

Martin 2308 Controller user's guide

version 2.1/3.1

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Preface

The Martin 2308 controller is an extremely powerful and versatile computer controlled programming tool:

To ensure maximum benefit from the controller please take the time to read this manual before use.

For your convenience a glossary as well as an index can be found at the back of this manual. If Words present in the glossary are printed in *italics*.

Before making any connections please make sure that you received the following items with your 2308 controller :

- Martin 2308 Controller.
- 10 metre cable with XLR male-female plugs.
- *Terminating-plug*.

Introduction

The Martin 2308 controller is a tool for creating countless numbers of different *light-set-ups* and provides support of the following products from Martin Professional :

2308 Controller with software version 2.1	2308 Controller with software version 3.1
Roboscan 804/805 Roboscan 812 Roboscan 1004/1005 Roboscan 1016 Roboscan Pro 218	Roboscan 804/805 Roboscan 812 Roboscan 1004/1005 Roboscan Pro 218 Roboscan Pro 518
Robocolor Robocolor II Robocolor MSD 200	Robocolor II Robocolor Pro 400
Robozap Robozap MSR 1200	
Centrepiece	
Martin 516, 16 channel 0-10 V dimmer controller	

These products will be referred to as *Units*.

For more information about the supported products, consult Appendix B - F.

All the above-mentioned units can be controlled and programmed individually.

The controller itself has the following memory capabilities:

Up to 99 different *scenes* in a *sequence*.

Up to 99 different *sequences*.

Up to 255 *sequences* in a *show*.

Up to 255 *loops* per *sequence* in a *show*.

Up to 10 different *shows*.

Note: It is not possible to have both 10 *shows* with 255 *sequences* and 99 *sequences* with 99 *scenes*. The maximum number of available programable scenes will be displayed when switching on the controller, which is 611 scenes for 2308 controller ver. 2.1/3.1. Previous versions with less memory can be upgraded, thus allowing 611 scenes to be programmed.

The Martin 2308 controller has four different *operational modes* and entering one of these modes enables access to the *operating functions* available in that selected *operational mode*.

Keys

The keys are used to operate the Martin 2308 controller. All keys referred to are presented in square brackets. For example:

[edit seq] refers to the key labelled "edit seq".

LEDs

Some keys have a related Light Emitting Diode called a *LED* and the status of these LED's is printed in normal brackets in this manual. When a LED is alight it indicates that the key in question is active.

A flashing LED means that the function related to that particular key is *frozen*. Later in the manual we will explain which of the keys can be used to select this *operating function*.

Display

The front of the controller includes a 4 digit display. The display indicates various messages such as: seq no., *scene* no., error messages, status etc. This information will be referred to in curly brackets. For example:

{FAC } means that the controller is *resetting* to *factory setting*.

Connections

Setting the mains voltage switch

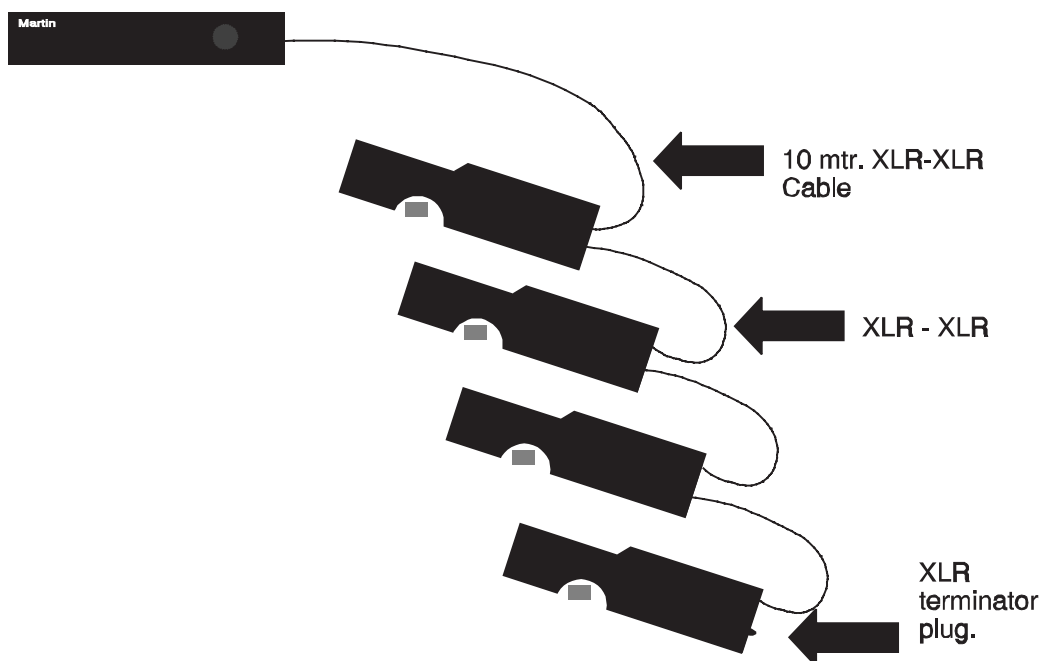
Before connecting the controller to the mains, ensure that the voltage selector switch on the back of the controller is set for your local power supply.

Fitting a mains plug

If necessary connect a three pin plug to the mains cable using;

- the BROWN wire for the LIVE connection,
- the BLUE wire for the NEUTRAL connection and
- the GREEN/YELLOW wire for the EARTH (Ground) connection.

Linking the Units to the 2308 Controller



All data (instructions) goes from the data **output** of the controller (3 pin female XLR), via a standard balanced microphone cable, to the data **input** (3 pin male XLR) on the first Unit to be on the *link*. This Unit has also a data **output** (3 pin female XLR) which allows you to continue the serial data link to the next Unit, etc. (daisy-chain).

The following instructions describe how to make a proper serial data link:

- 1 Connect the output of the 2308 Controller to the data input of the first Unit, using the XLR-XLR cable that came with the controller. Additional cables can be supplied by your Martin dealer. Alternatively, you can use standard balanced microphone XLR-XLR cables.
- 2 Connect the output of the first Unit to the input of the next, again using a XLR-XLR cable. Continue this way until all Units are connected. The order, in which you connect the Units, is not important and has no effect on programming as far as the controller is concerned - use an order which gives the easiest and shortest cable routing.
- 3 Finally, insert the XLR *terminating-plug*, that came with the controller, into the free output socket of the last Unit on the *link*. It's important to insert this plug to ensure correct and error-free *communication* between the Martin 2308 controller and the Units.

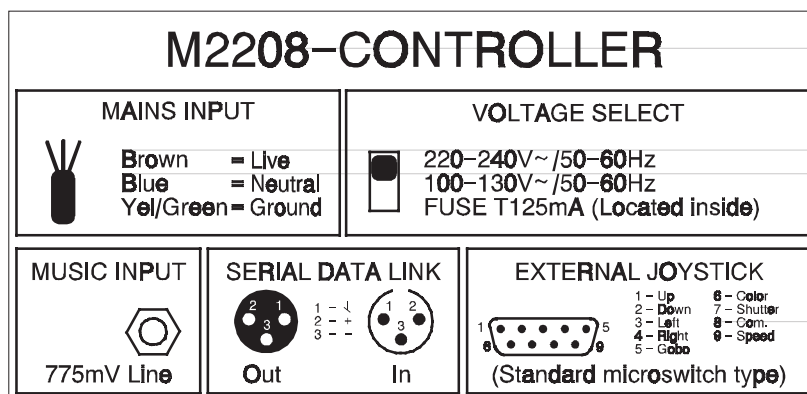
Addressing the Units

Please refer to Appendix A when setting the address on each individual Unit on the *link* by setting the *DIP switch*. The address that is given to the Unit decides which *channel* to select on the controller in order to program that particular Unit. In order to control each unit individually each must have its own individual address.

Connecting an audio source

If you wish to trigger some of your sequences from the beat of the music then connect your audio source to the 6.35mm (1/4 inch) mono jack-socket on the rear of the controller. The audio source you connect, should provide a line level signal (775mV RMS).

Rear panel connections



Link Configuration

This feature is used to make the product *configuration*, i.e. to configure which type of Units you want to control on each of the eight controller channels. Please note that using this feature *resets* the controller to the factory-default settings of *sequence number*, *show number* and *trig rate* (please see the section named "Set Up". It may also be used to rescue a controller whose information has been damaged in non vital areas (where the set-up information is stored).

Please follow this procedure in order to make the *Configuration*:

- 1 Switch off the Martin 2308 controller, and then back on again.
- 2 After {robo} stops flashing, press [set up].
- 3 Channel (1) turns on and the display shows which type of Unit has been assigned to this channel by displaying one of the following:

{1004}	Roboscan 1004/1005/804/805
{805 }	Do not use. Please note that 804/805 Units should be configured as 1004s
{1016}	Roboscan 1016
{COL }	Robocolor
{ZAP }	Robozap
{0-10}	Martin 516, 16 channel 0-10 V Dimmer Controller
{1408}	Roboscan 1408
{ZAPII}	Robozap MSR 1200
{P218}	Roboscan Pro 218
{C200}	Robocolor MSD 200
{COL2}	Robocolor II
{CNTR}	Centrepiece
{812 }	Roboscan 812
{C400}	Robocolor Pro 400
{518 }	Roboscan Pro 518

NOTE Some of the products are supported by version 2.1 only and some only by version 3.1. Please refer to table in the "Introduction".

- 4 You may now change the Unit type for this channel by using the joystick up or down, or, [↑] or [↓] to browse through the supported Units.
- 5 Press [enter] to assign the Unit currently shown in the display. You will then be able to configure channel 2. Repeat this process, selecting Unit and press [enter] until all 8 channels are set up.
- 6 After pressing [enter] for channel 8 the display will show {FAC }, at which point, the controller will run a factory setting and then continue normal operation.

NOTE If you already have sequences programmed and you change the type of Unit assigned to a channel your programs are likely to be unusable and you will need to re-program.

Joystick Control

The following applies when configuring a channel for Roboscans only.

When configuring a channel to control a Roboscan you can choose between standard direct joystick control and joystick acceleration mode (ideal for micro-stepping Roboscans like Pro 218, Pro 518 etc.). The difference between the two modes is that extremely small and precise movements can be made in acceleration mode while it is still possible to make bigger movements by holding the joystick in position. The initial movement is very slow to enable fine adjustment and then the motor speeds up.

To configure a channel for acceleration mode first select a Roboscan when configuring a channel. You can toggle acceleration mode by using left/right joystick positions. When in acceleration mode there is a dot shown on the display eg. 10.04 or 10.16.

Basic operation

This section explains how to switch on the Martin 2308 controller, how to use the keys, and how to select *operation mode*. It also helps you to understand the way the controller operates.

Switching on

- 1 First, switch on the Martin 2308 controller by pressing the [on] key, located in the bottom left hand corner of the front panel.

Because an error-free memory is necessary for the correct functioning of the Martin 2308 controller, various factory-set tests are performed before you will be able to work with it.

Initially {robo} is flashing in the display. Then the version number of the *software* is displayed as {rX.XX} where X.XX is the version number. The version number will be displayed until the memory tests are completed. These tests will last about five seconds. As soon as the display stops flashing and the version number is displayed you may perform an *initialization* or a *factory setting* as explained in the **Special functions** section of this manual.

If for some reason the memory tests fail, an error message will be displayed. Please consult the **error messages** section of this manual for possible ways to continue operation. If the remaining tests are satisfactory the controller will transmit a *reset* signal to all Units connected to the link.

If you need to (re)configure the controller for a specific purpose please refer to the section **Factory setting** in the **Special functions** section of this manual.

- 2 Then, switch on the Units and wait for approximately 1 minute until they have finished their reset. It is important that you switch on the controller first to ensure that units with protocol auto-detect function (Martin units that accept both Martin RS-485 and DMX 512 data) select the correct protocol.

The front panel

The Martin 2308 controller front panel is divided into four sections:

Channel, Program, Function and Control.

By pressing a key briefly a different mode of the controller is selected. The keys [↑] and [↓] repeat if pressed down for more than half a second. The [trig] key and the joystick also repeat when activated for longer than half a second. The repetition rate increases the longer you operate the control.

Some special functions such as deleting a program require 2 keys to be pressed simultaneously. The *initialization* procedure requires 3 keys to be pressed simultaneously.

Channel-section

The **channel** section includes eight keys labelled [1] - [8] each equipped with an LED. The numbers correspond to the address settings of the Units. Thus, pressing [1] selects the Unit that has 1 as its address setting.

Program-section

The **program** section is used to select different *operation modes* and the *operating functions* related to these modes.

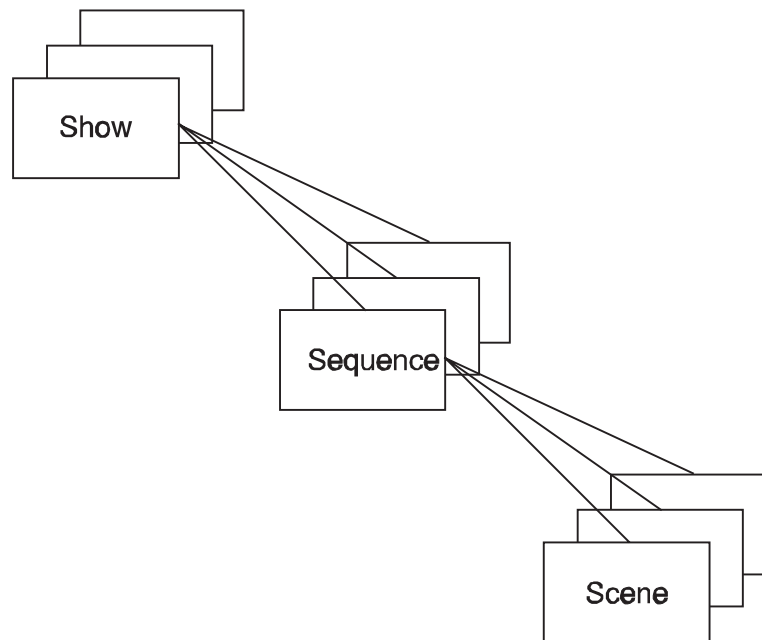
Function-section

The **function** section is primarily for use in the *run sequence and run show modes*.

Control-section

The **control** section includes several keys and a joystick. These functions will be explained later. Consult the appendices B - F for further information.

Program structure



The controller is designed to run both *sequences* and *shows* with *shows* as the most advanced function.

A *show* refers to one or more related *sequences*.

A *sequence* refers to one or more related *scenes*.

A *scene* refers to an individual setting of some or all of the 8 Units.

In other words:

A *show* contains information about *sequences* that contains information about *scenes* which in turn contains information about the setting of each of the Units.

Creating sequences and shows

Using the *sequence* editor you may create *sequences* that match the physical dimensions of the room you are lighting. Later, by using the show editor you may link the *sequences* to make *shows* which can last for hours without the need of an operator. You can edit your *sequences* and *shows* at any time.

Edit sequence

- 1 Press [edit seq]. The status of the display now changes to {01 }, where 01 indicates sequence number 01.
- 2 Press [↑] or [↓], or, use the joystick to change the *sequence number*. Confirm by pressing [enter]. One of two things will happen:
 - 3a If you are about to program a new *sequence* you will be placed in step one ready to program *scene* one. The display shows {*sequence number*} and {01} *scene* one in the *sequence*, or
 - 3b if the *sequence* already exists the display shows {Pr }. Press [enter] and the *sequence* is ready to be edited. You are now ready to edit the first *scene*.

Depending on which Units are configured to which channels, (1) - (8) turn on. This is done automatically by the controller, which scans all the channels and turns on the LEDs of the channels which are configured to Units of the same type as the Unit on channel 1.

- 4 Select the Unit(s) to be programmed by pressing [1] - [8]. (1) to (8) will be lit accordingly. If a Unit different from the one currently in use is selected, the LED for that channel is turned on and all others turned off. Use the function keys described in the Appendices B to F to program the Unit now in use.
- 5 When you are satisfied press [enter] to go to the next *scene*. The right part of the display will show the new *scene* number. Note that the last *scene* in a new *sequence* is automatically saved by the controller and you should not press [enter] in order to store this. Press [enter] only if you want to add another *scene* to the *sequence*.
- 6 You may browse through the *scenes* by pressing [↑] or [↓] to make some changes in the positions or effects if necessary. If any changes to a *scene* are made - **press [enter] to save it temporarily.**
- 7 When you are satisfied with the whole *sequence*, save it permanently in memory by pressing [edit seq]. The display will show {SAXX}, where XX is the sequence number, until the *sequence* is saved. If you still have *scenes* to program, continue as described and save again. **It's not possible to increase or decrease the number of scenes in a sequence after you have left edit-sequence mode.** The limit of *scenes* in any *sequence* is 99. If you press [enter] in *scene* 99 will be placed in *scene* 01.

NOTE Do not turn off the controller whilst saving or deleting *sequences* as the information in a *sequence* could be lost - not fatal but annoying as the ruined *scene* in the *sequence* has to be found, edited and saved again.

Delete sequence

- 1 To delete a *sequence*, enter **edit-sequence** mode, by pressing [edit seq], as if you were about to edit an existing *sequence*.
- 2 Find the *sequence* you wish to delete by pressing [\uparrow] or [\downarrow], or, use the joystick.
- 3 Press [enter] to select the sequence for deletion (or editing) and the display will show {Pr }.
- 4 If you wish to delete the *sequence* press [edit seq] again. The display will now flash {dE }.
- 5 You may cancel by pressing [enter] or confirm by pressing [\uparrow] and [\downarrow] at the same time. The display shows {dE } until the *sequence* is deleted. You may now select a new *sequence* to be edited or deleted.

NOTE Sequences that are deleted but still referred to in shows will be replaced by the sequence with the lowest sequence number during execution in Run Show.

Edit trig-rate

As some *sequences* look better at a higher *trig rate* than others, you may program the rate by pressing [auto] and tapping [trig] at the preferred rythem. This *trig rate* may be used when the *sequence* is executed in **run-sequence** or **run-show** mode, and is set to the period of time between that last two pushes of the trig button. If you do not set the *trig rate* now, a default *trig rate* will be used. You may change this default setting by entering and editing the *sequence* and setting a new *trig rate*.

Edit sequence hints

When you are programming the Units you will discover that only the keys you press have affect on the functions of the Units selected. For example:

If you press [color] and then use the joystick while Unit number 1, 2 and 3 are selected all these Units will change to the same color and all other remaining functions such as *pan* and *tilt* will be unchanged.

Be aware of which Unit(s) you have selected when activating a function as only those, but all of these selected Units will be affected.

The show editor

The show editor gives you the possibility of designing *shows* containing your own *sequences* or pre-programmed *sequences*. You can choose the order, the number of loops and even put in blackouts lasting for a pre-arranged period. For example:

Use a *sequence* containing one blackout *scene* and a *trig rate* of 1 minute. Let it loop 60 times in the *show* and the result will be a blackout lasting one hour.

Edit show - Creating a New Show

- 1 Press [edit show] to enter the edit show mode. Please note that if no sequences are programmed you will be denied access to the show editor. The display shows {ShoX}, where X is a *show number* from 0 to 9. Default X is the first free number for your next *show*. If no shows are programmed, the default *show number* will be 0.
- 2 You may now press [↑] or [↓] to select a *show* to edit.
- 3 Press [enter] to confirm the selection. You are now ready to program your first show step.
- 4 The display now changes to display {SEX X }, where XX is the *sequence number*. The displayed *sequence* will be the first one present in memory.
- 5 To change the *sequence number* move the joystick up or down, thereby browsing through the *sequences* in memory. Press [enter] when you have found the *sequence* you want. The status of the display then changes to {L XXX } where XXX is a number from 1 to 255.
- 6 You will now have to decide how many times this *sequence* is to loop before the *sequence* in the next step of the show is to be executed. Increase / decrease the number of loops, by using the joystick and press [enter] when satisfied. The status of the display then changes to {Se--}.
- 7 Repeat step 5 and 6 above to add further steps to your show. If, however, no more *sequences* are to be added, press [edit show] and the *show* is saved. You may now either continue to edit the *show* or select another mode.

NOTE: You cannot exceed 255 steps in one show.

Edit show - Editing an existing Show

It is possible to replace sequences and the number of loops in existing shows, as well as inserting new steps or deleting existing ones.

Replacing a sequence and changing the number of loops

- 1 Enter the edit show mode and select the show you wish to edit, as described above. The display then shows {Pr }, indicating that a show is already programmed. You now have two options; either delete the show or edit it. To delete it see later in the manual.
- 2 Press [enter] to start editing the show. The display now changes to display {SEX X }, where XX is the *sequence number* of the first step in the show.
- 3 You can leave the sequence number unchanged by pressing [enter], or, change it by first moving the joystick up or down and then and pressing [enter] when satisfied.
- 4 The status of the display then changes to {L XXX }, indicating the number of loops. You

can leave the loop number unchanged by pressing [enter], or, change it by first moving the joystick up or down and then pressing [enter] when satisfied.

- 5 Either way, you automatically proceed to the next step of the show. Repeat step 3 and 4 above to edit the rest of the show.
- 6 Finally, press [edit show] to save the show.

Insert sequence in show

To insert an extra *sequence* between existing steps in a *show* follow the procedure described above. However, instead of selecting a new sequence, push the joystick up until the display shows {InS_} and then press [enter] to insert a new step before the step you were in. By default, the *sequence* that was programmed at this position is used again and you must scroll to another *sequence* with the joystick or your *show* will contain a duplicate step. Please note that you cannot insert a step if all 255 steps in the *show* are used.

Delete sequence from show

To delete an existing step in a *show* follow the procedure described above. However, instead of selecting a new sequence, push the joystick down until the display shows {dEI_} and then press [enter] to delete the step. You cannot delete a sequence if you have only 1 step in the *show* - use delete *show* instead.

Delete show

To delete a show, enter **edit-show** mode as you would if you were about to edit the same show by pressing [edit show] and selecting the required *show number* followed by [enter] so that the display reads {Pr.oX}, where X is the show number. If you want to delete the *show* press [edit show] so that {dEoX} starts flashing in the display. Press [↑] and [↓] at the same time to confirm that you wish to delete the show. The *show* is now deleted and you are ready to select a new *show*.

Set up

For your convenience the controller is capable of remembering actual settings for:

- Run-sequence or **run-show** mode.
 - *Show number* (when in **run-show** mode).
 - *Sequence number* (when in **run-sequence** mode).
 - Units to be moved in the *sequence*.
 - Units to be used as follow spots.
 - Units to be frozen.
 - Whether *music trig* source is on or off.
 - Whether *auto trig* source is on (frozen, normal or off).
 - *Autotrig-rate* (if frozen is on).
 - Whether *manual trig* source is on or off.
 - Music input *trig level* (Level 1 to 20).
- (The positions of the various function settings are not restored if the controller is turned off and then back on or if another mode of the controller is selected)

It is necessary to be in either **run-sequence** or **run-show** mode to program these functions. Choose the setting that you require, hold down the [set up] button for 2 to 3 seconds until the controller displays {SEUP}. Release the button and the setting is stored. The set-up is now saved and will be the default set up the next time the controller is switched on. Changing the Unit configuration on the 2308 Controller will "reset" all settings to the "factory default setting".

Running sequences and shows

Run sequence

To run a *sequence* press [run seq].

The controller will select this mode and will check of the set-ups (to be explained later), checking if the default *sequence number* is present. If the default *sequence* is found this *sequence* will be executed until a new one is selected. If the default *sequence* does not exist the controller, automatically, selects the *sequence* with the lowest number. If no sequences have been programmed this function will not be accessible.

To change the current *sequence* press [↑] or [↓] to see which *sequences* are present in memory. The *sequence* displayed will be executed when [enter] is pressed. Select any other mode by pressing [edit seq] [edit show] or [run show].

Run show

To run a *show* press [run show].

The default *show number*, if any, will automatically be selected.

The *show* will start with the first *sequence* contained in the *show*, executing this *sequence* as many times as the loop is set. It will then proceed to the next *sequence* if any. If the *show* contains information about a non-existent *sequence* - that is, one that may have been erased after the *show* was created - this sequence will automatically be replaced by the sequence with the lowest number during this operation. The *sequence* will, as before, be executed as many times as the loop setting indicates. After the last *sequence* in the *show* has been executed the *show* will automatically restart.

While a *show* is running a new *show* may be selected by pressing [↑] or [↓]. If confirmed by pressing [enter] the newly selected *show* will be executed.

If no *show* has been programmed pressing [run show] takes you to the **edit-show** mode.

Trig sources

To run a *sequence* or a *show* a signal is needed to tell the controller when to continue from one *scene* to the next. This signal is called a *trig source*.

There are three basic trig sources:

Manual trig, Auto trig and Music trig.

These functions are accessed by pressing [man], [auto] or [music], respectively. One, two or all *trig sources* may be selected at the same time. This will be explained in detail later in this section.

Manual trig

If *manual trig* is selected then - when tapping the button marked [trig] - the controller will step through each of the *scenes* in the selected *sequence*. If (manual) is on, tapping [trig] always overrides *auto-* and *music trig*.

Auto trig

The *auto trig* function has two modes of operation:

To select the first mode, press [auto] and (auto) will be continuously on. The *trig rate* with which a *sequence* has been programmed is used.

To select the second trig mode, press [auto] again and (auto) starts flashing. The *trig rate* is 'frozen' to the current rate and will use this rate for the following *sequences* and *shows* until [auto] is pressed again. It is possible to tap [trig] at a particular rate in both modes (two to three times are sufficient) and the controller will continue with this new *trig rate*. The rate is the period of time between 2 consecutive pushes of the trig button.

When setting the *autotrig rate* it can be a little difficult to hit the desired rate accurately. It is possible to fine-tune the *trig rate* by moving the joystick up to increase or down to decrease the rate. This is not possible when Units are being used as follow-spots or if (level) is on.

Setting the *autotrig rate* when (man) is on is not possible because tapping the [trig] button is used to override the *auto trig* function.

If only Manual Trig is selected, then pressing [auto] will automatically swap the mode to Auto-Trig and de-select [man] turning (man) off.

Music trig

The *music trig* mode requires a line level signal (775mV RMS) to be connected to the 6mm jack-socket in the rear of the controller.

The input signal sensitivity may be adjusted by pressing [level] and then [↑] to increase or [↓] to decrease the sensitivity level. The new level setting takes effect immediately. The joystick up - down may also be used to select level. You may select levels from 1 to 20. Press [level] again to leave the level setting function. You have to leave level setting mode to return to normal operation.

If (auto) is enabled while (music) is on, a special function is obtained:

If the music signal stops for 2-3 seconds the *autotrig rate* will take over until a new music signal is detected.

Follow-spots

To use one or more Units as follow spots while a *show* or *sequence* is running press [1] - [8] to select the Unit(s) to be used. (1) - (8) will be turned on accordingly. It is not possible to select two different types of Units at the same time. If you try to do this anyway, the controller turns off the channel(s) not frozen, and turns on the last one you selected. Now you have control of the unit(s) and may use the control keys to change position, color, gobo etc..

Frozen-mode

When the mirror(s) have been moved to a selected spot you may freeze the position by pressing [1] - [8]. (1) - (8) will start flashing to indicate the frozen state. To disable this function press [1] - [8] again and they will return to normal run mode.

On-Line

Pressing [on line], so that (on line) turns off, disables *communication* between the controller and the Units, switches off the Units' lights and disables the triggering. If you have a RoboZap connected, and the mirror is rotating, this is stopped. Pressing [on line] again re-enables the *communication* and triggering and turns on the lights that were switched on before.

Special functions

Initialization

Only use this feature when it is absolutely essential as it will **entirely erase all information** about *shows* and *sequences* in memory. However, this is the only way to regain control of your controller when information about *sequences* is too damaged to be restored in the usual way.

Use this function only if you really want to erase all *sequence* information as the controller will be returned to the state it was in when you first purchased it.

The procedure is as follows:

- 1 Switch off the controller then switch it back on.
- 2 Wait until {robo} has stopped flashing.
- 3 Press [level], [on line] and [setup] at the same time and keep them down.
- 4 The display shows { In }.
- 5 Press [enter] to erase all memory, or turn the controller off, and then back on if you wish to cancel.

Write-protecting the memory

If you want to prevent unauthorized personnel from overwriting the memory contents in your 2308 controller you may write-protect the memory. Unplug the controller from the mains and remove the jumper labelled 'SEQ STORE ENABLE' located at the top edge of the front PCB.

The 2308 Controller will give a warning when trying to save data to a write-protected memory. If the memory is write-protected the controller will display a {-Pr-}, thereby giving warning when entering **Edit Seq** or **Edit Show** modes. It will also warn if you try to save other information such as setup or configuration. To clear the warning message press [enter].

Using external joystick

By connecting an external joystick (standard digital or micro-switch type) you may duplicate the functions of the built-in joystick as well as some of the functions from the front panel (*gobo*, *color*, *shutter* and *speed*). The functions which are duplicated depend on the exact connection of the joystick to the controller. The label on the rear of the controller shows how to connect the external joystick.

Transferring data from one Controller to another

In order to transfer (copy) data from one controller to another please note that both controllers **MUST** have at least software version 2.0 and they **MUST** have the same memory installed in them (eg. 611 scenes).

In the following the term *upload* is used to describe the process of transferring data from a source controller and *download* describes the process of receiving data to a target

Controller. Please note that the complete programmable data memory is transferred from source to target, completely overwriting the existing memory in the target controller.

The transfer of data between two controllers uses the normal serial transmission link for communication. Switch off both controllers and connect them using any of the 3 pin XLR cables that are normally used to connect units. Disconnect the serial link leading to the fixtures. Whether the input or output connections are used on the controllers is not important.

- 1 Switch the **target** controller on and during the initialization pull the joystick downwards until the display shows {do00} (Download mode). The target controller is now ready for receiving data.
- 2 Switch the **source** controller on and during the initialization push the joystick upward until the display shows {up--} (Upload mode). The data transfer will engage automatically.

During the data transfer the two displays show {UpXX} and {doXX}, respectively, where XX is a hexadecimal counter. The process will continue until the complete memory is transferred where after both controllers will display {----}. To reset the controllers to normal operation you will have to switch them off, and then on. Do not do this however before you have disconnected the link cable used for transfer as two controllers transmitting on the same link may cause damage to either or both of the controllers.

If an error message should occur, then consult the "error messages" section of this manual.

Display messages

Status information

- In : *Initialization*. The entire content of the memory is to be deleted.
- FAC : *Factory setting*. The restoring to factory-default values is taking place.
- ShoX : *show* is about to be edited or deleted. X is a number from 0 to 9.
- Shxx : *show* is running. XX is a legal *sequence number*. 1 to 99 for user *sequences* and A0-A9 B0-B9 C0-C9 D0-D9 for pre-programmed *sequences*.
- Pr : Existing *sequence* or *show* about to be deleted or edited.
- dEI : Delete. Display flashing indicates that a *sequence* or *show* is to be deleted. Constant display indicates the deleting phase. Must be confirmed by the user.
- SA : Saving *sequence* or *show*.
- LEXX : Music *trig level*. XX is a number from 1 to 20 level may be changed by user.
- SEUP : Setup is saved, refer to **Run sequence** or **Run show**.
- ShuX : *Shutter* key is pressed, X is selected *strobe rate*.
- On-- : *Shutter* key is pressed and depressed within a second.
- Off- : *Shutter* key is pressed and depressed within a second.
- SPEX : Speed key is pressed, X is selected movement speed.
- YSPX : Speed key is pressed, X is selected movement speed. Y varies depending of the Unit controlled.
- COLX : Color key is pressed, X is selected color number.
- YCoX : Color key is pressed. X is selected color number. Y varies depending on the Unit controlled.
- d XX : Dimmer level.

For further status information, please refer to the individual product information in the appendices A to F.

Error messages

- Err0 : FATAL ERROR. The RAM circuit is malfunctioning. Contact your dealer.
- Err1 : Memory full. There is no more room for additional scenes.
- Err2 : User memory malfunctioning. Contact your dealer.
- Err3 : Memory configuration error. The software has detected an inconsistency in the memory configuration. Please check your programs. If the error persists contact your dealer.
- Err4 : More memory has been added. Shows will be deleted. Confirm by pressing [enter].
- Err5 : If you have upgraded from a version earlier than 1.5, this error will always be shown when you switch on the first time. Press [enter] to proceed. If this message appears at any other time it indicates that memory has been removed. All scenes, sequences and shows will be deleted.
- Err6 : Memory full. No room for additional show steps.
- Err7 : Memory full. No room for additional scenes or show steps.
- Err8 : The maximum number of sequences (99) have already been programmed.
- Err9 : Information about sequences in the memory is too damaged to be restored. You must re-initialize the controller. If this error persists contact your dealer.
- ErrA : Wrong memory size. You can only transfer data between controllers with the

same memory size (upload/download).

- ErrB : Sync Error. Received data is out of synchronization, download aborted. The data already transferred is probably corrupted. Check connections and try again (upload/download).
- ErrC : Memory protect error. You cannot download to a controller that is write-protected (upload/download).

APPENDIX A DIP switch settings for Martin intelligent light units

To achieve proper control of the Units connected to the 2308 Controller you will have to address these so they match with the controller configuration, or vice versa. You can use any of the addresses from 1 through 8. If you are not sure about this procedure then refer to the user's manual for the particular Unit for detailed information.

The following table shows which DIP-switches that you will have to switch on in order to address any of the eight controller channels.

DIP-Switch settings	
Unit/Channel no.	DIP-switch ON
1	1
2	2
3	1,2
4	3
5	1,3
6	2,3
7	1,2,3
8	4

APPENDIX B - Programming Roboscans

The following table shows which functions can be controlled via the 2308 Controller:

Programable functions via 2308 controller	Unit Name					
	Roboscan 804/1004	Roboscan 805	Roboscan 1016	Roboscan 812	Roboscan Pro 218	Roboscan Pro 518
Colors	4+W	4+W	15+W	11+W+B/O	17+W	17+W
Color split				yes	yes	
Continuous color scroll						yes
Color Speed				yes	yes	yes
Fixed Gobos		4	16	12+B/O	18	
Rotating Gobos						5+Open
Gobo split				yes	yes	
Gobo speed				yes	yes	
Gobo rotation speed						yes
Movement	yes	yes	yes	yes	yes	yes
Movement speed	yes	yes	yes	yes	yes	yes
Shutter			yes		yes	yes
Dimmer					yes	yes
Dimmer speed					yes	yes
Strobe				yes *)	yes	yes
Stand Alone Mode				yes		yes
Lamp On/Off	yes	yes		yes		yes

*) Using the gobo wheel.

Light On/Off

- 1: **[shut]** Press [shut] once to power on the lamp. The status of the display now changes to {on--}, thus indicating that the lamp is on.
- 2: **[shut]** Press [shut] again to switch the lamp back off. The status of the display now changes to {off-}, thus indicating that the lamp is off.

Movement

- 1: **[up]/
[down]/
[left]/
[right]** Mirror positions are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. To program a movement simply move the joystick up, down, left and right.

Colors

- 1: **[color]** Press [color] once to access the color setting. The status of the display now changes to {Co_X}, where X i a number between 1 and 5, indicating the selected color.
- 2: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 3: **[color]** Press [color] again to quit the color setting.

Gobos

- 1: **[gobo]** Press [gobo] once to access the gobo setting. The status of the display now changes to {Go_X}, where X i a number between 1 and 4, indicating the selected gobo.
- 2: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
- 3: **[gobo]** Press [gobo] again to quit the gobo setting.

Movement Speed

- 1: **[speed]** Press [speed] to access the movement speed setting. The status now changes to {SPEX}, where X is number between 1 and 8 indicating the speed.
- 2: **[up]/
[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 3: **[speed]** Press speed again to quit the speed setting.

Light On/Off

- 1: **[shut]** When powering on the Roboscan 1016 the lamp itself will automatically switch on. Press [shut] once to open the shutter, thereby switching on the light. The status of the display changes to {On--}, thus indicating that the light is now on.
- 2: **[shut]** Press [shut] again to switch the light back off. The status of the display now changes to {OFF-}, thus indicating that the light is now off. Please note that the lamp itself remains on.

Strobing

- 1: **[shut] +
[up]/
[down]** To program a strobe effect, press the [shut] key, and keep it pressed, whilst moving the joystick up or down to change the strobe rate. The status of the display changes to {ShuX} where X is a number between 0 and 6 indicating the strobe rate. As you move the joystick up and down, you will see that X changes accordingly. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Movement

- 1: **[up]/
[down]/
[left]/
[right]** Mirror positions are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. To program a movement simply move the joystick up, down, left and right.

Colors

- 1: **[color]** Press [color] once to access the color setting. The status of the display now changes to {Co_X}, where X is a number between 1 and 16, indicating the selected color.
- 2: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 3: **[color]** Press [color] again to quit the color setting.

Gobos

- 1: **[gobo]** Press [gobo] once to access the gobo setting. The status of the display now changes to {Go_X}, where X is a number between 1 and 16, indicating the selected gobo.
- 2: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
- 3: **[gobo]** Press [gobo] again to quit the gobo setting.

Movement Speed

- 1: **[speed]** Press [speed] to access the movement speed setting. The status now changes to {SPEX}, where X is a number between 1 and 8 indicating the speed.
- 2: **[up]/
[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 3: **[speed]** Press speed again to quit the speed setting.

Lamp On/Off

- 1: **[shut]** When powering-on the Roboscan 812 the lamp itself will remain off until a 'lamp on' command is sent from the controller. Press [shut] once to ignite the lamp. The status of the display then changes to {on--}, thus indicating that the lamp is now on. Please note that the color and gobo wheels in the Roboscan 812 black-out as default positions. To enable light output both color and gobo must be moved from default position. See below.
- 2: **[shut]** To power the lamp off again, keep the [shut] key pressed for about 8 seconds until the status of the display changes to {LOFF}. Please note that the Roboscan 812 uses a cold restrike lamp, meaning that must wait approximately 3 minutes before you can power it back on again.
t>8 sec.

Colors

- 1: **[color]** Press [color] once to access the color setting. The status of the display now changes to {Co_X}, where X is a number between 1 and 13, indicating the selected color.
- 2: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 2: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 3: **[color]** Press [color] again to quit the color setting.

Gobos

- 1: **[gobo]** Press [gobo] once to access the gobo setting. The status of the display now changes to {Go_X}, where X is a number between 1 and 13, indicating the selected gobo.
- 2: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
**[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring gobos. The display shows the nearest gobo.
- 3: **[gobo]** Press [gobo] again to quit the gobo setting.

Strobing (gobo strobe)

- 1: **[shut] + [up]/[down]** The gobo wheel can be used to create strobe effects. First, select a gobo as described above. Then, whilst keeping the [shut] key pressed, move the joystick up and down. The Roboscan 812 will now strobe (switch) between the selected gobo and the one just before this. As you move the joystick up and down you will see that the display changes between {Shu0} and {Shu7}, thus indicating the strobe rate. {Shu0} indicates that the strobe is disabled. {Shu7} is the slowest strobe rate.

Movement

- 1: **[up]/[down]/[left]/[right]** Mirror positions are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. To program a movement simply move the joystick up, down, left and right. If you have configured the controller with acceleration factor during the set-up, you will see that, when moving the joystick in one direction and keeping it there, the mirror starts moving with a slow speed and then accelerates until full speed is obtained. This feature allows you to program accurate positions in a quick way.

Movement, Color and Gobo Speed

- 1: **[speed]** Press [speed] to access the movement speed setting. The status in the display now changes to {SPEX}, where X is a number between 1 and 8 indicating the movement speed.
- 2: **[up]/[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 3: **[speed]** Press [speed] another time to access the color speed setting (the speed at which the color wheel scrolls from one color to another). The status in the display now changes to {CSPX}, where X is a number between 1 and 8 indicating the speed.
- 4: **[up]/[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.
- 5: **[speed]** Press [speed] a third time to access the gobo speed setting (the speed at which the gobo wheel scrolls from one gobo to another). The status in the display now changes to {GSPX}, where X is number between 1 and 8 indicating the speed.
- 6: **[up]/[down]** Move the joystick up or down to change the gobo speed. You will see that the status of the display changes accordingly.
- 7: **[speed]** Finally, press speed once again to quit the speed setting.

Activating Stand Alone Mode

- 1: **[shut] + [up]/ [down]** To activate the stand-alone mode, press the [shut] key and keep it pressed whilst moving the joystick left or right, thereby enabling either the music or auto trig mode, respectively. Music trig is indicated by {S-A } on the display and auto trig by {S-AA}. Release the [shut] key and then the joystick.
- 2: **[shut]** Press [shut] again to de-activate the stand alone mode. When de-activating the stand-alone mode, the Roboscan 812 will restore all effect positions (pan, tilt, color, gobo) exactly as they were at the time the stand-alone function was activated.

Light On/Off

- 1: **[shut]** When powering on the Roboscan Pro 218 the lamp itself will automatically switch on. Press [shut] once to open the shutter, thereby switching on the light. The status of the display changes to {On--}, thus indicating that the light is now on.
- 2: **[shut]** Press [shut] again to switch the light back off. The status of the display now changes to {OFF-}, thus indicating that the light is now off. Please note that the lamp itself remains on.

Strobing

- 1: **[shut] +
[up]/
[down]** To program a strobe effect, press the [shut] key, and keep it pressed, whilst moving the joystick up or down to change the strobe rate. The status of the display changes to {ShuX} where X is a number between 0 and 6 indicating the strobe rate. As you move the joystick up and down, you will see that X changes accordingly. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Dimmer - Light intensity

- 1: **[dimmer]** Press [dimmer] once to access the dimmer function. The status of the display now changes to {d XX}, where XX is a number between 00 and 31 indicating the dimming level. {d 31} is no dimming (full light) and {d 00} is full dimming (no light). If you are using a 2208 controller the [dimmer] key is not printed on the front panel but is located 'invisibly' just to the right of the [shut] key.
- 2: **[up]/
[down]** Now, move the joystick up and down to set the desired light intensity. As you move the joystick you will see that the display changes between {d 00} and {d 31}, as an indication of the programmed intensity.
- 3: **[dimmer]** Press [dimmer] again to quit the dimmer setting.

Movement

- 1: **[up]/
[down]/
[left]/
[right]** Mirror positions are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. To program a movement simply move the joystick up, down, left and right. If you have configured the controller with acceleration factor during the set-up, you will see that, when moving the joystick in one direction and keeping it there, the mirror starts moving with a slow speed and then accelerates until full speed is obtained. This feature allows you to program accurate positions in a quick way.

Colors

- 1: **[color]** Press [color] once to access the color setting. The status of the display now changes to {Co_X}, where X is a number between 1 and 18, indicating the selected color.
- 2: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 3: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 4: **[color]** Press [color] again to quit the color setting.

Gobos

- 1: **[gobo]** Press [gobo] once to access the gobo setting. The status of the display now changes to {Go_X}, where X is a number between 1 and 18, indicating the selected gobo.
- 2: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
- 3: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring gobos. The display shows the nearest gobo.
- 4: **[gobo]** Press [gobo] again to quit the gobo setting.

Movement, Color and Gobo Speed

- 1: **[speed]** Press [speed] to access the movement speed setting. The status in the display now changes to {SPEX}, where X is a number between 1 and 8 indicating the movement speed.
- 2: **[up]/
[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 3: **[speed]** Press [speed] another time to access the color speed setting (the speed at which the color wheel scrolls from one color to another). The status in the display now changes to {CSPX}, where X is a number between 1 and 8 indicating the speed.
- 4: **[up]/
[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.
- 5: **[speed]** Press [speed] a third time to access the gobo speed setting (the speed at which the gobo wheel scrolls from one gobo to another). The status in the display now changes to {GSPX}, where X is a number between 1 and 8 indicating the speed.
- 6: **[up]/
[down]** Move the joystick up or down to change the gobo speed. You will see that the status of the display changes accordingly.
- 7: **[speed]** Press [speed] a fourth time to access the dimmer speed setting. The status in the display now changes to {dSPX}, where X is a number between 1 and 8 indicating the dimmer speed.
- 8: **[up]/
[down]** Move the joystick up or down to change the dimmer speed. You will see that the status of the display changes accordingly.
- 9: **[speed]** Finally, press speed once again to quit the speed setting.

Lamp On/Off and Light On/Off

- 1: **[shut]** When powering-on the Roboscan Pro 518 the lamp itself will remain off until a 'lamp on' command is sent from the controller. Press [shut] once to ignite the lamp. The status of the display then changes to {on--}, thus indicating that the lamp is now on. This key-press also opens the shutter.
- 2: **[shut]** Press [shut] again to close the shutter, thereby blanking off the light. The status of the display then changes to {OFF-} Pressing [shut] further times toggles the light between on and off. Please note that the lamp itself remains on.
- 2: **[shut]** To power the lamp back off again, keep the [shut] key pressed for about 8 seconds until the status of the display changes to {LOFF}.
t>8 sec. Please note that the Roboscan Pro 518 uses a cold restrike lamp, meaning that you'll have to wait approximately 5 minutes before you can power it back on again.

Strobing

- 1: **[shut] + [up]/ [down]** To program a strobe effect, press the [shut] key, and keep it pressed, whilst moving the joystick up or down to change the strobe rate. The status of the display changes to {ShuX} where X is a number between 0 and 6 indicating the strobe rate. As you move the joystick up and down, you will see that X changes accordingly. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Dimmer - Light intensity

- 1: **[dimmer]** Press [dimmer] once to access the dimmer function. The status of the display now changes to {d XX}, where XX is a number between 00 and 31 indicating the dimming level. {d 00} is no dimming (full light) and {d 31} is full dimming (no light). If you are using a 2208 controller the [dimmer] key is not printed on the front panel but is located 'invisibly' just to the right of the [shut] key.
- 2: **[up]/ [down]** Now, move the joystick up and down to set the desired light intensity. As you move the joystick you will see that the display changes between {d 00} and {d 31}, as an indication of the programmed intensity.
- 3: **[dimmer]** Press [dimmer] again to quit the dimmer setting.

Movement

- 1: **[up]/
[down]/
[left]/
[right]** Mirror positions are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. To program a movement simply move the joystick up, down, left and right. If you have configured the controller with acceleration factor during the set-up, you will see that, when moving the joystick in one direction and keeping it there, the mirror starts moving with a slow speed and then accelerates until full speed is obtained. This feature allows you to program accurate positions in a quick way.

Colors

- 1: **[color]** Press [color] once to access the color setting. The status of the display now changes to {Co_X}, where X is a number between 1 and 18, indicating the selected color.
- 2: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 3: **[left]/
[right]** Move the joystick left or right to activate continuous color scroll. The status of the display then changes to {Co L} or {Co r}, for left and right color scrolling, respectively. The scroll speed is identical to the current color speed (see below).
- 4: **[left]/
[right]** Move the joystick left or right again to terminate the continuous color scroll. The Roboscan Pro 518 will then restore the previously programmed color position.
- 5: **[color]** Press [color] again to quit the color setting.

Gobos

- 1: **[gobo]** Press [gobo] once to access the gobo setting. The status of the display now changes to {Go_X}, where X is a number between 1 and 6, indicating the selected gobo.
- 2: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
- 3: **[left]/
[right]** Move the joystick left or right to activate gobo rotation. The status of the display then changes to {GoXL} or {GoXr}, for left and right rotation, respectively. X indicates the selected gobo. The speed of the rotation is identical to the current gobo speed (see below).
- 4: **[left]/
[right]** Move the joystick left or right to stop the obo rotation.
- 5: **[gobo]** Press [gobo] again to quit the gobo setting.

CTC, Frost, Prism

- 1: **[iris]** Press [iris] once to access the effect wheel setting. The status of the display now changes to {EF_X}, where X indicates the following effects:
- 1 Open (no effect).
 - 2 Hot color temperature corrector (5500-3400K).
 - 3 Frost.
 - 4 3-facet prism.
- Note that on the 2208 controller the [iris] key is not printed on the front panel but is located 'invisibly' just to the right of the right of the [speed] key.
- 2: **[up]/
[down]** Move the joystick up or down to change the effect. You will see that the status of the display changes accordingly.
- 5: **[iris]** Press [iris] again to quit the effect setting.

Movement, Color and Gobo Speed

- 1: **[speed]** Press [speed] to access the movement speed setting. The status in the display now changes to {SPEX}, where X is a number between 1 and 8 indicating the movement speed.
- 2: **[up]/
[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 3: **[speed]** Press [speed] another time to access the color speed setting (the speed at which the color wheel scrolls). The status in the display now changes to {CSPX}, where X is a number between 1 and 8 indicating the speed.
- 4: **[up]/
[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.
- 5: **[speed]** Press [speed] a third time to access the gobo rotation speed setting. The status in the display now changes to {GSPX}, where X is a number between 1 and 8 indicating the speed.
- 6: **[up]/
[down]** Move the joystick up or down to change the gobo speed. You will see that the status of the display changes accordingly.
- 7: **[speed]** Press [speed] a fourth time to access the dimmer speed setting. The status in the display now changes to {dSPX}, where X is a number between 1 and 8 indicating the dimmer speed.
- 8: **[up]/
[down]** Move the joystick up or down to change the dimmer speed. You will see that the status of the display changes accordingly.
- 9: **[speed]** Finally, press speed once again to quit the speed setting.

Activating Stand-Alone Mode

- 1: **[shut] + [up]/ [down]** To activate the stand-alone mode, press the [shut] key and keep it pressed whilst moving the joystick left or right, , thereby enabling either the auto or music trig mode, respectively. Auto trig is indicated by {S-A } on the display and music trig by {S-AA}.
- 2: **[shut]** Press [shut] again to de-activate the stand alone-mode. When de-activating the stand-alone mode the Roboscan Pro 518 will restore all effect positions (pan, tilt, dimmer/shutter, color, gobo, effect) exactly as they were at the time the stand-alone mode was activated.

APPENDIX C - Programming Robocolors

The following table shows which Robocolor functions can be controlled via the 2308 controller:

Programable functions via 2308 controller	Unit Name			
	Robocolor	Robocolor II	Robocolor MSD 200	Robocolor Pro 400
Colors	4+W+B/O	11+W+B/O	2*(4+W)	2*(6+W)
Color split				yes
Color Speed	yes	yes	yes	yes
Motorized Gobos				3+Wash
Shutter			yes	yes
Dimmer			yes	yes
Dimmer speed				
Strobe				yes
Stand-Alone Mode				yes
Lamp On/Off				yes

Please note that one Robocolor Controller, i.e. four Robocolor Heads, can be controlled per 2308 channel.

Light On/Off

- 1: **[shut]** Press [shut] once to power on the lamps in all the heads connected to the Robocolor Controller. The status of the display now changes to {On--}, indicating that the lamps are on.
- 2: **[shut]** Press [shut] again to switch the lamps back off. The status of the display now changes to {OFF-}, indicating that the lamps are off.

Colors

- 1: **[color]** Press [color] once to access the color setting mode. The status of the display now changes to {YCoX}, where X is a number between 1 and 6, indicating the selected color, and Y is either 1, 2, 3, 4 or A, indicating which head you are controlling (A = all).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which head(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 5: **[color]** Press [color] again to quit the color setting mode.

Color Speed

- 1: **[speed]** Press [speed] to access the color speed mode. The status now changes to {YSPX}, where X is a number between 1 and 8 indicating the speed, and Y is either 1, 2, 3, 4 or A, to indicate which head you are controlling (A = all).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which head(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 4: **[speed]** Press speed again to quit the speed setting.

Strobing

- 1: **[shut] +
[up]/
[down]** The color wheel has a black-out position which can be used to create strobe effects. Press the [shut] key and keep it pressed whilst moving the joystick up and down to change the strobe rate. As you move the joystick up and down you will see that the display changes between {Shu0} and {Shu6}, indicating the strobe rate. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Activating Stand-Alone Mode

- 1: **[shut] + [up]/ [down]** To activate the stand-alone mode, press the [shut] key and keep it pressed whilst moving the joystick either left or right, thereby enabling either the music or auto trig mode, respectively. Music trig is indicated by {S-A } on the display and auto trig by {S-AA}. Release the [shut] key and then the joystick.
- 2: **[shut]** Press [shut] again to de-activate the stand alone-mode.

Please note that one Robocolor II Controller, i.e 4 Robocolor II Heads, can be controlled per 2308 channel (4 Robocolor II Heads).

Light On/Off

- 1: **[shut]** Press [shut] once to power on the lamps in all the heads connected to the Robocolor II Controller. The status of the display now changes to {On--}, indicating that the lamps are on.
- 2: **[shut]** Press [shut] again to switch the lamps back off. The status of the display now changes to {OFF-}, indicating that the lamps are off.

Colors

- 1: **[color]** Press [color] once to access the color setting mode. The status of the display now changes to {YC X}, where X is a number between 1 and 13, indicating the selected color, and Y is either 1, 2, 3, 4 or A, to indicate which head your are controlling (A = all).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which head(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 5: **[color]** Press [color] again to quit the color setting mode.

Color Speed

- 1: **[speed]** Press [speed] to access the color speed mode. The status now changes to {YSPX}, where X is a number between 1 and 8 indicating the speed, and Y is either 1, 2, 3, 4 or A, to indicate which head your are controlling (A = all).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which head(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the movement speed. You will see that the status of the display changes accordingly.
- 4: **[speed]** Press speed again to quit the speed setting.

Strobing

- 1: **[shut] + [up]/[down]** The color wheel can be used to create strobe effects. First, select a color as described above. Then, whilst keeping the [shut] key pressed, move the joystick up and down. The Robocolor II will now strobe (switch) between the selected color and the one just before this. E.g. to program a black/white strobe, then first select white on the color wheel. As you move the joystick up and down you will see that the display changes between {Shu0} and {Shu6}, indicating the strobe rate. {Shu0} indicates that the strobe is disabled. {Shu2} is the slowest strobe rate.

Activating Stand Alone Mode

- 1: **[shut] + [up]/[down]** To activate the stand-alone mode, press the [shut] key and keep it pressed whilst moving the joystick either left or right, thereby enabling either the music or auto trig mode, respectively. Music trig is indicated by {S-A } on the display and auto trig by {S-AA}. Release the [shut] key and then the joystick.
- 2: **[shut]** Press [shut] again to de-activate the stand alone mode.

Light On/Off

- 1: **[shut]** When powering on the Robocolor MSD 200 the lamp itself will automatically switch on. Press [shut] once to open the shutter, thereby switching on the light. The status of the display changes to {On--}, indicating that the light is now on.
- 2: **[shut]** Press [shut] again to switch the light back off. The status of the display now changes to {OFF-}, indicating that the light is now off. Please note that the lamp itself remains on.

Strobing

- 1: **[shut] + [up]/ [down]** To program a strobe effect, press the [shut] key, and keep it pressed, whilst moving the joystick up or down to change the strobe rate. The status of the display changes to {ShuX} where X is a number between 0 and 6 indicating the strobe rate. As you move the joystick up and down, you will see that X changes accordingly. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Dimmer - Light intensity

- 1: **[dimmer]** Press [dimmer] once to access the dimmer function. The status of the display now changes to {d XX}, where XX is a number between 00 and 31 indicating the dimming level. {d 31} is no dimming (full light) and {d 00} is full dimming (no light). If you are using a 2208 controller the [dimmer] key is not printed on the front panel but is located 'invisibly' just to the right of the [shut] key.
- 2: **[up]/ [down]** Now, move the joystick up and down to set the desired light intensity. As you move the joystick you will see that the display changes between {d 00} and {d 31}, as an indication of the programmed intensity.
- 3: **[dimmer]** Press [dimmer] again to quit the dimmer setting.

Colors

- 1: **[color]** Press [color] once to access the color mode. The status of the display now changes to {YCoX}, where X is a number between 1 and 5, indicating the selected color, any Y is either 1 or 2 to indicate the color flag that you are programming.
- 2: **[↑]/[↓]** Press [↑] or [↓] to select the color flag you want to control.
- 3: **[up]/ [down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly. Please note that it is possible to program two colors on top of each other (color flag 1 and 2), thereby creating additional colors.

- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 5: **[color]** Press [color] again to quit the color mode.

Color and Dimmer Speed

- 1: **[speed]** Press [speed] once to access the speed setting of color flag number 1. The status in the display now changes to {1PEX}, where X is a number between 1 and 8 indicating the color scroll speed.
**[up]/
[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.
- 2: **[speed]** Press [speed] another time to access the speed setting of color flag number 2. The status in the display now changes to {2PEX}, where X is a number between 1 and 8 indicating the color scroll speed.
- 3: **[up]/
[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.
- 4: **[speed]** Press [speed] a third time to access the dimmer speed setting. The status in the display now changes to {dSPX}, where X is number between 1 and 8 indicating the dimmer speed.
- 5: **[up]/
[down]** Move the joystick up or down to change the dimmer speed. You will see that the status of the display changes accordingly.
- 6: **[speed]** Finally, press speed once again to quit the speed setting.

Lamp On/Off and Light On/Off

- 1: **[shut]** When powering on the Robocolor Pro 400 the lamp itself will remain off until a 'lamp on' command is sent from the controller. Press [shut] once to ignite the lamp. The status of the display then changes to {On--}, indicating that the lamp is now on. This key-press also opens the shutter.
- 2: **[shut]** Press [shut] again to close the shutter, thereby switching off the light. The status of the display then changes to {OFF-} Pressing [shut] again toggles the light between on and off. Please note that the lamp itself remains on.
- 2: **[shut]** To power the lamp back off again, keep the [shut] key pressed for about 8 seconds until the status of the display changes to {LOFF}.
t>8 sec. Please note that the Roboscan Pro 518 uses a cold restrike lamp, meaning that you must wait approximately 5 minutes before you can power it back on again.

Strobing

- 1: **[shut] + [up]/ [down]** To program a strobe effect, press the [shut] key, and keep it pressed, whilst moving the joystick up or down to change the strobe rate. The status of the display changes to {ShuX} where X is a number between 0 and 6 indicating the strobe rate. As you move the joystick up and down, you will see that X changes accordingly. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Dimmer - Light intensity

- 1: **[dimmer]** Press [dimmer] once to access the dimmer function. The status of the display now changes to {d XX}, where XX is a number between 00 and 88 indicating the dimming level. {d 00} is no dimming (light full on) and {d 88} is full dimming (black-out). If you are using a 2208 controller the [dimmer] key is not printed on the front panel but is located 'invisibly' just to the right of the [shut] key.
- 2: **[up]/ [down]** Now, move the joystick up and down to set the desired light intensity. As you move the joystick you will see that the display changes between {d 00} and {d 88}, as an indication of the programmed intensity.
- 3: **[dimmer]** Press [dimmer] again to quit the dimmer setting.

Colors

- 1: **[color]** Press [color] once to access the color mode. The status of the display now changes to {YCoX}, where X is a number between 1 and 7, indicating the selected color, and Y is either 1 or 2, indicating the color flag that you are programming.
- 2: **[↑]/[↓]** Press [↑] or [↓] to select the color flag you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly. Please note that it is possible to program two colors on top of each other (color flag 1 and 2), thereby creating additional colors.
- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 5: **[color]** Press [color] again to quit the color mode.

Gobos

- 1: **[gobo]** Press [gobo] once to access the gobo setting. The status of the display now changes to {Go_X}, where X is a number between 1 and 5, indicating the following:
 - 1 Full Wash
 - 2 Wide Beam
 - 3 Medium Beam
 - 4 Narrow Beam
 - 5 Black-out
- 2: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
- 3: **[gobo]** Press [gobo] again to quit the gobo setting.

Color and Dimmer Speed

- 1: **[speed]** Press [speed] once to access the speed setting of color flag number 1. The status in the display now changes to {1PEX}, where X is a number between 1 and 8 indicating the color scroll speed.
**[up]/
[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.
- 2: **[speed]** Press [speed] another time to access the speed setting of color flag number 2. The status in the display now changes to {2PEX}, where X is number between 1 and 8 indicating the color scroll speed.
- 3: **[up]/
[down]** Move the joystick up or down to change the color speed. You will see that the status of the display changes accordingly.

- 4: **[speed]** Press [speed] a third time to access the dimmer speed setting. The status in the display now changes to {dSPX}, where X is a number between 1 and 8 indicating the dimmer speed.
- 5: **[up]/
[down]** Move the joystick up or down to change the dimmer speed. You will see that the status of the display changes accordingly.
- 6: **[speed]** Finally, press speed once again to quit the speed setting.

Activating Stand-Alone Mode

- 1: **[shut] +
[up]/
[down]** To activate the stand-alone mode, press the [shut] key and keep it pressed whilst moving the joystick left or right, thereby enabling either the music or auto trig mode, respectively. Music trig is indicated by {S-A } on the display and auto trig by {S-AA}.
- 2: **[shut]** Press [shut] again to de-activate the stand alone-mode. When de-activating the stand-alone mode the Roboscan Pro 518 will restore all effect positions (pan, tilt, dimmer/shutter, color, gobo, effect) exactly as they were at the time the stand-alone mode was activated.

APPENDIX D - Programming Robozaps

The following table shows which Robozap functions can be controlled via the 2308 controller:

Programable functions via 2308 controller	Robozap	
	Robozap	Robozap MSR 1200
Colors	2 x (4+W+B/O)	2 x (9+W)
Color Split		
Color Speed		
Gobos		8+Open+B/O
Gobo Split		
Gobo speed		
Mirror Drum		
Strobe	yes *	yes **
Stand Alone Mode		
Lamp On/Off	yes	

*) Using the color wheel.

***) Using the gobo wheel.

Light On/Off

- 1: **[shut]** Press [shut] once to power on the lamps. The status of the display now changes to {on--}, indicating that the lamp is on.
- 2: **[shut]** Press [shut] again to switch the lamp back off. The status of the display now changes to {off-}, thus indicating that the lamp is off.

Mirror Drum Rotation

- 1: **[left]/
[right]** Positions of the mirror drum are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. The mirror position can be programmed between plus and minus 180 degree from its current position. To program a movement simply move the joystick left or right.
- 2: **[up]/
[down]** Move the joystick up or down to program a continuous mirror rotation.

Colors

- 1: **[color]** Press [color] once to access the color setting mode. The status of the display now changes to {YCoX}, where X is a number between 1 and 6, indicating the selected color, and Y is either 1, 2 or A, to indicate which color flag you are controlling (A = both).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which color flag(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 5: **[color]** Press [color] again to quit the color setting mode.

Strobing

- 1: **[shut] +
[up]/
[down]** The color flags have a black-out position which can be used to create strobe effects. Press the [shut] key and keep it pressed whilst moving the joystick up and down to change the strobe rate. As you move the joystick up and down you will see that the display changes between {Shu0} and {Shu6}, indicating the strobe rate. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate.

Movement Speed

- 1: **[speed]** Press [speed] to access the movement speed setting of the mirror drum. The status in the display now changes to {SPEX}, where X is a number between 1 and 8 to indicate the movement speed.
- 2: **[left]/
[right]** Move the joystick left or right to change the movement speed of the mirror drum. You will see that the status of the display changes accordingly.
- 3: **[up]/
[down]** Move the joystick up or down to change access the speed setting of the color wheels. The status of the display now changes to {YSPX} where X is a number between 1 and 8, indicating the speed, and Y is either 1, 2 or A, indicating which color wheel your are controlling (A = both).
- 4: **[↑]/[↓]** Press [↑] or [↓] to select which color wheel(s) you want to control.
- 4: **[up]/
[down]** Move the joystick up or down to change the movement speed of the color wheel(s) You will see that the status of the display changes accordingly.
- 5: **[speed]** Press [speed] a again to quit the speed setting mode.

Light On/Off

- 1: **[shut]** When powering on the Robozap MSR 1200 the lamp it self will automatically switch on. Press [shut] once to enable light. The status of the display now changes to {On--}, indicating that the light is on. Please note that the Robozap MSR 1200 does not have a separate shutter, but uses the gobo wheel instead. When switching on the light, using the [shut] key, both gobo wheels goes to the open position.
- 2: **[shut]** Press [shut] again to sblank off the light. Both gobo wheels then go to blackout positions, thereby blanking the light. The status of the display now changes to {Off-}, indicating that the light is off. Please note that the lamp itself remains on.

Mirror Drum Rotation

- 1: **[left]/
[right]** Positions of the mirror drum are programmed when no other programmable feature is selected. That is when the display shows the current sequence and scene number. The mirror position can be programmed between plus and minus 180 degree from is current position. To program a movement simply move the joystick left or right.
- 2: **[up]/
[down]** Move the joystick up or down to program a continuous mirror rotation.

Colors

- 1: **[color]** Press [color] once to access the color setting mode. The status of the display now changes to {YCoX}, where X is a number between 0 and 9, indicating the selected color, and Y is either 1, 2 or A, to indicate which color wheel your are controlling (A = both).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which color wheel(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the color. You will see that the status of the display changes accordingly.
- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring colors. The display shows the nearest color.
- 5: **[color]** Press [color] again to quit the color setting mode.

Gobos

- 1: **[gobo]** Press [gobo] once to access the color setting mode. The status of the display now changes to {YGoX}, where X is a number between 0 and 9, to indicate the selected gobo, and Y is either 1, 2 or A, indicating which gobo wheel your are controlling (A = both).
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which color wheel(s) you want to control.
- 3: **[up]/
[down]** Move the joystick up or down to change the gobo. You will see that the status of the display changes accordingly.
- 4: **[left]/
[right]** Move the joystick left or right to split the beam into two neighbouring gobos. The display shows the nearest gobo.
- 5: **[gobo]** Press [gobo] again to quit the gobo setting mode.

Strobing

- 1: **[shut] +
[up]/
[down]** Both the gobo wheels have a blackout position which can be used to create strobe effects. Press the [shut] key and keep it pressed whilst moving the joystick up and down to change the strobe rate. As you move the joystick up and down you will see that the display changes between {Shu0} and {Shu6}, indicating the strobe rate. {Shu0} indicates that the strobe is disabled. {Shu6} is the slowest strobe rate. The gobo wheel will always strobe between the blackout and the open gobo, thereby overriding any previously programmed gobo.

Movement Speed

- 1: **[speed]** Press [speed] to access the movement speed setting of the mirror drum. The status in the display now changes to {SPEX}, where X is number between 1 and 8 indicating the movement speed.
- 2: **[left]/
[right]** Move the joystick left or right to change the movement speed of the mirror drum. You will see that the status of the display changes accordingly.
- 3: **[up]/
[down]** Move the joystick up or down to change access the speed setting of the color wheels. The status of the display now changes to {YSPX} where X is a number between 1 and 8, indicating the speed, and Y is either 1, 2 or A, to indicate which color wheel your are controlling (A = both).
- 4: **[↑]/[↓]** Press [↑] or [↓] to select which color wheel(s) you want to control.
- 4: **[up]/
[down]** Move the joystick up or down to change the movement speed of the color wheel(s) You will see that the status of the display changes accordingly.
- 5: **[speed]** Press [speed] a again to quit the speed mode.

APPENDIX E - Programming the Centrepiece

Lamp On/Off

- 1: **[shut]** When powering on the Centrepiece, the lamp itself will remain off until a 'lamp on' command is sent from the controller. Press [shut] once to ignite the lamp. The status of the display then changes to {On--}, indicating that the lamp is now on. To enable light output the tilt mirrors must be moved from the default position as described below.
- 2: **[shut]**
+
[up] To switch the lamp back off again, keep the [shut] key pressed and move the joystick upwards. The status of the display changes to {OFF-}, indicating that the lamp is now off. Please note that the Centrepiece uses a cold restrike lamp, meaning that you must wait 5 to 10 minutes before you can power it back on again.

Tilt Mirrors

- 1: **[up]** Please note that the tilt mirrors are programmed in pairs placed on opposite sides of the fixture - you cannot program just a single mirror.

To program a movement start by moving the joystick up. The status of the display now changes to {tYXX}, where Y is either 1, 2, 3, 4 or A (A = All), indicating which mirror pair you are controlling, and XX is a number between 01 and 99 to indicate the position of the mirror.
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which mirror set you want to program.
- 3: **[up]/**
[down] Move the joystick up or down to change the position of the mirrors. You will see that the status of the display changes accordingly.
- 4: **[shut]** Press [shut] to quit the tilt movement mode. The status of the display then changes to {On--}.

Mirror Drum

- 1: **[left]/
[right]** Press the joystick left or right to program a continuous rotation of the mirror drum. As you move the joystick left and right you will see that the status of the display changes through {L 8}, {L 7},..., {L 1}, {St }, {r 1}, {r 2},..., {r 8}. L and r indicates left and right rotation, respectively, and the number, 1-8, indicates the rotation speed. {St } indicates that the mirror drum is stopped.
- 2: **[shut]** Press [shut] to quit the tilt movement mode. The status of the display then changes to {On--}.

Color Carousel

- 1: **[color]** Press [color] once to access the color setting mode.
- 2: **[left]/
[right]** Move the joystick left or right to program a continuous rotation of the color carousel. As you move the joystick left and right you will see that the status of the display changes through {CL 8}, {CL 7},..., {CL 1}, {CSt }, {Cr 1}, {Cr 2},..., {Cr 8}. CL and Cr indicates left and right color rotation, respectively, and the number, 1-8, indicates the rotation speed. {CSt } indicates that the color carousel is stopped.
- 3: **[up]/
[down]** Move the joystick up or down to program a fixed position of the color carousel. The status of the display then changes to {CO.XX}, where XX is a number between 1 and 16, indicating the color position. The fixed color positions represents full, as well as half, color positions. As you move the joystick up and down you will see that the status of the display changes accordingly.
- 4: **[shut]** Press [shut] to quit the tilt color setting mode. The status of the display then changes to {On--}.

Tilt Movement Speed

- 1: **[speed]** Press [speed] to access the speed mode for the tilt mirrors. The status in the display then changes to {YPEX}, where X is number between 1 and 8 indicating the movement speed and Y is either 1, 2, 3, 4 or A (for all), indicating which mirror set you are controlling the speed.
- 2: **[↑]/[↓]** Press [↑] or [↓] to select which mirror set you want to program.
- 3: **[up]/
[down]** Move the joystick up or down to change the speed setting of the tilt mirrors.
- 4: **[speed]** Press [speed] again to quit the speed mode.

Activating Stand-Alone Mode

- 1: **[shut] + [up]/ [down]** To activate the stand-alone mode, press the [shut] key and keep it pressed whilst moving the joystick left or right, thereby enabling either the music or auto trig mode, respectively. Music trig is indicated by {S-A } on the display and auto trig by {S-AA}.
- 2: **[shut]** Press [shut] again to de-activate the stand alone mode. When de-activating the stand-alone mode the Roboscan Pro 518 will restore all effect positions (pan, tilt, dimmer/shutter, color, gobo, effect) exactly as they were at the time the stand-alone mode was activated.

APPENDIX F - Programming the 516 Dimmer Controller

Each Martin dimmer controller is able to control 16 individual 0-10 V outputs at 16 different levels.

One Dimmer controller can be controlled per channel of the 2308 controller.

- | | <u>Output Level</u> |
|-------------------------------|--|
| 1: [color] | Press [color] to program the output level of the analogue outputs. The display then changes to {CCXX} where CC indicates the channel number, 1 to 16, and XX is a number between 0 and 15 indicating the output level. |
| 2: [left]/
[right] | Move the joystick left or right to change the channel number. You will see that the status of the display changes accordingly. |
| 3: [up]/
[down] | Then, move the joystick up or down to change the output level. You will see that the status of the display changes accordingly. |
| [shut] | You can press [shut] if you wish to set a channel to full output. |
| 4: [color] | Press [color] again to quit the output setting. |

Please note that you will still be able to set the level of the last programmed analog channel. This is very useful in follow mode if you have a Martin smoke machine connected to the dimmer controller and you need some smoke while your shows are running. Just set the channel into follow mode - push the joystick up to start the smoke machine running and then pull it down again when you have enough smoke - then release the channel again. In this way you may remote-control one or more Martin smoke machines from the 2308 controller - you may even program smoke-output into your sequences. Be careful, however, as the smoke output depends on the trig rate used.

Glossary

Analog channel	One out of 16 individual channels on a Martin 516 dimmer controller.
Communication	The way the controller transmits signals through the <i>link</i> to the units.
Configuration	Information which tells the controller which piece of equipment is connected to which channel.
Dimmer	Increases, or decreases, the output intensity of the unit.
DIP addresses	Small switches which, in different combinations, set up the addresses of the units so that commands from the controller can be interpreted.
Factory setting	Various default settings that affect the way that the controller operates the units.
Gobo	A perforated metal plate placed in a light beam to create different patterns.
Initialization	Resetting the controller to factory setting including completely clearing the memory.
Iris	An adjustable aperture plate that can reduce, or enlarge, the diameter of the beam angle.
Light set-ups	Position, color, gobo, etc. of individual units together forming a complete start position.
Link	The signal cable which runs from the controller to the last unit.
Operation mode	A main task the controller has to perform such as editing a sequence or a show.
Operating - function	A more special function of the controller such as selecting color.
Pan	Movement of the mirror at 90 degrees to the longitudinal axis of the Roboscan.
Reset	Setting the controller or the units to default values.
Run-modes	Refers to Run-sequence and Run-show modes.
Units	Products which support a common way of communication, and include Roboscans, RoboZaps, and Robocolors.

Scene	The smallest step in a program. A scene will contain information of how each connected unit is set. One or more scenes are linked together to form a sequence.
Sequence	Refers to one or more scenes linked together to be executed sequentially by the controller.
Sequence-number	Each sequence has its own individual number that is unique for that sequence.
Show	Refers to a selection of sequences linked together to be executed sequentially by the controller.
Show number	Each show has its own unique number.
Shutter	A device which opens and closes the light aperture.
Software	The part of the programs contained within the controller that make the controller work.
Strobe	A device that makes light flash at different speeds (a function of the shutter or gobo wheel).
Strobe rate	The rate at which the lights are flashing.
Terminating-plug	The XLR plug supplied with the controller, to be plugged into the last unit on the link to terminate the link.
Tilt	Movement of the mirror parallel with the longitudinal axis of the Roboscan.
Trig level	The sensitivity with which the controller detects a music trig.
Trig rate	The speed at which the next scene follows.
Trig (sources)	The way to tell the controller to continue with the next scene in the sequence.
Auto	Trig generated by controller (programmable)
Manual	Trig generated by operator by tapping the [trig] button
Music	Trig generated by music signal.

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