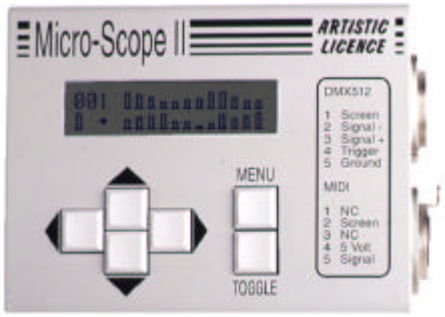
Micro-Scope IIa



ARTISTIC LICENCE

Artistic Licence (UK) Ltd.

Software Version V5.0 Manual Revision V4.0

Artistic Licence Product Registration Form

Product: Micro-Scope IIa	Version No.
Serial No.	Date Purchased:

Supplier:

Name:	
Company Name:	
Address:	
Post/Zip Code:	Phone No.

Comments:

Please return to: Artistic Licence (UK) Ltd.
B1 & B3 Livingstone Court, Peel Road, Harrow, Middlesex HA3 7QT. England.

Tel/Fax: +44 (0) 181 863 4515

C O N T E N T S

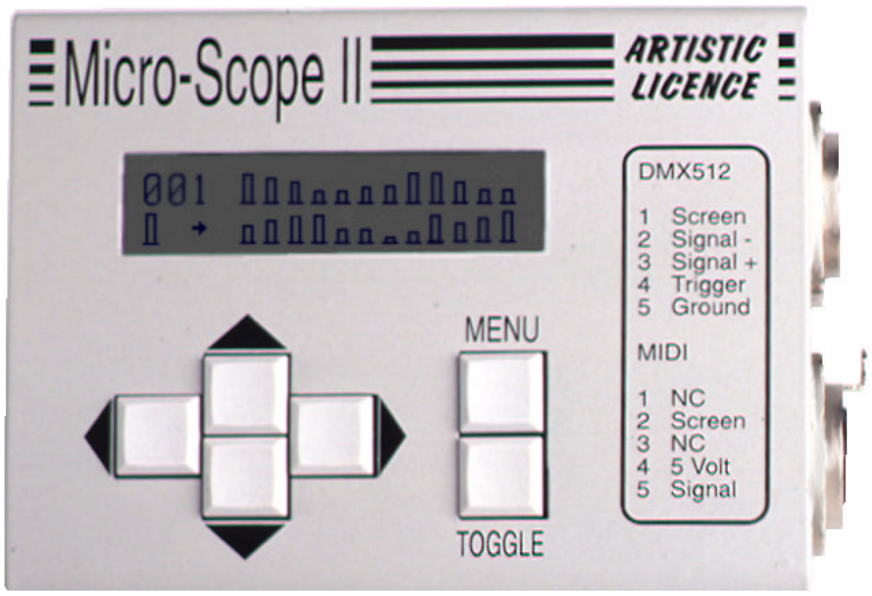
I N T R O D U C T I O N

Quick Start

Welcome to the Micro-Scope manual. Micro-Scope is a sophisticated DMX512 and MIDI analyser, but is remarkably simple to operate.

Users who are familiar with either DMX512 or MIDI should find that a scan of the Control Surface section is sufficient to get started.

Please remember to return your product registration card, so that we can keep you informed of new developments.



Features

Micro-Scope provides the following features:

- Receives DMX512 & MIDI
- Display as bar chart, decimal, percentage or hexadecimal
- Display update rate, number of channels received, Break and MaB time
- Display maximum, minimum and current value of a single channel
- Double and single ended cable test
- Generate DMX512 or re-transmit buffered DMX512 or MIDI
- Fifteen Preset memories with snapshot
- Auto-backup, transmits Preset if console fails.

What's New in Micro-Scope IIa

A range of powerful new features have been added to Micro-Scope IIa.

1. The display now has an LED backlight for those difficult under-stage problems!
    - The backlight is software controlled and can be switched off when not required.
    - When operating on battery power, a power saver automatically switches off the backlight when the product is idle for more than one minute. The next key press re-illuminates the backlight.

2. A new transmit menu provides a list of over ninety manufacturer specific lamp definitions. This allows fast and automated testing of automated luminaires without reference to the user manual or a binary calculator.
    - The following attributes can be automatically tested:
        - Lamp on and pointed to centre position.
        - Intensity ramp.
        - Pan test.
        - Tilt test.
        - Combined Pan & Tilt test.
        - Colour cycle through up to four colour channels.
        - Gobo cycle.
        - Aux. channel test which is manufacturer dependent but usually tests either Iris or Zoom.
    - The library includes entries for all the operating modes of each lamp, including 16 bit pan and tilt.

3. A new receive mode displays two channels in both binary and hexadecimal.
    - This is invaluable for product designers and engineers when solving serious equipment faults such as stuck data lines.

4. A new Flicker Finder 'Hunt Mode' has been added. This allows Micro-Scope to continuously sample consecutive channels and display the error if the channel level fluctuates outside a user programmable range.
5. A "Don't Care" mode for the received start code. This is particularly useful for Compulite equipment.

T H E C O N T R O L S U R F A C E

Over-view

Micro-Scope is operated by the six front panel buttons. The buttons function as follows:

MENU

The MENU key is used to select the operating mode of Micro-Scope. Pressing MENU once will display the currently selected mode. The LEFT and RIGHT cursor keys are then used to select a new operating mode. The process is completed by pressing MENU a second time.

TOGGLE

When Micro-Scope is in DISPLAY RECEIVED DMX512, the TOGGLE key is used to step through the different display formats (bar graph, percent, decimal etc.).

In TRANSMIT mode, the TOGGLE key is used to invert the level of the selected channel.

In TRANSMIT LAMP mode, the TOGGLE key selects each of the automated tests in sequence.

LEFT RIGHT

When Micro-Scope is in DISPLAY RECEIVED DMX512, the LEFT and RIGHT cursor keys are used to select a new base address.

In TRANSMIT DMX512 modes, the LEFT and RIGHT cursor keys are used to select a new transmit channel.

If Micro-Scope is displaying the menu, the LEFT and RIGHT cursor keys are used to select the next operating mode.

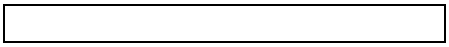
UP DOWN

The UP and DOWN cursor keys are used to increment or decrement the level of the displayed data.

MENUS

Upon entering MENU mode, twelve different operating modes may be selected. These are:

DISPLAY RECEIVED dmx512 1	Displays the DMX512 signal from any console, in any of the six available formats
TRANSMIT RIG CHECK 2	Transmit DMX512. Only a single channel on at a level. This is the basic flash through rig mode.
TRANSMIT PRESET NUMBER: 15 3	Transmit and edit one of 15 Presets. Each Preset allows all 512 channels at individual levels.
TRANSMIT lamp vari*lite vl6 4	Automatically test any automated luminaire from the library.
TRANSMIT DYNAMIC dmx512 5	Transmit any range of channels at a level or continuously ramping.
snapshot dmx to preset: 15 6	Copy received DMX to any of the 15 Presets. Used to create show backup or record useful test patterns.
FILL PRESET WITH PATTERN 7	Fill one of the 15 Presets with a symmetrical pattern of channel levels.
double ended cable test 8	Fully test all three pins of DMX512 or MIDI cables for shorts and open circuits.
SINGLE ENDED CABLE TEST 9	Test the two signal pins of DMX512 or MIDI cables for shorts, when only the console cable end is available.
AUTOBACKUP IF DMX FAILS 10	Allows Micro-Scope to connect in-line between desk and dimmers. Switches to a selected Preset if the desk fails.
BUFFER DMX MIDI ENABLED 11	Switch between the DMX512 output of Micro-Scope and a regenerated version of the received signal.
SELECT DMX START CODE: 000 12	Allows Micro-Scope to operate with non-standard start codes.
DISPLAY RECEIVED MIDI 13	Display MIDI data characters in hexadecimal form.
backlight enabled 14	Enable or disable the display backlight .



DISPLAYING RECEIVED DMX512

In DISPLAY RECEIVED DMX512 mode the following keys are active:

- LEFT Decrement the current DMX512 start address
- RIGHT Increment the current DMX512 start address
- TOGGLE Select the display format

Received DMX512 data is displayed in one of seven formats. They are:

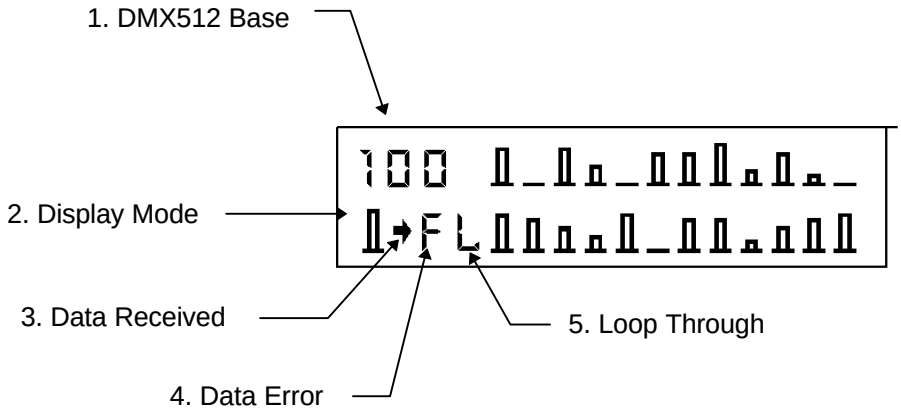
- Bar Graph
- Decimal
- Percent
- Hex
- Binary
- Max/Min & Flicker Hunt
- Detail

STATUS

The first five display formats also include the following information:

1. DMX512 base address
2. Display mode
3. Data received indicator
4. Data error indicator
5. Loop-Through indicator

The diagram below shows Micro-Scope receiving DMX512 in bar graph mode.



DMX BASE

The DMX base address is in the range 1 to 512 and defines the first channel displayed. This value is also used to set the TRIGGER OUTPUT.

DISPLAY MODE

This character shows the currently selected display mode:

▮ Bar-graph mode displays twenty four channels as a bar-graph with a resolution of 12.5%. Whilst the resolution of this mode is limited, it is often the most useful when the DMX line is running show information. It is easy to pick out chases, which in other display modes could be mistaken for flickering data.

D Decimal mode displays six channels as numbers in the range 0 to 255. This mode shows the entire resolution of each channel. It is most useful when dealing with moving lights and colour changers.

% Percent mode displays six channels as numbers in the range 0 to 100. This mode provides the most familiar numbering system.

$ Hexadecimal mode displays six channels as numbers in the range 00 to FF. This mode is most useful when working with DMX devices such as relay boxes and smoke machines, which use bit control. See Appendix for conversion tables.

B Binary mode displays two channels as both binary and hexadecimal. This mode is most useful for electronic designers and engineers when solving complex electronic problems such as a damaged data bus.

DATA RECEIVED

This character cell displays a tilde to show that data is being received. The data is not necessarily valid DMX512.

DATA ERROR

This character cell is clear when good data is being received. If an error occurs, one of the following is displayed:

H DMX512 is being received with a non matching **H**eader or start code.

F Data is being received with **F**raming errors. This can be caused by noise pick-up and also occurs when the phase pins of the connector are reversed.

O Data is being received with **O**verrun errors. This can be caused by noise pick-up and also occurs when a phase pin is disconnected.

T The received data is outside the DMX512 **T**iming specification. This display occurs when either the number of channels per frame exceeds 512, or the Break time is less than 88uS, or the MaB time is less than 4uS.

LOOP THROUGH

This character cell displays 'L' when Micro-Scope's output is providing a clean and buffered version of the incoming DMX512. When the character cell is clear, Micro-Scope's DMX512 generator is connected to the output.

MAX/MIN MODE

Max/Min mode is the "Flicker Finder". A single DMX512 channel is displayed as the current value, minimum value and maximum value. All three numbers are decimal 0 to 255.

This mode will capture any fluctuations in the level of a channel.

To clear the Max and Min values, press the MENU key twice. When data is not received on the selected channels, the Max value is set to 0, and the Min value to 255.

```
001     CUR   154
MIN 153 MAX   155
```

FLICKER HUNT

The UP & DOWN cursor key are used to start the automatic 'Flicker Hunt' mode. In this mode Micro-Scope analyses the level of each channel in thirty consecutive frames of DMX512. Any level which has varied outside the flicker band causes the hunt to stop and the display reverts to MAX/MIN mode, displaying the erroneous channel data. The DOWN cursor key cycles though the range of flicker band values between $01 and $3f. When the flicker band is set to $01, a single bit fluctuation in the level of a single channel will cause the display to revert to MAX/MIN mode.

```
flicker hunt $01
current chan: 012
```

DETAIL MODE

Detail mode provides four further pieces of information about the DMX signal.

The Period "P" is the time between received Breaks on the DMX512 signal. The reciprocal of this number gives the refresh rate.

The second number is the Break time "Bk". This is the length of the synchronising code used to restart a new DMX frame. The specification requires this value to be 88uS or greater. If this is not the case, the timing error icon "T" will be displayed in the main receive window.

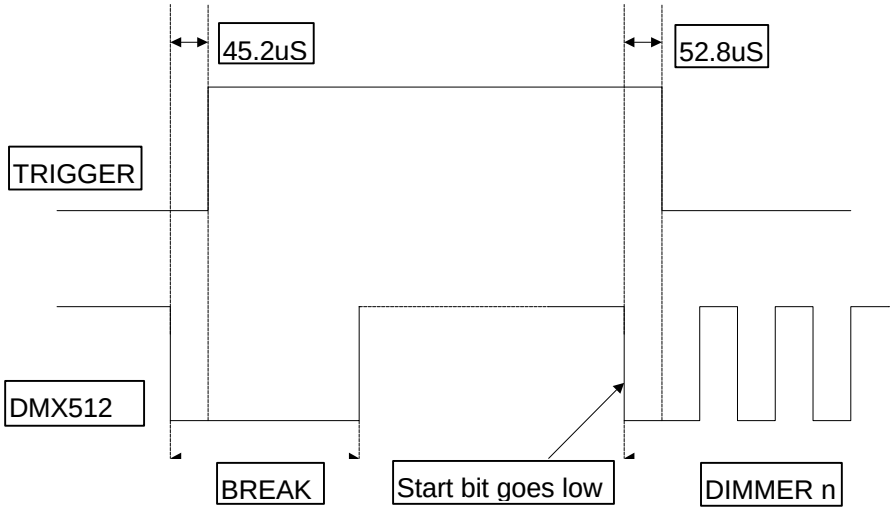
```
p=023ms bk=150us
C=512   MAB=012us
```

The third number "C" represents the number of dimmer channels received in the last DMX packet. This number should be constant, although the value may be less than 512, depending on the type of console used.

The fourth number is the Mark after Break time "MaB". This is the delay between the end of a Break and transmission of the header code. The specification requires a MaB of 4us or greater. If this is not the case, the timing error icon "T" will be displayed in the main receive window. (The MaB limit was increased to 8uS in the DMX512 1990 Revision).

TRIGGER OUTPUT

The spare two pins of the DMX512 output are used to provide a TTL (5V) oscilloscope trigger output. This signal can be used to synchronise the oscilloscope to either the falling edge of the break or the DMX base address.



TRANSMIT RIG CHECK

The TRANSMIT RIG CHECK menu allows any single dimmer channel to be switched on at a level.

```
CHAN: 001 @ 100%
RIG CHECK
```

The following keys are active:

- LEFT Decrement the dimmer channel
- RIGHT Increment the dimmer channel
- UP Increment the dimmer level
- DOWN Decrement the dimmer level
- TOGGLE Invert dimmer level

The display shows the current dimmer channel, followed by its level as a percentage.

The DMX512 output continues when Micro-Scope is in Receive mode.

TRANSMIT PRESET

The TRANSMIT PRESET menu allows any one of the fifteen Presets to be transmitted to the dimmers and also edited. Each Preset contains individual level settings for all 512 channels and is held in non volatile memory. The Preset to be transmitted and edited is selected by the UP and DOWN keys when the menu display is active. Press the MENU key to enter edit mode.

```
CHANNEL 001 @ 100%
11111111  $FF   255
```

The following keys are active:

- LEFT Decrement the dimmer channel
- RIGHT Increment the dimmer channel
- UP Increment the dimmer level
- DOWN Decrement the dimmer level
- TOGGLE Invert dimmer level

All dimmer channel levels may be set individually. The display shows the current dimmer channel, followed by it's level in percent, binary, hexadecimal and decimal.

The DMX512 output continues when Micro-Scope is in Receive mode.

The SNAPSHOT and FILL menus are alternative methods of programming the Presets.

TRANSMIT LAMP

The TRANSMIT LAMP menu is the most powerful method of testing automated luminaires.

```
TRANSMIT LAMP
VARI*LITE VL6
```

Micro-Scope contains a library of over ninety lamp definitions which can be used to automatically test lamps.

When the menu is active, the UP & DOWN cursor keys are used to select the required lamp from the library.

To accept the lamp selection press MENU. The display changes to show the start address of the lamp, the current test and the selected lamp.

```
LAMP 001-007    ON
VARI*LITE VL6
```

At this point the DMX output will command the selected lamp to point to it's centre position with the beam on at full white with no gobos.

The following keys are active:

- LEFT Decrement the start channel to the previous lamp
- RIGHT Increment the start channel to the next lamp
- UP Increment by one the start chan
- DOWN Decrement by one the start channel
- TOGGLE Select the next automatic test

The automatic tests function as follows:

- ON Point lamp at centre of Pan & Tilt range with a full power white beam.
- INT Ramp up and down the lamp intensity. If a dimmer exists in the lamp it is used, otherwise the mechanical shutter is used.
- PAN Pan the beam from one extent to the other.
- TIL Tilt the beam from one extent to the other.
- P/T Pan & Tilt the beam from one extent, diagonally to the other.
- COL Exercise the colours available. This tests up to four colour attribute channels of the lamp. Depending on the lamp type, the order will be either:
  - RED BLUE GREEN COLOUR-WHEEL or
  - YELLOW MAGENTA CYAN COLOUR-WHEEL
- GOB Run through all the available gobos.
- AUX Depending on the lamp, this tests one of the following:
  - IRIS
  - ZOOM
  - STROBE
  - GOBO 2

The DMX512 output continues when Micro-Scope is in Receive mode.

Appendix A contains a full listing of all supported lamps.

TRANSMIT DYNAMIC DMX512

The TRANSMIT DYNAMIC DMX512 selection allows any range of dimmer channels to be switched on at a level, or ramp continuously.

```
CHAN: 001 - 512
@100%
```

The following keys are active:

- LEFT Decrement the end dimmer channel
- RIGHT Increment the end dimmer channel
- UP Increment the start dimmer channel
- DOWN Decrement the start dimmer channel
- TOGGLE Stop or Start the channels ramping

Any range of dimmers can be controlled. The display shows the start and end dimmer channel, followed by the current percentage level.
The level ramp requires ten seconds to increment from zero to full and then decrement back to zero.
If the end channel is set to a lower value than the start channel, all output channels are set to zero.
The DMX512 output continues when Micro-Scope is in Receive mode.

SNAPSHOT DMX TO PRESET

The SNAPSHOT menu allows any one of the fifteen Presets to be filled with data captured from the DMX512 input. The Preset to be used is selected by the UP and DOWN keys when the menu display is active. Press the MENU key to take the snapshot. The process requires eight consecutive frames of DMX512 to capture the data. The snapshot can be aborted (for example if the DMX512 input fails) by pressing the TOGGLE button.

```
SNAPSHOT DMX TO
PRESET: 15
```

When the data has been successfully captured, the display shows:

```
DMX RECORDED TO
PRESET: 15
```

FILL PRESET WITH PATTERN

The FILL menu allows any one of the fifteen Presets to be filled with a symmetrical pattern of channel levels.

```
FILL PRESET
WITH PATTERN
```

The following keys are active:

- LEFT Select one of the pre-defined patterns
- RIGHT Select one of the pre-defined patterns
- UP Increment the Preset number
- DOWN Decrement the Preset number
- TOGGLE Execute the Fill

Fill patterns are selected from the following list:

- ALL CHAN OFF — Clear the Preset
- ALL CHAN HALF — Set all channels to 50%
- ALL CHAN ON — Set all channels to 100%
- ODD CHAN ON — Set all odd channels (1,3,5..511) to 100%
- EVEN CHAN ON — Set all even channels (2,4,6..512) to 100%
- RAMP UP — Set incrementing ramp from channel 1 to 256 and 257 to 512
- RAMP DOWN — Set decrementing ramp from channel 1 to 256 and 257 to 512

TESTING CABLES

Micro-Scope offers two methods of testing DMX512 cables.

The DOUBLE ENDED TEST is used when both ends of the cable are available. Micro-Scope can test for short circuits and open circuits on any of the three active pins of the DMX512 cable.

The SINGLE ENDED TEST is used when only the console cable end is accessible. Micro-Scope can test for a short circuit between the two signal pins.

DOUBLE ENDED CABLE TEST

The DOUBLE ENDED TEST display shows the connectivity of each of the three active pins of the DMX512 or MIDI cable. An OPEN CIRCUIT is shown by a period, and a SHORT CIRCUIT is shown by the pin number. The diagram below shows a correct DMX512 cable.

The diagram below shows a DMX512 cable with pins 2 & 3 swapped.

SINGLE ENDED CABLE TEST

The SINGLE ENDED TEST display shows the short circuit status of pins 2 and 3 of the DMX512 output connector. The display will show the

following when there is a connection between pins 2 & 3. This test

can be used to test for short circuit in the cable or to confirm that the cable is properly terminated.

AUTO BACKUP IF DMX FAILS

The AUTO-BACKUP menu allows Micro-Scope to be connected in-line between a lighting desk and dimmers. Micro-Scope monitors the received DMX512 and should the signal fail, switches one of the fifteen Presets to the output. This mode provides a useful backup which forces a known look on stage should the console fail. When the backup mode is triggered, the user can snap between the presets.

```
AUTO-BACKUP IF
DMX FAILS
```

When the menu is entered, the following display is shown and received DMX512 is looped to the output. The UP and DOWN keys are used to select the Preset that will be output should the received DMX512 fail.

```
AUTO-BACKUP: 15
WAIT-DMX IS GOOD
```

If the DMX fails, the following display is shown and the selected Preset is output to the dimmers. When the problem with the received DMX512 has been corrected, simply press MENU twice to reset AUTO-BACKUP mode. When AUTO-BACKUP is active, the UP and DOWN keys are used to snap between consecutive Presets.

```
AUTO-BACKUP: 15
ACTIVE-DMX FAIL
```

LOOP THROUGH

The BUFFER DMX/MIDI option is used to select between Micro-Scope's Generator output and a buffered copy of the incoming DMX512 signal. The Loop Through mode is selected by pressing the TOGGLE key when the menu is displayed. The BUFFER mode of operation allows Micro-Scope to be used as a signal booster for long DMX512 or MIDI cables.

```
BUFFER DMX MIDI
DISABLED
```

BUFFER mode is switched off when the Generator Menu is next selected. When BUFFER mode is active, “L” is shown in the receive window to denote “Loop Through”.

SELECT DMX START CODE

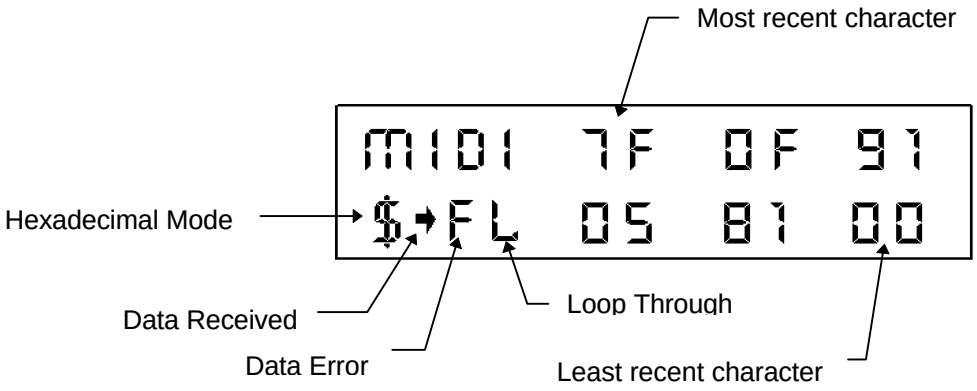
The START CODE menu is used to select non-zero DMX512 start codes. The START code is defined in the protocol but has not been implemented by many manufacturers. The

```
SELECT DMX START
code: 000
```

UP and DOWN keys are used to select any one of the 256 possible values. The same value is used for both receive and transmit DMX512. If a non-zero value is selected, a warning is displayed when the Micro-Scope is next switched on.
The Toggle key selects “Don’t Care” mode which is displayed as “xxx”. In this mode a value of zero is used for the transmit start code. However received DMX512 will be displayed as good data whatever the start code. This is particularly useful with Compulite equipment as they have implemented multiple start codes on their equipment.

DISPLAYING RECEIVED MIDI

DISPLAY RECEIVED MIDI shows six MIDI characters in hexadecimal format. The external MIDI adapter cables are required to use this mode. The TOGGLE key is used to freeze the data display. The following diagram shows the screen layout.



Loop Through may also be used with MIDI. The output circuitry used by Micro-Scope is RS485 compatible. Whilst this is correct for DMX512, MIDI specifies a more simple and less expensive set of circuitry. However, the two sets of circuitry are compatible and the circuitry used by Micro-Scope overcomes the very short cable limitation usually encountered with MIDI.
The MIDI input of Micro-Scope is opto-isolated.

ENABLE BACKLIGHT

The BACKLIGHT menu is used to enable or disable the display backlight. The Backlight operates as follows:

BACKLIGHT ENABLE

- DISABLE The backlight is off giving the longest possible battery life.
- ENABLE: When external power is connected the backlight is on in all modes.
  When operating on battery power the backlight is normally on, but powers down after one minute of inactivity. The next key press will re-enable the backlight.

The TOGGLE key is used to enable or disable the backlight selection.

POWER SUPPLY

Micro-Scope has an internal Ni-Cd rechargeable battery which provides a life of about 30 hours between recharges (this is reduced to 15 hours when the backlight is used continuously). The external 9 Volt, 300mA DC power supply is used to power and recharge Micro-Scope.

As with all Ni-Cd battery products, the best battery life is obtained by completely discharging Micro-Scope prior to recharging.

The power switch is used to switch off Micro-Scope, battery charging will continue if the power connector is plugged in.

Micro-Scope contains a sophisticated battery manager, which regulates battery charging. A full charge is obtained in three hours, after which the external power supply is used solely to power Micro-Scope.

In order to further conserve battery power, Micro-Scope reverts to stand-by mode after 10 minutes of no key presses or received data. Stand-by is exited by pressing any key, or connecting a DMX512 input.

Stand-by mode is inhibited when receiving data and when AUTO-BACKUP is triggered, in order that Micro-Scope can be used as a battery powered signal buffer. Stand-by is also inhibited when the external power supply is connected.

PIN DATA

RECEIVE (MALE 5 PIN XLR)

Pin 1	Screen
Pin 2	DMX Receive Signal-
Pin 3	DMX Receive Signal+
Pin 4	MIDI Receive Anode
Pin 5	MIDI Receive Cathode

The MIDI receive feature of Micro-Scope uses pins 4 & 5 which are undefined by the DMX512 protocol. These pins may be disconnected internally should this conflict with your DMX512 implementation.

A MIDI adapter cable is available from Artistic Licence or can be simply constructed from the following wiring plan:

FEMALE 5 PIN XLR		FEMALE 5 PIN DIN
Pin 1	Connect to screen	No connection
Pin 4		Pin 4
Pin 5		Pin 5

TRANSMIT (FEMALE 5 PIN XLR)

Pin 1	Screen
Pin 2	DMX Transmit Signal-
Pin 3	DMX Transmit Signal+

Pin 4	Trigger output
Pin 5	Trigger ground

The Trigger feature of Micro-Scope uses pins 4 & 5 which are undefined by the DMX512 protocol. These pins may be disconnected internally should this conflict with your DMX512 implementation.

Appendix A - Lamp Library

Legend:

W1	Colour Wheel 1	F	Frost Wheel
W2	Colour Wheel 2	H	Colour Hue Wheel
R	Red Colour Wheel	S	Colour Saturation Wheel
G	Green Colour Wheel	E	Effects Wheel
B	Blue Colour Wheel	Lens	Lens Change Wheel
Y	Yellow Colour Wheel	Shutter	Mechanical Dimmer
C	Cyan Colour Wheel	G2	Second Gobo Wheel
M	Magenta Colour Wheel	Fan	Remote Control to Fan
A	Amber Colour Wheel	G Rotate	Gobo Wheel Rotate Control

1	Abbreviation:	**Adlite Intelli'1**	Intensity:	☑	
	Manufacturer:	Adlite	Pan:	☑	
	Lamp:	Intellite 1	Tilt:	☑	
	Number of Channels:	6	Colour:	☑	W1
	Notes:		Gobo:	☑	
			Aux:	☒	
2	Abbreviation:	**Adlite Intelli'2**	Intensity:	☑	
	Manufacturer:	Adlite	Pan:	☑	
	Lamp:	Intellite 2	Tilt:	☑	
	Number of Channels:	8	Colour:	☑	W1
	Notes:		Gobo:	☑	
			Aux:	☑	Iris
3	Abbreviation:	**Adlite Intel Pro**	Intensity:	☑	
	Manufacturer:	Adlite	Pan:	☑	
	Lamp:	Intellite Professional	Tilt:	☑	
	Number of Channels:	12	Colour:	☑	W1/W2
	Notes:		Gobo:	☑	
			Aux:	☑	Zoom
4	Abbreviation:	**Adlite L'Bounce2**	Intensity:	☑	
	Manufacturer:	Adlite	Pan:	☑	
	Lamp:	Litebounce II	Tilt:	☑	
	Number of Channels:	7	Colour:	☑	W1
	Notes:		Gobo:	☑	
			Aux:	☒	
5	Abbreviation:	**Amptown PosiSpot**	Intensity:	☑	
	Manufacturer:	Amptown	Pan:	☑	
	Lamp:	ACC Posi Spot	Tilt:	☑	
	Number of Channels:	4	Colour:	☑	W1
	Notes:		Gobo:	☒	

			Aux: ☒
6	Abbreviation:	**Amptown ControlLite PML**	Intensity: ☑
	Manufacturer:	Amptown	Pan: ☑
	Lamp:	ControlLite PML	Tilt: ☑
	Number of Channels:	7	Colour: ☑ W1
	Notes:	Name changed V4.2	Gobo: ☑
			Aux: ☑ Shutter
7	Abbreviation:	**Amptown Control PML Mk2**	Intensity: ☑
	Manufacturer:	Amptown	Pan: ☑
	Lamp:	ControlLite PML Mk2	Tilt: ☑
	Number of Channels:	12	Colour: ☑ W1/W2
	Notes:	Name changed V4.2	Gobo: ☑
			Aux: ☑ Shutter
8	Abbreviation:	**Amptown Washlite Halogen**	Intensity: ☑
	Manufacturer:	Amptown	Pan: ☑
	Lamp:	Washlite Halogen	Tilt: ☑
	Number of Channels:	7	Colour: ☑ YMC
	Notes:		Gobo: ☒
			Aux: ☑ Focus
9	Abbreviation:	**Amptown W'lite HP**	Intensity: ☑
	Manufacturer:	Amptown	Pan: ☑
	Lamp:	Washlite HP	Tilt: ☑
	Number of Channels:	10	Colour: ☑ YMC
	Notes:	Added V4.2	Gobo: ☒
			Aux: ☑ Focus
10	Abbreviation:	**Amptown WinDesign**	Intensity: ☑
	Manufacturer:	Amptown	Pan: ☑
	Lamp:	WinDesign Moving Fan	Tilt: ☑
	Number of Channels:	3	Colour: ☒
	Notes:	Added V4.2	Gobo: ☒
			Aux: ☒
11	Abbreviation:	**B+K Varytec**	Intensity: ☑
	Manufacturer:	B+K	Pan: ☑
	Lamp:	Varytec	Tilt: ☑
	Number of Channels:	5	Colour: ☑ W1
	Notes:		Gobo: ☑
			Aux: ☒
12	Abbreviation:	**Cam Telescan mk1**	Intensity: ☑
	Manufacturer:	Cameleon	Pan: ☑
	Lamp:	Telescan mk1	Tilt: ☑
	Number of Channels:	8	Colour: ☑ RGB
	Notes:		Gobo: ☑
			Aux: ☑ Focus
13	Abbreviation:	**Celco M9 Video**	Intensity: ☑
	Manufacturer:	Celco	Pan: ☒
	Lamp:	M9 Videowall	Tilt: ☒
	Number of Channels:	10	Colour: ☒
	Notes:	Intensity test cycles thru	Gobo: ☒
		freeze then thaw entire wall	Aux: ☒

14	Abbreviation:	**CP Miniscan**	Intensity:	☒
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Miniscan	Tilt:	☑
	Number of Channels:	4	Colour:	☑ W1
	Notes:		Gobo:	☑ Strobe
			Aux:	☑
15	Abbreviation:	**CP Miniscan HPE**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Miniscan HPE	Tilt:	☑
	Number of Channels:	7	Colour:	☑ W1
	Notes:		Gobo:	☑ Strobe
			Aux:	☑
16	Abbreviation:	**CP Goldenscan**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Goldenscan 2 & 3	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Iris
17	Abbreviation:	**CP Goldenscn HPE**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Goldenscan HPE	Tilt:	☑
	Number of Channels:	12	Colour:	☑W1/2FE
	Notes:	Added V4.2	Gobo:	☑
			Aux:	☑ Focus
18	Abbreviation:	**CP Superscan**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Superscan	Tilt:	☑
	Number of Channels:	12	Colour:	☑ RGB W1
	Notes:		Gobo:	☑
			Aux:	☑ Iris
19	Abbreviation:	**CP Supersca Zoom**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Superscan Zoom	Tilt:	☑
	Number of Channels:	12	Colour:	☑ RGB W1
	Notes:		Gobo:	☑
			Aux:	☑ Zoom
20	Abbreviation:	**CP Stage Scan**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Stage Scan	Tilt:	☑
	Number of Channels:	16	Colour:	☑ RGB W1
	Notes:	Added V4.4	Gobo:	☑
			Aux:	☑ Zoom
21	Abbreviation:	**CP Tiger Multcol**	Intensity:	☒
	Manufacturer:	Clay Paky	Pan:	☒
	Lamp:	Tiger Multicolour	Tilt:	☒
	Number of Channels:	3	Colour:	☑ W1
	Notes:		Gobo:	☒
			Aux:	☑ Frost

22	Abbreviation:	**CP Tiger MRG**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☒
	Lamp:	Tiger MRG	Tilt:	☒
	Number of Channels:	4	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ G Rotate
23	Abbreviation:	**CP Tigerscan MRG**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Tiger Scan MRG	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ G Rotate
24	Abbreviation:	**CP Tiger Scan**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Tiger Scan	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ G Rotate
25	Abbreviation:	**CP Pin Scan**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Pin Scan	Tilt:	☑
	Number of Channels:	3	Colour:	☒
	Notes:		Gobo:	☒
			Aux:	☒
26	Abbreviation:	**CP Bazooka 4C**	Intensity:	☑
	Manufacturer:	Clay Paky	Pan:	☑
	Lamp:	Bazooka 4C	Tilt:	☑
	Number of Channels:	4	Colour:	☑ W1
	Notes:		Gobo:	☒
			Aux:	☒
27	Abbreviation:	**Coemar Baby Col**	Intensity:	☒
	Manufacturer:	Coemar	Pan:	☒
	Lamp:	Baby Colour	Tilt:	☒
	Number of Channels:	2	Colour:	☑ W1
	Notes:		Gobo:	☒
			Aux:	☑ Iris
28	Abbreviation:	**Coemar Microscan**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	Micro-Scan	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Shutter
29	Abbreviation:	**Coemar Ultrascan**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	Ultra-Scan	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Shutter

30	Abbreviation:	**Coemar Samuri**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	Samuri Light 1200	Tilt:	☑
	Number of Channels:	8	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Shutter
31	Abbreviation:	**Coemar PC1000**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	PC1000	Tilt:	☑
	Number of Channels:	8	Colour:	☑ RGB F
	Notes:		Gobo:	☑
			Aux:	☑ Zoom
32	Abbreviation:	**Coemar PC1200HMI**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	PC1200 HMI	Tilt:	☑
	Number of Channels:	9	Colour:	☑ RGB F
	Notes:		Gobo:	☑
			Aux:	☑ Zoom
33	Abbreviation:	**Coemar Nat Ch15**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	NAT1200 NAT2500	Tilt:	☑
	Number of Channels:	15	Colour:	☑ W1 HSE
	Notes:	Low resolution Mode	Gobo:	☑
			Aux:	☑ G2
34	Abbreviation:	**Coemar Nat Ch22**	Intensity:	☑
	Manufacturer:	Coemar	Pan:	☑
	Lamp:	NAT1200 NAT2500	Tilt:	☑
	Number of Channels:	22	Colour:	☑ RGB W1
	Notes:	High resolution Mode	Gobo:	☑
			Aux:	☑ G2
35	Abbreviation:	**FAL Primoscan**	Intensity:	☒
	Manufacturer:	FAL	Pan:	☑
	Lamp:	Primoscan	Tilt:	☑
	Number of Channels:	4	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒
36	Abbreviation:	**FAL Superclever**	Intensity:	☒
	Manufacturer:	FAL	Pan:	☑
	Lamp:	Super Clever Scan	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒
37	Abbreviation:	**FLY FOS1/2/3/4**	Intensity:	☑
	Manufacturer:	FLY	Pan:	☑
	Lamp:	FOS1 FOS2 FOS3 FOS4	Tilt:	☑
	Number of Channels:	12	Colour:	☑ RGB
	Notes:		Gobo:	☑

		Aux:	☑ Zoom

38	Abbreviation:	**HE Intella V1**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Intellabeam Version 1	Tilt: ☑
	Number of Channels:	8	Colour: ☑ W1
	Notes:		Gobo: ☑
			Aux: ☑ Iris
39	Abbreviation:	**HE Intellabm 000**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Intellabeam Version 1	Tilt: ☑
	Number of Channels:	7	Colour: ☑ W1
	Notes:	Personality set to 000	Gobo: ☑
			Aux: ☑ Iris
40	Abbreviation:	**HE Intellabm 010**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Intellabeam Version 1	Tilt: ☑
	Number of Channels:	11	Colour: ☑ W1
	Notes:	Personality set to 010	Gobo: ☑
			Aux: ☑ Iris
41	Abbreviation:	**HE Cyberlight M1**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Cyberlight	Tilt: ☑
	Number of Channels:	20	Colour: ☑ CMY W1
	Notes:	Updated V4.4	Gobo: ☑
		Personality set to Mode 1	Aux: ☑ Zoom
42	Abbreviation:	**HE Studio Color**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Studio Color	Tilt: ☑
	Number of Channels:	16	Colour: ☑ YMC W1
	Notes:	Updated V4.4	Gobo: ☑
			Aux: ☑ Lens
43	Abbreviation:	**HE Technobeam Full**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Technobeam	Tilt: ☑
	Number of Channels:	18	Colour: ☑ W1
	Notes:		Gobo: ☑
			Aux: ☑ Effects
44	Abbreviation:	**HE Technobeam Reduced**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☑
	Lamp:	Technobeam	Tilt: ☑
	Number of Channels:	14	Colour: ☑ W1
	Notes:		Gobo: ☑
			Aux: ☑ Effects
45	Abbreviation:	**HE Technoray Full**	Intensity: ☑
	Manufacturer:	High End / LWR	Pan: ☒
	Lamp:	Technoray	Tilt: ☒
	Number of Channels:	14	Colour: ☑ W1
	Notes:		Gobo: ☑

		Aux: ☑ Effects

46	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**HE Technoray Reduced** High End / LWR Technoray 12	Intensity: ☑ Pan: ☒ Tilt: ☒ Colour: ☑ W1 Gobo: ☑ Aux: ☑ Effects
47	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**HE Trackspot** High End / LWR Technoray 7	Intensity: ☑ Pan: ☑ Tilt: ☑ Colour: ☑ W1 Gobo: ☑ Aux: ☑ Strobe
48	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**JB Varyscan 3** JB Varyscan 3 7	Intensity: ☑ Pan: ☑ Tilt: ☑ Colour: ☑ W1 Gobo: ☑ Aux: ☑ Iris
49	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**JB Varyscan Sys2** JB Varyscan System 2 8	Intensity: ☑ Pan: ☑ Tilt: ☑ Colour: ☑ W1 Gobo: ☑ Aux: ☑ Iris
50	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**JB Varyscan Sys3** JB Varyscan System 3 14	Intensity: ☑ Pan: ☑ Tilt: ☑ Colour: ☑ RGB W1 Gobo: ☑ Aux: ☑ Zoom
51	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**JB Varyscan DM17** JB Varyscan DMX17 17	Intensity: ☑ Pan: ☑ Tilt: ☑ Colour: ☑ RGB W1 Gobo: ☑ Aux: ☑ Zoom
52	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**Lampo Sintesi** Lampo Sintesi 6	Intensity: ☑ Pan: ☑ Tilt: ☑ Colour: ☑ W1 Gobo: ☑ Aux: ☑ Iris
53	Abbreviation: Manufacturer: Lamp:	**Lampo Colum400RG** Lampo Columbus MSR 400RG	Intensity: ☑ Pan: ☑ Tilt: ☑

	Number of Channels:	7	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ G Rotate

54	Abbreviation:	**Lampo Gemini**	Intensity:	☒
	Manufacturer:	Lampo	Pan:	☑
	Lamp:	Gemini	Tilt:	☑
	Number of Channels:	5	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒
55	Abbreviation:	**LT Capapillar**	Intensity:	☑
	Manufacturer:	Lighting Technology	Pan:	☑ Nod
	Lamp:	Capapillar	Tilt:	☑ Wiggle
	Number of Channels:	3	Colour:	☒
	Notes:		Gobo:	☒
			Aux:	☒
56	Abbreviation:	**Litebeam Swing 2**	Intensity:	☑
	Manufacturer:	Litebeam	Pan:	☑
	Lamp:	Swing II	Tilt:	☑
	Number of Channels:	12	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ G2
57	Abbreviation:	**Mad Colour 211**	Intensity:	☒
	Manufacturer:	MAD Lighting	Pan:	☒
	Lamp:	Colour 211	Tilt:	☒
	Number of Channels:	2	Colour:	☑ W1
	Notes:	*	Gobo:	☑
			Aux:	☒
58	Abbreviation:	**Mad Scan 411**	Intensity:	☒
	Manufacturer:	MAD Lighting	Pan:	☑
	Lamp:	Mad Scan 411	Tilt:	☑
	Number of Channels:	4	Colour:	☑ W1
	Notes:	*	Gobo:	☑
			Aux:	☒
59	Abbreviation:	**Mad Scan 611**	Intensity:	☑
	Manufacturer:	MAD Lighting	Pan:	☑
	Lamp:	Mad Scan 611	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Strobe
60	Abbreviation:	**Martin MAC500 1**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	MAC500	Tilt:	☑
	Number of Channels:	12	Colour:	☑ W1 W2
	Notes:	Added V4.2	Gobo:	☑
		Set personality to Mode 1	Aux:	☑ Frost
61	Abbreviation:	**Ma MAC600/1200 1**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	MAC600 MAC1200	Tilt:	☑

	Number of Channels:	10	Colour:	☑ CMY W1
	Notes:	Added V4.2	Gobo:	☑
		Set personality to Mode 1	Aux:	☑ Frost

62	Abbreviation:	**Ma MAC600/1200 2**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	MAC600 MAC1200	Tilt:	☑
	Number of Channels:	12	Colour:	☑ CMY W1
	Notes:	Added V4.2	Gobo:	☑
		Set personality to Mode 2	Aux:	☑ Frost
63	Abbreviation:	**Ma MAC600/1200 3**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	MAC600 MAC1200	Tilt:	☑
	Number of Channels:	12	Colour:	☑ CMY W1
	Notes:	Added V4.2	Gobo:	☑
		Set personality to Mode 3	Aux:	☑ Frost
64	Abbreviation:	**Ma MAC600/1200 4**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	MAC600 MAC1200	Tilt:	☑
	Number of Channels:	12	Colour:	☑ CMY W1
	Notes:	Added V4.2	Gobo:	☑
		Set personality to Mode 4	Aux:	☑ Frost
65	Abbreviation:	**Martin PAL1200 1**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200	Tilt:	☑
	Number of Channels:	22	Colour:	☑ CMY
	Notes:	Set personality to Mode 1	Gobo:	W1
			Aux:	☑
				☑ Zoom
66	Abbreviation:	**Martin PAL1200 2**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200	Tilt:	☑
	Number of Channels:	24	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 2	Gobo:	☑
			Aux:	☑ Zoom
67	Abbreviation:	**Martin PAL1200 3**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200	Tilt:	☑
	Number of Channels:	24	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 3	Gobo:	☑
			Aux:	☑ Zoom
68	Abbreviation:	**Martin PAL1200 4**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200	Tilt:	☑
	Number of Channels:	26	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 4	Gobo:	☑
			Aux:	☑ Zoom
69	Abbreviation:	**Martin PAL1200E1**	Intensity:	☑

	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200E	Tilt:	☑
	Number of Channels:	16	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 1	Gobo:	☑
			Aux:	☑ Zoom

70	Abbreviation:	**Martin PAL1200E2**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200E	Tilt:	☑
	Number of Channels:	18	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 2	Gobo:	☑
			Aux:	☑ Zoom
71	Abbreviation:	**Martin PAL1200E3**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200E	Tilt:	☑
	Number of Channels:	18	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 3	Gobo:	☑
			Aux:	☑ Zoom
72	Abbreviation:	**Martin PAL1200E4**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	PAL1200E	Tilt:	☑
	Number of Channels:	20	Colour:	☑ CMY W1
	Notes:	Set personality to Mode 4	Gobo:	☑
			Aux:	☑ Zoom
73	Abbreviation:	**Martin Robocolor 5**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☒
	Lamp:	Robocolor Pro 400	Tilt:	☒
	Number of Channels:	5	Colour:	☑
	Notes:	Set personality to standard	Gobo:	☑
			Aux:	☑
74	Abbreviation:	**Martin Robocolor 7**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☒
	Lamp:	Robocolor Pro 400	Tilt:	☒
	Number of Channels:	7	Colour:	☑ W1 W2
	Notes:	Set personality to extended	Gobo:	☑
			Aux:	☒
75	Abbreviation:	**Mart Rscan 218**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan Pro 218	Tilt:	☑
	Number of Channels:	7	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒
76	Abbreviation:	**Mart Rscan 518**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan Pro 518	Tilt:	☑
	Number of Channels:	7	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒
77	Abbreviation:	**Mart Rscan 805**	Intensity:	☑

	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan 805	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒

78	Abbreviation:	**Mart Rscan 812 5**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan 812	Tilt:	☑
	Number of Channels:	5	Colour:	☑ W1
	Notes:	Set personality to standard mode.	Gobo:	☑
			Aux:	☒
79	Abbreviation:	**Mart Rscan 812 7**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan 812	Tilt:	☑
	Number of Channels:	7	Colour:	☑ W1
	Notes:	Set personality to extended mode.	Gobo:	☑
			Aux:	☒
80	Abbreviation:	**Mart Rscan 1020**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan 1020	Tilt:	☑
	Number of Channels:	12	Colour:	☑ W1 W2
	Notes:		Gobo:	☑
			Aux:	☑ G2
81	Abbreviation:	**Mart Rscan 1220C**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan 1220 CMYR	Tilt:	☑
	Number of Channels:	15	Colour:	☑ CMY W1
	Notes:		Gobo:	☑
			Aux:	☑ G Rotate
82	Abbreviation:	**Mart Rscan 1220X**	Intensity:	☑
	Manufacturer:	Martin	Pan:	☑
	Lamp:	Roboscan 1220 XR	Tilt:	☑
	Number of Channels:	11	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ G Rotate
83	Abbreviation:	**PanCom ColFader**	Intensity:	☒
	Manufacturer:	PanCommand	Pan:	☒
	Lamp:	ColorFader	Tilt:	☒
	Number of Channels:	3	Colour:	☑ RGB
	Notes:		Gobo:	☒
			Aux:	☒
84	Abbreviation:	**Sagitter Inf Club**	Intensity:	☑
	Manufacturer:	Sagitter	Pan:	☑
	Lamp:	Infinity Club 1200	Tilt:	☑
	Number of Channels:	12	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Iris

85	Abbreviation:	**Sagitter Inf Live**	Intensity:	☑
	Manufacturer:	Sagitter	Pan:	☑
	Lamp:	Infinity Live 1200	Tilt:	☑
	Number of Channels:	20	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Prism

86	Abbreviation:	**Sag MultiStep Zm**	Intensity:	☑
	Manufacturer:	Sagitter	Pan:	☑
	Lamp:	Infinity Multistep Zoom	Tilt:	☑
	Number of Channels:	14	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Effects
87	Abbreviation:	**Sagitter Prince**	Intensity:	☑
	Manufacturer:	Sagitter	Pan:	☑
	Lamp:	Prince	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Strobe
88	Abbreviation:	**Sag Super Prince**	Intensity:	☑
	Manufacturer:	Sagitter	Pan:	☑
	Lamp:	Super Prince	Tilt:	☑
	Number of Channels:	10	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Effects
89	Abbreviation:	**Sag Mask Col Zm**	Intensity:	☑
	Manufacturer:	Sagitter	Pan:	☑
	Lamp:	Mask Colour Zoom	Tilt:	☑
	Number of Channels:	10	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑ Zoom
90	Abbreviation:	**Sajem Copernik**	Intensity:	☒
	Manufacturer:	Sajem	Pan:	☒
	Lamp:	Copernik	Tilt:	☒
	Number of Channels:	5	Colour:	☑ RGBY
	Notes:		Gobo:	☒
			Aux:	☒
91	Abbreviation:	**SGM Galileo**	Intensity:	☑
	Manufacturer:	SGM	Pan:	☑
	Lamp:	Galileo	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑
92	Abbreviation:	**Space Can Ireos**	Intensity:	☑
	Manufacturer:	Space Cannon	Pan:	☑
	Lamp:	Ireos	Tilt:	☑
	Number of Channels:	8	Colour:	☑ W1
	Notes:		Gobo:	☑

			Aux:	☑ Zoom
93	Abbreviation:	**Starlite Mk5**	Intensity:	☑
	Manufacturer:	Starlite	Pan:	☑
	Lamp:	MK5	Tilt:	☑
	Number of Channels:	19	Colour:	☑ RGB1
	Notes:		Gobo:	☑
			Aux:	☑ Iris

94	Abbreviation:	**Strong Multi1200**	Intensity:	☑
	Manufacturer:	Strong	Pan:	☑
	Lamp:	Multicolour 1200	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☑
95	Abbreviation:	**Strong Scan 150**	Intensity:	☒
	Manufacturer:	Strong	Pan:	☑
	Lamp:	Scan 150	Tilt:	☑
	Number of Channels:	4	Colour:	☑ W1
	Notes:		Gobo:	☑
			Aux:	☒
96	Abbreviation:	**StudioD Minibeam**	Intensity:	☑
	Manufacturer:	Studio Due	Pan:	☑
	Lamp:	Mini Beam	Tilt:	☑
	Number of Channels:	6	Colour:	☑ W1
	Notes:	*	Gobo:	☑
			Aux:	☒
97	Abbreviation:	**StudioD Stratos**	Intensity:	☑
	Manufacturer:	Studio Due	Pan:	☑
	Lamp:	Stratos	Tilt:	☑
	Number of Channels:	12	Colour:	☑ W1
	Notes:	*	Gobo:	☑
			Aux:	☑ Iris
98	Abbreviation:	**StudioD StratCol**	Intensity:	☑
	Manufacturer:	Studio Due	Pan:	☑
	Lamp:	Stratos Color	Tilt:	☑
	Number of Channels:	14	Colour:	☑ MCY W1
	Notes:	*	Gobo:	☑
			Aux:	☑ Frost
99	Abbreviation:	**Summa HTI**	Intensity:	☑
	Manufacturer:	Suma	Pan:	☑
	Lamp:	HTI	Tilt:	☑
	Number of Channels:	9	Colour:	☑ W1 W2
	Notes:	*	Gobo:	☑
			Aux:	☑ Zoom
100	Abbreviation:	**Synchrolite A**	Intensity:	☑
	Manufacturer:	Synchrolite	Pan:	☑
	Lamp:	Synchrolite	Tilt:	☑
	Number of Channels:	8	Colour:	☑ W1

	Notes:	Set personality to Mode A *	Gobo: Aux:	☑ ☑ Iris
101	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**TAS MiniUltra200** TAS Mini Ultrascan 200 6 *	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☑ ☑ ☑ ☑ W1 ☑ ☒

102	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**TAS Ultrasca 700** TAS Ultrascan 700 8	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☑ ☑ ☑ ☑ W1 ☑ ☑ Iris
103	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**TAS Symbol 700** TAS Symbol 700 7	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☑ ☑ ☑ ☑ W1 ☑ ☑ Iris
104	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**Vari*Lite VL1** Vari*Lite VL1 6	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☑ ☑ ☑ ☑ HS ☑ ☒
105	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**VL5 Mod1 (8/8)** Vari*Lite VL5 VL5A VL5B 8 Mode 1	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☒ ☑ ☑ ☑ BAM ☑ ☑ Diffuser
106	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**VL5 Mod3 (16/10)** Vari*Lite VL5 VL5A VL5B 10 Mode 3	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☒ ☑ ☑ ☑ BAM ☑ ☑ Diffuser
107	Abbreviation: Manufacturer: Lamp: Number of Channels: Notes:	**VL5 Mod4 (16/13)** Vari*Lite VL5 VL5A VL5B 13 Mode 4	Intensity: Pan: Tilt: Colour: Gobo: Aux:	☒ ☑ ☑ ☑ BAM ☑ ☑ Diffuser
108	Abbreviation: Manufacturer: Lamp:	**VL5 Mod5 (8/7)** Vari*Lite VL5 VL5A VL5B	Intensity: Pan: Tilt:	☒ ☑ ☑

	Number of Channels:	7	Colour: ☑ BAM
	Notes:	Mode 5	Gobo: ☑
			Aux: ☑ Diffuser
109	Abbreviation:	**VL5 Mod6 (16/9)**	Intensity: ☒
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VL5 VL5A VL5B	Tilt: ☑
	Number of Channels:	9	Colour: ☑ BAM
	Notes:	Mode 6	Gobo: ☑
			Aux: ☑ Diffuser

110	Abbreviation:	**VL6 Mod1 (8/8)**	Intensity: ☑
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VL6	Tilt: ☑
	Number of Channels:	8	Colour: ☑ W1
	Notes:	Mode 1	Gobo: ☑
			Aux: ☑ Lens
111	Abbreviation:	**VL6 Mod3 (16/10)**	Intensity: ☑
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VL6	Tilt: ☑
	Number of Channels:	10	Colour: ☑ W1
	Notes:	Mode 3	Gobo: ☑
			Aux: ☑ Lens
112	Abbreviation:	**VL6 Mod4 (16/13)**	Intensity: ☑
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VL6	Tilt: ☑
	Number of Channels:	13	Colour: ☑ W1
	Notes:	Mode 4	Gobo: ☑
			Aux: ☑ Lens
113	Abbreviation:	**VL6 Mod5 (8/7)**	Intensity: ☑
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VL6	Tilt: ☑
	Number of Channels:	7	Colour: ☑ W1
	Notes:	Mode 5	Gobo: ☑
			Aux: ☑ Lens
114	Abbreviation:	**VL6 Mod6 (16/9)**	Intensity: ☑
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VL6	Tilt: ☑
	Number of Channels:	9	Colour: ☑ W1
	Notes:	Mode 6	Gobo: ☑
			Aux: ☑ Lens
115	Abbreviation:	**Vari*Lite VLM 7**	Intensity: ☒
	Manufacturer:	Vari*Lite	Pan: ☑
	Lamp:	VLM	Tilt: ☑
	Number of Channels:	7	Colour: ☒
	Notes:	Set personality to 16 bit, 7 channel	Gobo: ☒
			Aux: ☒
116	Abbreviation:	**Vari*Lite VLM 9**	Intensity: ☒
	Manufacturer:	Vari*Lite	Pan: ☑

	Lamp:	VLM	Tilt:	☑
	Number of Channels:	9	Colour:	☒
	Notes:	Set personality to 16 bit, 9 channel	Gobo:	☒
			Aux:	☒

* Lamps available in previous releases only. Contact Artistic Licence for details.

Artistic Licence Bug Report Form

If you discover an error in the Lamp Library or would like to request a new entry, please return details to us on this form. Thank you

Please also forward any additional manufacturer data, such as channel allocation tables.

-

Product: Micro-Scope IIa	Version No.
Serial No.	Date Purchased:

Supplier:

Name:	
Company Name:	
Address:	
Post/Zip Code:	Phone No.

Lamp Entry:
Description of Problem:
Please detail below the channel level data required to produce a centred white beam without gobo:

Chan 1	Chan 9	Chan 17
Chan 2	Chan 10	Chan 18
Chan 3	Chan 11	Chan 19
Chan 4	Chan 12	Chan 20
Chan 5	Chan 13	Chan 21
Chan 6	Chan 14	Chan 22
Chan 7	Chan 15	Chan 23
Chan 8	Chan 16	Chan 24

Please return to: Artistic Licence (UK) Ltd.
B1 & B3 Livingstone Court, Peel Road, Harrow, Middlesex HA3 7QT. England.

Tel/Fax: +44 (0) 181 863 4515

Appendix B - Conversion Table

Dec	Hex	Binary	Dec	Hex	Binary	Dec	Hex	Binary
0	00	0000 0000	32	20	0010 0000	64	40	0100 0000
1	01	0000 0001	33	21	0010 0001	65	41	0100 0001
2	02	0000 0010	34	22	0010 0010	66	42	0100 0010
3	03	0000 0011	35	23	0010 0011	67	43	0100 0011
4	04	0000 0100	36	24	0010 0100	68	44	0100 0100
5	05	0000 0101	37	25	0010 0101	69	45	0100 0101
6	06	0000 0110	38	26	0010 0110	70	46	0100 0110
7	07	0000 0111	39	27	0010 0111	71	47	0100 0111
8	08	0000 1000	40	28	0010 1000	72	48	0100 1000
9	09	0000 1001	41	29	0010 1001	73	49	0100 1001
10	0A	0000 1010	42	2A	0010 1010	74	4A	0100 1010
11	0B	0000 1011	43	2B	0010 1011	75	4B	0100 1011
12	0C	0000 1100	44	2C	0010 1100	76	4C	0100 1100
13	0D	0000 1101	45	2D	0010 1101	77	4D	0100 1101
14	0E	0000 1110	46	2E	0010 1110	78	4E	0100 1110
15	0F	0000 1111	47	2F	0010 1111	79	4F	0100 1111
16	10	0001 0000	48	30	0011 0000	80	50	0101 0000
17	11	0001 0001	49	31	0011 0001	81	51	0101 0001
18	12	0001 0010	50	32	0011 0010	82	52	0101 0010
19	13	0001 0011	51	33	0011 0011	83	53	0101 0011
20	14	0001 0100	52	34	0011 0100	84	54	0101 0100
21	15	0001 0101	53	35	0011 0101	85	55	0101 0101
22	16	0001 0110	54	36	0011 0110	86	56	0101 0110
23	17	0001 0111	55	37	0011 0111	87	57	0101 0111
24	18	0001 1000	56	38	0011 1000	88	58	0101 1000
25	19	0001 1001	57	39	0011 1001	89	59	0101 1001
26	1A	0001 1010	58	3A	0011 1010	90	5A	0101 1010
27	1B	0001 1011	59	3B	0011 1011	91	5B	0101 1011
28	1C	0001 1100	60	3C	0011 1100	92	5C	0101 1100
29	1D	0001 1101	61	3D	0011 1101	93	5D	0101 1101
30	1E	0001 1110	62	3E	0011 1110	94	5E	0101 1110
31	1F	0001 1111	63	3F	0011 1111	95	5F	0101 1111

Appendix B - Conversion Table

Dec	Hex	Binary	Dec	Hex	Binary	Dec	Hex	Binary
96	60	0110 0000	128	80	1000 0000	160	A0	1010 0000
97	61	0110 0001	129	81	1000 0001	161	A1	1010 0001
98	62	0110 0010	130	82	1000 0010	162	A2	1010 0010
99	63	0110 0011	131	83	1000 0011	163	A3	1010 0011
100	64	0110 0100	132	84	1000 0100	164	A4	1010 0100
101	65	0110 0101	133	85	1000 0101	165	A5	1010 0101
102	66	0110 0110	134	86	1000 0110	166	A6	1010 0110
103	67	0110 0111	135	87	1000 0111	167	A7	1010 0111
104	68	0110 1000	136	88	1000 1000	168	A8	1010 1000
105	69	0110 1001	137	89	1000 1001	169	A9	1010 1001
106	6A	0110 1010	138	8A	1000 1010	170	AA	1010 1010
107	6B	0110 1011	139	8B	1000 1011	171	AB	1010 1011
108	6C	0110 1100	140	8C	1000 1100	172	AC	1010 1100
109	6D	0110 1101	141	8D	1000 1101	173	AD	1010 1101
110	6E	0110 1110	142	8E	1000 1110	174	AE	1010 1110
111	6F	0110 1111	143	8F	1000 1111	175	AF	1010 1111
112	70	0111 0000	144	90	1001 0000	176	B0	1011 0000
113	71	0111 0001	145	91	1001 0001	177	B1	1011 0001
114	72	0111 0010	146	92	1001 0010	178	B2	1011 0010
115	73	0111 0011	147	93	1001 0011	179	B3	1011 0011
116	74	0111 0100	148	94	1001 0100	180	B4	1011 0100
117	75	0111 0101	149	95	1001 0101	181	B5	1011 0101
118	76	0111 0110	150	96	1001 0110	182	B6	1011 0110
118	77	0111 0111	151	97	1001 0111	183	B7	1011 0111
119	78	0111 1000	152	98	1001 1000	184	B8	1011 1000
120	79	0111 1001	153	99	1001 1001	185	B9	1011 1001
121	7A	0111 1010	154	9A	1001 1010	186	BA	1011 1010
122	7B	0111 1011	155	9B	1001 1011	187	BB	1011 1011
123	7C	0111 1100	156	9C	1001 1100	188	BC	1011 1100
124	7D	0111 1101	157	9D	1001 1101	189	BD	1011 1101
125	7E	0111 1110	158	9E	1001 1110	190	BE	1011 1110
126	7F	0111 1111	159	9F	1001 1111	191	BF	1011 1111

Appendix B - Conversion Table

Dec	Hex	Binary	Dec	Hex	Binary
192	60	0110 0000	224	E0	1110 0000
193	61	0110 0001	225	E1	1110 0001
194	62	0110 0010	226	E2	1110 0010
195	63	0110 0011	227	E3	1110 0011
196	64	0110 0100	228	E4	1110 0100
197	65	0110 0101	229	E5	1110 0101
198	66	0110 0110	230	E6	1110 0110
199	67	0110 0111	231	E7	1110 0111
200	68	0110 1000	232	E8	1110 1000
201	69	0110 1001	233	E9	1110 1001
202	6A	0110 1010	234	EA	1110 1010
203	6B	0110 1011	235	EB	1110 1011
204	6C	0110 1100	236	EC	1110 1100
205	6D	0110 1101	237	ED	1110 1101
206	6E	0110 1110	238	EE	1110 1110
207	6F	0110 1111	239	EF	1110 1111
208	70	0111 0000	240	F0	1111 0000
209	71	0111 0001	241	F1	1111 0001
210	72	0111 0010	242	F2	1111 0010
211	73	0111 0011	243	F3	1111 0011
212	74	0111 0100	244	F4	1111 0100
213	75	0111 0101	245	F5	1111 0101
214	76	0111 0110	246	F6	1111 0110
215	77	0111 0111	247	F7	1111 0111
216	78	0111 1000	248	F8	1111 1000
217	79	0111 1001	249	F9	1111 1001
218	7A	0111 1010	250	FA	1111 1010
219	7B	0111 1011	251	FB	1111 1011
220	7C	0111 1100	252	FC	1111 1100
221	7D	0111 1101	253	FD	1111 1101
222	7E	0111 1110	254	FE	1111 1110
223	7F	0111 1111	255	FF	1111 1111

Artistic Licence

B1 & B3 Livingstone Court
Peel Road
Harrow
Middlesex
England
HA3 7QT
Tel: +44 (0)181 863 4515