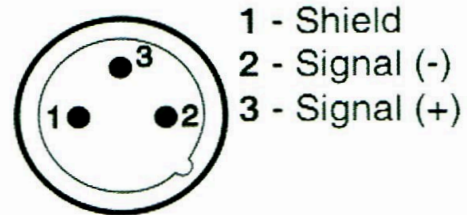
DMX - output

XLR mounting-sockets (rear view):



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 canceled.

Setting the projector starting address

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

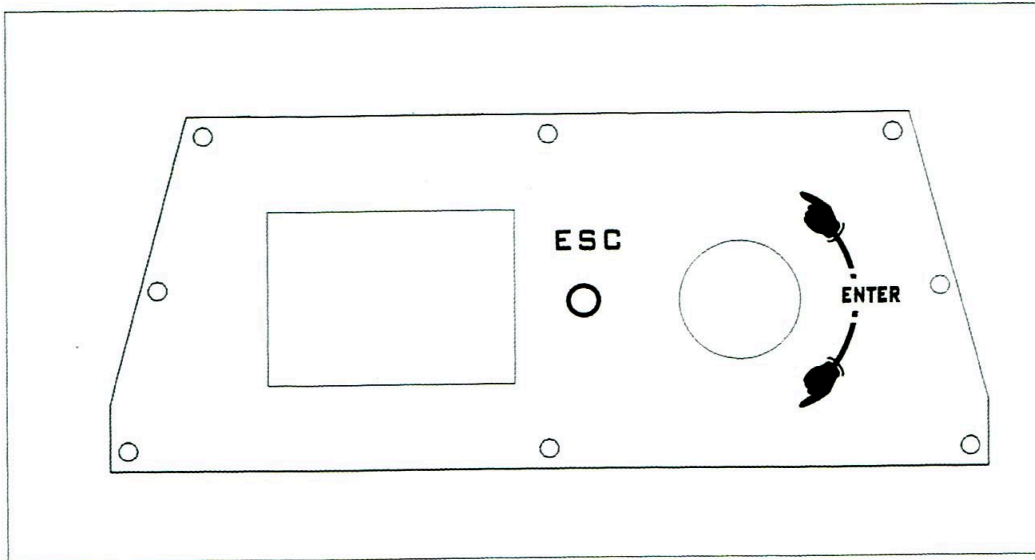
The address can also be set with the projector switched off.

5. FUNCTIONS OF THE BUTTONS - USING THE MENU

"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

Fixture Address	DMX Address	001----512		
Fixture information	Power On Time	Total Hours		
	Lamp On Time	Total Hours		
	Lamp Strikes	Total Strikes		
	Fixture Temperatures	Temperature Unit	°C, °F	
		Current Temp.	Board Temp.	
			Ambient Temp.	
			Near Lamp Temp.	
	Maximum Temp.	Board Temp.		
Ambient Temp.				
Near Lamp Temp.				
Software Version				
Product ID	MAC Adr./Code			
Personality	Display Adjusting	Display Permanent On	On/Off	
		Display Intensity	1..10	
		Display Backlight	1....10	
		Display turned	On/Off	
	DMX Presetting	STANDARD	Ch.1	
			
			Ch.30	
			Set Active	
		VECTOR	Ch.1	
			
			Ch.34	
			Set Active	
	Lamp Presetting	Lamp Light Sensor	On/Off	
		Lamp On/Power On	On/Off	
		Lamp Off via DMX	On/Off	
		Lamp On if DMX Present	On/Off	
		Lamp Off if not DMX	On/Off	
	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	
Dimmer Curve	curve1/curve 2			
Default Setting				
Lamp On/OFF	(On/Off)			

Test sequences	Mode 1	Pan (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	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)			
	Playing Program	Test Program In Loop		
		Program 1In Loop		
		Program 2In Loop		
		Program 3In Loop		
	Presetting Playback	Disabled		
Test Program				
Program1				
Program2				
Program3				
Reset functions	Reset All			
	Pan/Tilt			
			
	Zoom			
Special functions	Lamp Adjustment	Pan (0-255)		
			
		Focus (0-255)		
	Effect Adjustment	DMX Values	Pan (0-255)	
			
			Dimmer (0-255)	
		Calibrate Values	Colour(0-255)	
			
			Zoom(0-256)	
			Save and Reset	
Load Default Values				

7. DMX PROTOCOL

Channel Mode		DMX Value	Function
Standard	Vector		
1	1		Cyan Color Wheel
		0-255	Linear Cyan movement
2	2		Magenta Color Wheel
		0-255	Linear Magenta movement
3	3		Yellow Color Wheel
		0-255	Linear Yellow movement
4	4		Color 1
		0	Empty position
		28	Empty + Soft filter
		50	Soft Filter
		80	Soft Filter +Lavender
		100	Lavender
		129	Lavender +CTO3200k
		150	CTO3200K
		181	CTO3200K+CTO2500k
		204	CTO2500K
		235	CTO2500K+Blue Wood (UV Filter)
255	Blue Wood (UV Filter)		
5	5		Color 2
		0	Empty position
		28	Empty +Dark Green
		50	Dark Green
		75	Dark Green +CTB
		100	CTB
		129	CTB+ Dark Blue
		150	Dark Blue
		178	Dark Blue +H.M Green
		200	H.M Green
		235	H.M Green + Dark Red
255	Dark Red		
6	6		Color 3
		0	Empty position
		28	Empty + light Green
		50	light Green
		77	Light Green+ Pink

		100	Pink
		129	Pink +Aquamarine
		150	Aquamarine
		181	Aquamarine +Dark Orange
		200	Dark Orange
		231	Dark Orange + Light Orange
		255	Light Orange
7	7		Stopper/Strobe
		0-3	Light OFF
		4-103	Strobe at linearly variable frequency from low (1 Flash/sec) to high (12 flashes/sec)
		104-107	Light on
		108-207	Pulsation at linearly variable speed from slow (0.5flash/sec) to fast (12 flash/sec)
		280-212	Light on
		213-225	Random Strobe at low frequency
		226-238	Random Strobe at medium frequency
		239-251	Random Strobe at high frequency
		252-255	Light on
8	8		Dimmer
		0-255	Light output linearly increase from no-light to maximum brightness. Dimmer blades move from totally closed to totally open in 0.02 seconds at maximum speed
9	9		Dimmer fine
		0-255	Fine Dimmer positioning
10	10		Static Gobo Change
		0	Empty position
		4	Gobo1
		8	Gobo2
		12	Gobo3
		16	Gobo4
		19	Gobo5
		23	Gobo6
		27	Gobo7
		31	Gobo8
		35	Gobo9
		38	Gobo10
		42	Gobo11
		46	Gobo12
		50	Gobo13
54	Gobo14		
57	Gobo15		

		61	Gobo16
		65	Gobo17
		69	Gobo18
		72-113	Continuous gobo wheel clockwise rotation at linearly variable speed from fast (60rpm) to slow (5 rpm)
		114-117	Stop rotation
		118-159	Continuous gobo wheel counter-clockwise rotation at linearly variable speed from slow (5rpm) to fast (60rpm)
		160-165	Gobo1 shakes at variable speed from slow(24bpm) to fast (600bpm)
		166-170	Gobo 2 shakes at variable speed from slow(24Bpm) to fast (600bpm)
		171-175	Gobo 3 shakes at variable speed from slow(24Bpm) to fast (600bpm)
		176-181	Gobo4 shakes...
		182-186	Gobo5 shakes...
		187-191	Gobo6 shakes...
		192-197	Gobo7 shakes...
		198-202	Gobo8 shakes...
		203-207	Gobo9 shakes...
		208-214	Gobo10 shakes...
		215-218	Gobo11 shakes...
		219-223	Gobo12 shakes...
		224-229	Gobo13 shakes...
		230-234	Gobo14 shakes...
		235-239	Gobo15 shakes...
		240-245	Gobo16 shakes...
		246-250	Gobo17 shakes...
		251-255	Gobo18 shakes...
11	11		Animation Disk Insertion
		0-225	Linear Animation Disk Insertion
12	12		Animation Disk Rotation
		0-124	Continuous animation disk clockwise rotation at linearly variable speed from fast (120rpm) to slow (4.4rph)
		125-130	Stop rotation
		131-255	Continuous animation disk counter-clockwise rotation at linearly variable speed from slow (4.4rph) to fast (120rpm)
13	13		Rotating Gobo Select
		0-18	Empty position
		19-37	Gobo1
		38-56	Gobo2
		57-74	Gobo3
		75-92	Gobo4
		93-111	Gobo5

		112-129	Gobo6
		130-150	Gobo 1 shakes at variable speed from slow(xx bpm) to fast (xx bpm)
		151-171	Gobo2 shakes at variable speed from slow (xx bpm) to fast (xx bpm)
		172-192	Gobo 3 shakes...
		193-213	Gobo 4 shakes...
		214-234	Gobo 5 shakes...
		235-255	Gobo 6 shakes...
		Gobo change effect disabled if beam mode is working	
			Gobo Rotation
		0-21	Gobo indexing: 0° to 90°range
		21-42	Gobo indexing: 90° to 180°range
		42-63	Gobo indexing: 180° to 270°range
		63-84	Gobo indexing: 270° to 360°range
		84-105	Gobo indexing: 360° to 450°range
		105-127	Gobo indexing: 450° to 540°range
		128-190	Continuous gobo rotation at linearly variable speed from fast(180rph) to slow(2.2rph)
		191-192	Stop rotation
		193-255	Continuous gobo rotation at linearly variable speed from slow(2.2rph)to fast(180rph)
		Rotating gobo effect disabled if beam mode is working	
			Fine gobo rotation
		0-255	Fine gobo indexing
			Prism insertion
		0-10	Prism out
		11-132	Prism 1 into the light beam
		133-255	Prism 1 into the light beam
		Prism effect disabled if beam mode is working	
			Prism Rotation
		0-21	Prism indexing: 0° to 90°range
		21-42	Prism indexing: 90° to 180°range
		42-63	Prism indexing: 180° to 270°range
		63-84	Prism indexing: 270° to 360°range
		84-105	Prism indexing: 360° to 450°range
		105-127	Prism indexing: 450° to 540°range°
		128-190	Continuous prism rotation at linearly variable speed from fast (43rpm) to slow(1.1rph)
		191-192	Stop rotation
		193-255	Continuous prism rotation at linearly variable speed from low (1.1rpm) to fast (43rpm)
14	14		
15	15		
16	16		
17	17		

		Prism effect disabled if beam mode is working	
18	18		Frost
		0-255	Frost moves linearly into the light beam
			Frost blades move from no-diffusion to maximum diffusion in 0.02 seconds at maximum speed
19	19		Zoom
		0-225	Zoom linearly moves from narrow to wide beam
20	20		Focus
		0-255	Focus moves linearly from far to near position.
			Focus lenses move from farthest to nearest position in 1.1 seconds at maximum speed.
21	21		Focus Mode
		0-255	Fine Focus positioning
22	22		Beam Mode
		0-127	Zoom/ Autofocus mode
		128-255	Beam Mode
			Rotation and Change Gobo/Prism/Zoom effect disabled if beam mode is working
23	23		Pan
		0-255	Pan movement/positioning from 0° to 540°
			Fast Speed:3.517sec Normal Speed:4.038sec
24	24		Fine Pan
		0-255	Fine Pan positioning
25	25		Tilt
		0-255	Tilt movement/positioning from 0° to 244°
			Fast Speed:2.180sec Normal Speed:2.274sec
26	26		Fine Tilt
		0-255	Fine Tilt positioning
27	27		Function
		0-11	Unused range
		12-24	Fast Pan/Tilt speed (default)
		25-37	Normal Pan/tilt speed
		63-75	CMY Full Range (default)
		76-87	CMY Limited range
		88-101	CMY shortcut ON (default)
		102-114	CMY shortcut OFF
		115-255	Unused range
	The functions are activated/selected passing through the unused levels range and staying in the necessary range for 5 seconds		
28	28		Reset

		0-25	Unused range
		26-76	Zoom Reset
			Zoom reset sequence is activated passing through the unused levels range and staying in this range for 5 seconds
		77-127	Pan/ tilt Reset
			Pan/tilt reset sequence passing through the unused levels range and staying in this range for 5 seconds.
		128-255	Complete reset
			All- effects reset sequence passing through the unused levels range and staying in this range for 5 seconds
29	29		Lamp control
		0-25	Unused range
		26-100	Lamp off
			Lamp switch- off passing through the unused levels range and staying in this range for 5 seconds.
101-255	Lamp on		
	Lamp switch- on passing through the unused levels range and staying in this range for 5 seconds.		
30	30		Macro Effects
		0-7	Macro Off
		8-11	Standby
		12-15	Standby black
		16-45	Zoom in Faded
		46-75	Zoom out Faded
		76-105	Zoom in out
		106-135	Standby black 1
		136-165	Zoom in Faded Random
		166-195	Zoom out Faded Random
		196-225	Zoom in out Random
		226-255	Standby black 2
-	31		Pan- Tilt Time
			Pan- Fine Pan- Tilt- Fine Tilt
-	32		Color Time
			Cyan-Magenta –yellow
-	33		Beam time
			Dimmer- frost _prism –Focus-Zoom
	34		Gobo time
-			Static Gobo- Rotating Gobo

8. TECHNICAL INFORMATION

Power supplies

115/230v 50/60 Hz

Automatic Power supply switching

Input power

700VA at 230V 50Hz

Total lumen output

Max 24,000 lumens

Light source

Option 1:

470W discharge lamp

- Type: Philips MSD Platinum 20R

-Color Temperature: 7,800K

-Life: 1,500hrs

-Luminous flux: 23,000 lm

Option 2:

440W discharge lamp

-Type: SIRIUS HRI® 440W

-Color Temperature: 7,500K

-Life: >1000hrs

-Luminous flux: 24,000 lm

Motors

20 stepper motors, operating with microsteps, totally microprocessor controlled.

Channels

30/34control channels.

Inputs

• DMX 512

Moving body

Automatic repositioning of PAN and TILT after accidental movement not controlled by control unit.

PAN

-Angle Rotation: 540°

-Fast speed: 3.517sec

-Normal Speed: 4.038 sec

-Resolution PAN: 2.11°

-Resolution PAN FINE: 0.008°

-Accuracy: Resolution $\pm 0.3^\circ$ (Range 0.6°)

TILT

-Angle Rotation: 244°

-Fast speed: 2.180 sec

-Normal Speed: 2.274 sec

-Resolution TILT: 0.96°

-Accuracy: Resolution $\pm 0.3^\circ$ (Range 0.6°)

Noise level

50 dBA

Weight

30 Kg

IP rating

- IP20
- Protected against the entry of solid bodies larger than 12mm(0.47").
- No protection against the entry of liquids.

Safety devices

- Bipolar circuit breaker with thermal protection.
- Automatic break in power supply in case of overheating or failed operation of cooling system.

Cooling

Forced ventilation with fans.

Body

- Aluminium structure with plastic cover.
- Two side handles for transportation.
- Device locking PAN and TILT mechanisms for transportation and maintenance.

Working position

- Any working position
- Hanging system: with fast-lock omega clamps (1/4turn) on the base.

Optics

- 157mm diam. Front lens
- Electronic focusing for a perfectly sharp light beam along its entire length
- Zoom ranging from 4.5° to 30.8° for fixed gobos sharp focusing
- Zoom ranging 6.5° to 47.3° for rotating gobos sharp focusing
- BEAM mode with 2.5° aperture and "pipe" effect

Color system

- CMY color system based on 3 gradually fading color wheels

- 11 color filters on three wheels
- 2 CTO filters (3,200K and 2,500K)+1 CTB filter.

Effects section

- 2 gobo wheels
- Wheel with 6HQ dichronic, indexable and interchangeable rotating mental gobos.
- Interchangeable and variable rotation wheel with 18+1 fixed mental gobos (including 6 beam reducers).
- Selectable gobos-shake function
- Advanced Visual Effect Disc (Animation disc)
- 2 indexable and interchangeable rotating prisms (8-facet prism)
- Frost unit to soften the beam edge
- 0-100% Mechanical dimmer
- Mechanical shutter and adjustable speed strobe effect

Control and programming

- 30/34 DMX 512 control channels
- DMX protocol signal: USITT DMX 512
- Display: Graphic LCD Display
- Pan/Tilt Resolution: 16 bit
- Gobo Indexing Resolution: 16 bit
- Focus Indexing Resolution: 16bit
- Dimmer Resolution: 16bit
- DMX signal Connection: 3 and 5 pole XLR input and output

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