

LASER TECHNIQUE DMX GRAPHIC SCAN USER INSTRUCTIONS

SAFETY AND USER MAINTENANCE:

1. LASER BEAM PROJECTIONS MUST BE ABOVE HEAD HEIGHT, AND EXPOSURE TO REFLECTED OR PROJECTED BEAMS MUST BE AVOIDED.
2. BEFORE OPERATION THE DMX GRAPHIC SCAN MUST BE CONNECTED TO A SUITABLE MAINS PLUG. THE UNIT MUST BE EARTHED AND PROTECTED BY A 3 AMP FUSE.
3. THE LASER MUST ONLY BE OPENED AND SERVICED BY QUALIFIED PERSONAL.
4. THE LASER CANNOT BE CONNECTED TO A DIMMER SYSTEM, DAMAGE MAY OCCUR IF IT IS.
5. THE LASER CAN ONLY BE USED INSIDE AND MUST NOT BE USED OUTSIDE.
6. THE PAN AND TILT MIRROR AND LASER OUTPUT WINDOW MUST BE CLEANED FREQUENTLY TO REMOVE DUST AND SMOKE PARTICLES FROM THE PROJECTION AREAS. CLEANING SHOULD BE CARRIED OUT WITH A NON ABRASIVE GLASS CLEANER (COMPUTER MONITOR CLEANER IS IDEAL) AND COTTON CLOTH.
7. CARE MUST BE EXERCISED WHEN HANDLING THE DMX GRAPHIC SCAN. IT CONTAINS FRAGILE COMPONENTS WHICH MAY BE DAMAGED BY KNOCKS OR EXCESSIVE FORCE.
8. KEEP THE LASER UNITS AWAY FROM DIRECT SOURCES OF SMOKE AND POSITION IN AREAS WHERE THERE IS A FLOW OF CLEAN AIR TO PREVENT OVERHEATING. DO NOT OBSTRUCT VENTILATION GRILLS, ALLOW A MINIMUM OF 150mm CLEARANCE ALL AROUND THE LASER HEAD.
9. FAILURE TO OBSERVE THE ABOVE MAY CAUSE DAMAGE TO THE LASER SYSTEM AND THEREFORE WILL NOT BE COVERED BY A WARRANTY REPAIR.
10. THE LASER HAS A WARRANTY OF 12 MONTHS, EXCLUDING THE LASER SOURCE WHICH HAS A WARRANTY OF 6 MONTHS.

PLEASE MAKE SURE THAT YOU COMPLETE AND SEND TO US THE WARRANTY REGISTRATION CARD.

THE MANUFACTURER NU LIGHT SYSTEMS LTD REPRESENTED BY THE BRAND NAME OF "LASER TECHNIQUE" HOLDS NO LIABILITY FOR THE USE OF THIS PRODUCT OR FOR ANY DAMAGE WHICH MAY RESULT FROM ITS USE, IT IS THE USERS RESPONSIBILITY TO OPERATE THE LASER IN A SAFE MANNER. SPECIFICATIONS MAY CHANGE WITHOUT NOTICE.

GENERAL OPERATION AND DESCRIPTION:

LASER PHYSICAL FEATURES:

1. The DMX GRAPHIC SCAN laser head has the following features:
 - Projection window, pan and tilt mirror, where the laser patterns project out from,
 - IEC input plug, and IEC socket lead which must be connected to the respective live, neutral, and earth lines,
 - DMX input and output connectors,
 - DMX address selector switches,
 - Green power LED and Red DMX error LED.

DMX CHANNEL SELECTION:

2. To select a DMX start address, remove power from the laser and follow the procedure below: (remember the laser takes 8 DMX channels)
 - Locate the DMX selector switches on the rear panel, decide what start address you want, and adjust the appropriate switches. The address can be selected with the switches as shown: (0=switch ON, 1=switch OFF)

SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8	SW 9	
1	2	4	8	16	32	64	128	256	< Binary Value
on/off	on/off	on/off	on/off	on/off	on/off	on/off	on/off	on/off	DMX Start Add
off	on	on	on	On	on	on	on	on	001
on	on	on	off	On	on	on	on	on	008
off	on	off	on	On	off	on	on	on	036
off	on	off	on	Off	on	on	off	on	149
off	off	on	on	On	off	off	off	off	483

3. Switch 10 is a test function, and if it is put into the OFF position the laser will go into a test mode, stepping through the graphic images and various functions.
4. Once the DMX address has been selected with the power turned off, the laser is ready for operation. Plug in the output lead from a DMX controller, then plug the laser into a suitable power outlet. You will see the pan and tilt unit start to calibrate. It is ready for control via DMX.

CHANNEL FUNCTIONS:

5. PAN AND TILT CONTROL – Using Channels 1 and 2, the pan and tilt mirror will move from minimum to maximum corresponding with the slider movement on the DMX controller.
6. GRAPHICS AND TEXT BANK SELECTION – Using Channel 3 the laser will step through all the graphics and the contents of the 6 text banks corresponding with the slider movement on the DMX controller.
7. GRAPHIC SIZE SELECTION – Using Channel 4 will size the projected images from the minimum to the maximum corresponding with the slider on the DMX controller.
8. MODULATION / TEXT STORING – Using Channel 5 the various modulation effects of the graphics and text can be utilised, also when in text mode this channel is used to store the currently selected character into a text bank, by moving the slider from minimum to maximum to minimum.
9. COLOUR CONTROL / TEXT MODE – Using Channel 6 the colours can be controlled if the laser is an argon system. On all types of laser systems it is also used to enter text programming mode.

10. BEAM CONTROL – Using Channel 7 various beam effects can be engaged, from ON and OFF to strobing. On argon laser systems the remote start is used to strike the laser tube, or to turn it off.

11. TEXT CHARACTER SELECTION – Using Channel 8 will scroll through all the character set for text programming.

TEXT BANK PROGRAMMING:

12. To program any of the TEXT banks with a scrolling message follow the procedure detailed below:

- a) Select the TEXT bank that needs to be programmed or changed with CHANNEL 3.
- b) Move CHANNEL 5 to the minimum DMX setting (000).
- c) Move CHANNEL 6 to the maximum DMX setting (255), placing the laser into TEXT PROGRAMMING MODE.
- d) With CHANNEL 8 scroll through the character set until the letter, number or symbol you require is reached on the laser projection.
- e) To store the character that was selected in step d), move CHANNEL 5 from the minimum to maximum to minimum DMX value (000 to 255 to 000).
- f) Repeat steps d) and e) until your text message has been completed. Remember that each text bank stores a maximum of 250 characters including spaces.
- g) To store the text message and to exit TEXT PROGRAMMING MODE, slide CHANNEL 6 to 000.
- h) The selected text bank will now be programmed with your message.

GETTING THE MOST FROM YOUR LASER:

13. Before installation, operate the laser in a dark room with a little smoke so that you can become familiar with the various effects it can generate.

14. A good idea is to step through each graphic one at a time and to apply all the modulation, sizing, colour, and strobing effects so that they can be clearly seen individually on each graphic projection.

15. Remember the graphics are designed for spatial effects in smoke and for striking visual projections on surfaces. Some will look better than others depending on how they are being used. Experiment and try to get familiar with the effects generated in smoke and without smoke.

16. Custom graphics can be programmed by us. If you have a special set of logos or theme that you require either contact your dealer or Nu Light Systems directly.

DMX GRAPHIC SCAN HEAD SPECIFICATIONS:

DMX CHANNEL ASSIGNMENTS

CHANNEL 1:	PAN POSITION	CHANNEL 2:	TILT POSITION
CHANNEL 3: GRAPHICS AND TEXT BANK SELECTION			
000 - 007	STAR	128 - 135	LEAF
008 - 015	SQUARE	136 - 143	4 SQUARE ARRAY
016 - 023	HORIZONTAL FLAT SCAN	144 - 151	LIGHTENING BOLT
024 - 031	VERTICAL FLAT SCAN	152 - 159	BEAM
032 - 039	CIRCLE	160 - 167	EYE TRIANGLE
040 - 047	BOXED CROSS	168 - 175	MUSICAL NOTE
048 - 055	WAVE	176 - 183	DOLLAR
056 - 063	SOLID ARROW	184 - 191	SPLASH
064 - 071	TRIANGLE	192 - 199	4 SLATS
072 - 079	3 CIRCLES	200 - 207	GIRDER PROFILE
080 - 087	HEART	208 - 215	TEXT BANK 1
088 - 095	CROSS HAIRS	216 - 223	TEXT BANK 2
096 - 103	3 PETALS	224 - 231	TEXT BANK 3
104 - 111	DIAMOND STAR	232 - 239	TEXT BANK 4
118 - 119	BROKEN SQUARE	240 - 247	TEXT BANK 5
126 - 127	METEOR SHOWER	248 - 255	TEXT BANK 6
CHANNEL 4: GRAPHIC SIZE SELECTION			
000 - 031	SIZE 1	128 - 159	SIZE 5
032 - 063	SIZE 2	160 - 191	SIZE 6
064 - 095	SIZE 3	192 - 223	SIZE 7
096 - 127	SIZE 4	224 - 255	SIZE 8
CHANNEL 5: GRAPHIC MODULATION SELECTION / TEXT STORING			
MODULATION MODE:			
000 - 039	NO MODULATION	148 - 183	SHRINK AND GROW
040 - 075	HORIZONTAL SPIN	184 - 219	3D ROTATION
076 - 111	VERTICAL SPIN	220 - 255	3D SKEW
112 - 147	ROTATION		
TEXT MODE:			
000 - 255 - 000	STORE CHARACTER		
CHANNEL 6: COLOUR CONTROL (for argon lasers only) / TEXT ENTRY MODE			
000 - 059	CYAN (FULL POWER)	180 - 239	COLOUR SCROLL
060 - 119	GREEN	240 - 255	TEXT MODE
120 - 179	BLUE		
CHANNEL 7: BEAM CONTROL (remote start for argon lasers only)			
000 - 010	REMOTE START	109 - 157	STROBE SLOW
011 - 059	BEAM ON	158 - 206	STROBE MEDIUM
060 - 108	BEAM OFF	207 - 255	STROBE FAST
CHANNEL 8: TEXT CHARACTER SELECTION			
000 - 005	A	120 - 125	U
006 - 011	B	126 - 131	V
012 - 017	C	132 - 137	W
018 - 023	D	138 - 143	X
024 - 029	E	144 - 149	Y
030 - 035	F	150 - 155	Z
036 - 041	G	156 - 161	. (full stop)
042 - 047	H	162 - 167	_ (space)
048 - 053	I	168 - 173	0
054 - 059	J	174 - 179	1
060 - 065	K	180 - 185	2
066 - 071	L	186 - 191	3
072 - 077	M	192 - 197	4
078 - 083	N	198 - 203	5
084 - 089	O	204 - 209	6
090 - 095	P	210 - 215	7
096 - 101	Q	216 - 221	8
102 - 107	R	222 - 227	9
108 - 113	S	228 - 255	£ (pound sign)
114 - 119	T		

DMX GRAPHIC SCAN HEAD SPECIFICATIONS:

OPTICAL:

Laser Source	: Laser Diode for RED, Diode pumped ND:YAG, frequency doubled for GREEN,
Maximum Optical Power	: 60mW RED, 5, 10, 20mW GREEN,
Classification	: 3A for powers 5mW or below, 3B for powers above 5mW,
Wavelength	: 650nm CHERRY RED, 532nm GREEN,
Beam Divergence	: 2.5 mrad for RED, 1.2mrad for GREEN lasers,
Beam Diameter	: 2.0 -2.5 x 5.0 - 7.5mm for RED, 1.0mm for GREEN lasers,
Laser Life	: 1000Hrs for RED, 3000Hrs for GREEN lasers,
Optics	: Front surface enhanced aluminium mirrors with Anti Reflective coated output window,
Shutter	: Solid State Switching ,
Maximum Scan Time	: 25mS exposure every 300mS.

EFFECTS:

- 26 Pre-set Graphics,
- 6 x 250 Character Text banks,
- 150° Pan and 45° Tilt projection,
- 6 Modulations effects,
- Variable Pattern divergence angle,
- 2 Galvanometer Scanners.

POWER SUPPLY:

- Linear power supply electronics and lasers,
- 100 - 130 or 210 - 250 VAC operation by internal selection,
- 60 Watt power consumption.

CONFORMITY / SAFETY FEATURES:

- CE Conformity to : EN 55011:1991 CLASS B (conducted and radiated),
EN 61000-4-2:1995,
EN 61000-4-3:1995,
EN 61000-4-8:1994,
LOW VOLTAGE DIRECTIVE,
- Pulse Train MPE=1.091J/m², Energy densities in medium density smoke: Green 5mW =1.060J/m² at 2.9m,
10mW=1.031J/m² at 3.6m, 20mW=0.991J/m² at 4.2m. Red at 2.6m, 60mW=1.076J/m² at 3.2m.

PHYSICAL (packaging size and weight includes controller):

System Dimensions	: 465 x 180 x 110mm,
Weight	: 5.3Kg
Operating Temperature	: 5-40°C
Packaging Size	: 600(l) x 300(w) x 225(h)mm,
Packaged Weight	: 7.0Kg.