English

Futurelight
LIGHTING SYSTEMS MADE IN EUROPE

User manual

Scan SC - 980

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English

CAUTION !
Keep this device away from rain and moisture !
Unplug mains lead before opening the housing !

FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY BEFORE YOU INITIAL START - UP!

1. Safety

1.1 Safety instructions

This device has left our premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual. The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the device.

DANGER HIGH VOLTAGE

Caution ! Be careful with your operations.
With a voltage of 230 V you can suffer
a dangerous electric shock when touching the wires !

DANGER HIGH VOLTAGE

This device falls under protection class I. Therefore it is essential to connect the yellow / green conductor to earth.
The electric connection must be carried out by a qualified employee.
Do not connect this device to a dimmer pack.
For replacement use lamps and fuses of same type and rating only.

CAUTION ! EYEDAMAGES !
Avoid looking directly into the light source
(meant especially for epileptics) !

1.2 General instructions

Please do never run the device without lamp!
Use this projectors in closed rooms only.
Do not shake this device. Avoid brute force during operational actions.
For safety reasons unauthorized modifications to the device are forbidden.
You can install this projector at any desired place - as long as you follow the given instructions. Ensure that the structure to which you attach the projector is secure.
If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.
When taking the device into operation, please make sure that the housing is closed firmly with all the necessary screws tightened up.

2. Introduction

Thank you for having chosen a FUTURELIGHT SC-980. You acquired a versatile, powerful and intelligent lighting-effect.
Unpack your FUTURELIGHT SC-980 and make sure that there are no damages caused by transportation. Should there be any, please consult your local dealer and do not take the device into operation.

2.1 Fitting the lamp

DANGER HIGH VOLTAGE

DANGER !
Install the lamps with the device switched off only.
Unplug from mains before !

DANGER HIGH VOLTAGE

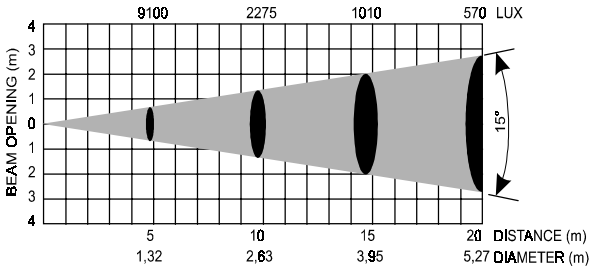
To insert the lamp (HMI/MSI 1200 W) open the housing by loosening the fastening screws at the side panels and frontcover.
Do not install a lamp with a wattage! A lamp like this generates temperatures the device is not designed for.

Damages caused by non-observance are not subject to warranty.
Insert the lamp now. Do not touch the glass-bulb bare-handed during the installation! Please follow the lamp manufacturer's notes!
Before you close the housing again, make sure that the lamp is installed tightly into the lampholder system.
Reclose the housing and tighten the fastening screws.

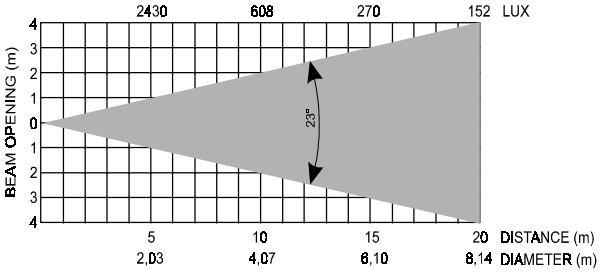
Do not operate this device with opened service-lids !

2.2 Beampath

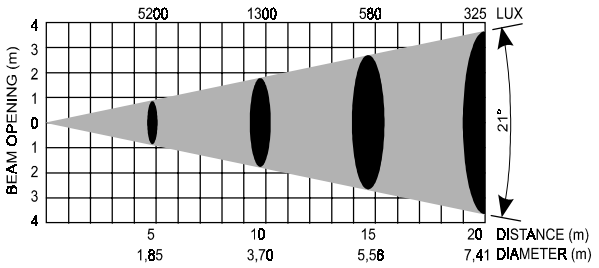
APERTURE 15°



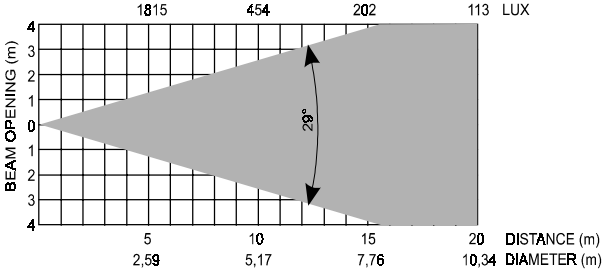
OBJECTIVE 15° WITH FROST



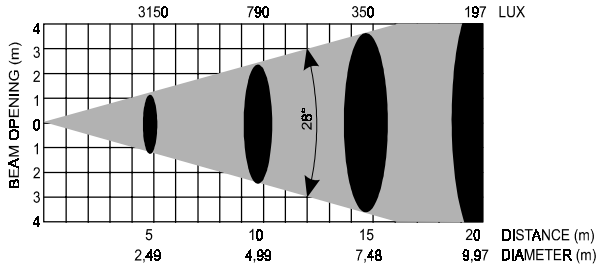
APERTURE 21°



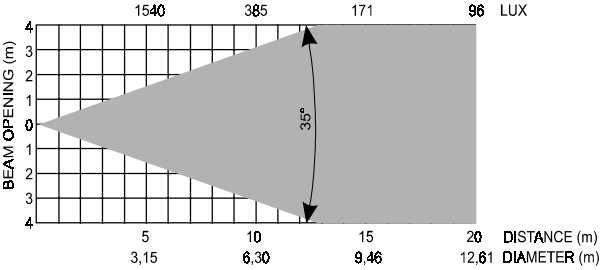
OBJECTIVE 21° WITH FROST



APERTURE 28°



OBJECTIVE 28° WITH FROST

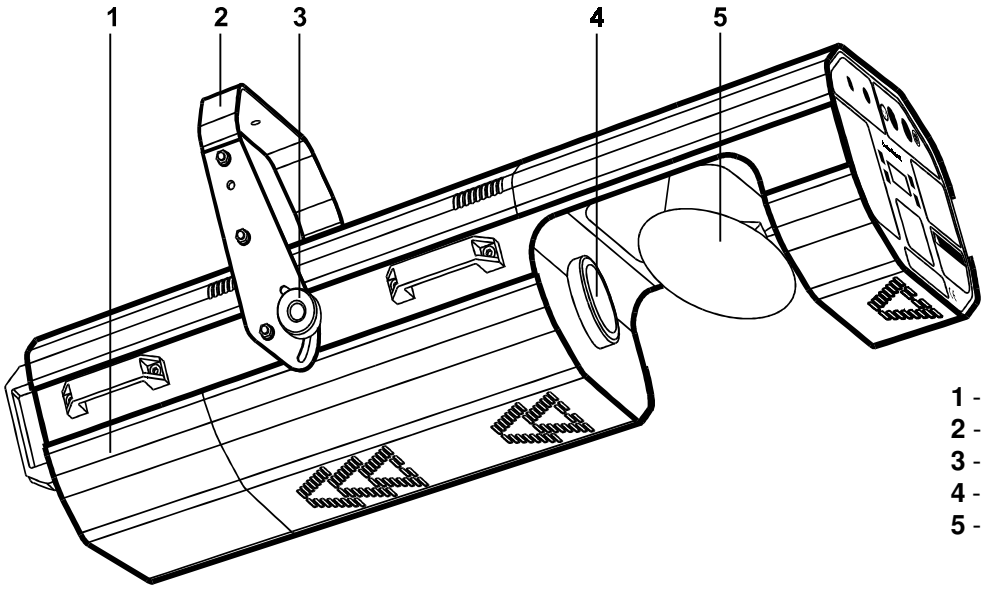


Top-scanner of the upper performance sector

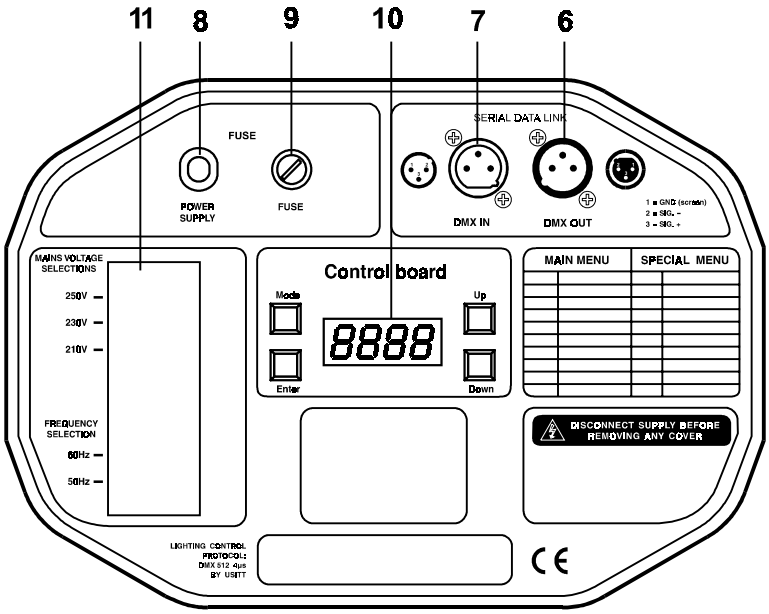
For extremely bright 1,200 W HMI-lamp • Colour-system: 2 colour-wheels and 1 effect-wheel • Colour-wheel 1 with 8 different, dichroic colour-filtres and white • Colour-wheel 2 with 5 different, dichroic colour-filtres and white and additionally with correction-filters 3,200 K and 6,000 K and UV-filter • Via the two correction-filters, up to 81 different colours and semi-colours can be created • Rainbow-effect in both directions • Colour-macro-function for easy selection of the colour-combinations • Effect-wheel with rotating 3-facet-prism, 5-facet-prism, 3D-prism and frost-filter • The prisms rotate in both directions and at different speeds • Gobos: all gobos are exchangeable (Rosco "D" size) • Gobo-wheel 1 with 5 static metal-gobos and open • Gobo-wheel 2 with 2 rotating metal-gobos, 1 glass-gobo, 1 multicolor-dichro-gobo and open • The rotating gobos can be turned by 360°, the adjusted position is memorized • Motorized multi-step-zoom with three different apertures (15°, 21° and 28°) • Motorized focus controllable via DMX • Steplessly adjustable iris • Shutter controlled via 2 stepper-motors • Mechanical dimmer for adjusting the brightness of the light-output between 0 % and 100 % • Strobe-effect with adjustable speed (1-10 flashes/sec.) via shutter • Integrated control-unit for digital adjustment of the starting-address, Pan/Tilt-reverse, resolution of the mirror-movement, display of the operating-hours, switching the lamp, test-program and reset • Special functions of the control-unit: manual control, automatic switching of the lamp, display of the DMX-values, automatic display-blackout, adjustment of the display-intensity, switching the lamp via DMX, temperature-display, adjustment of the cooling-fan speed and setting back the projector to default settings • DMX-control via every standard DMX-controller • 16/14 DMX-control-channels required • Suitable FUTURELIGHT controllers: C-128 controller, CP-192 controller • 14 high-quality stepping-motors • 16-bit-resolution or 8-bit-resolution for the mirror-movements (64 microsteps) • Reduced noise via adjustable fan-power • Self-resetable thermo-fuse

English

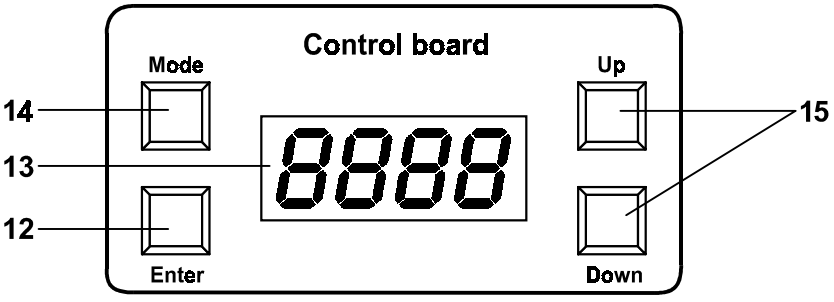
2.2 Description of components



1 - Fastening screws
2 - Bracket
3 - Fixation screw for bracket
4 - Objective
5 - Mirror



Rearpanel:
6 - DMX Output
7 - DMX Input
8 - Powercord
9 - Fuseholder
10 - Control board
11 - Voltage/frequency selections



Control board:
12 - Enter-button
13 - Display
14 - Mode-button
15 - Up/Down-buttons

3. Installation

3.1 General instructions

DANGER OF FIRE !
When installing the device, make sure there is no highly inflammable material (decoration articles, etc.) in between a distance of min. 0,5 m.

The projectors can be installed in any position without altering its operation characteristics.

Make sure that the device is fixed properly ! Ensure that the structure to which you are attaching the projectors is secure

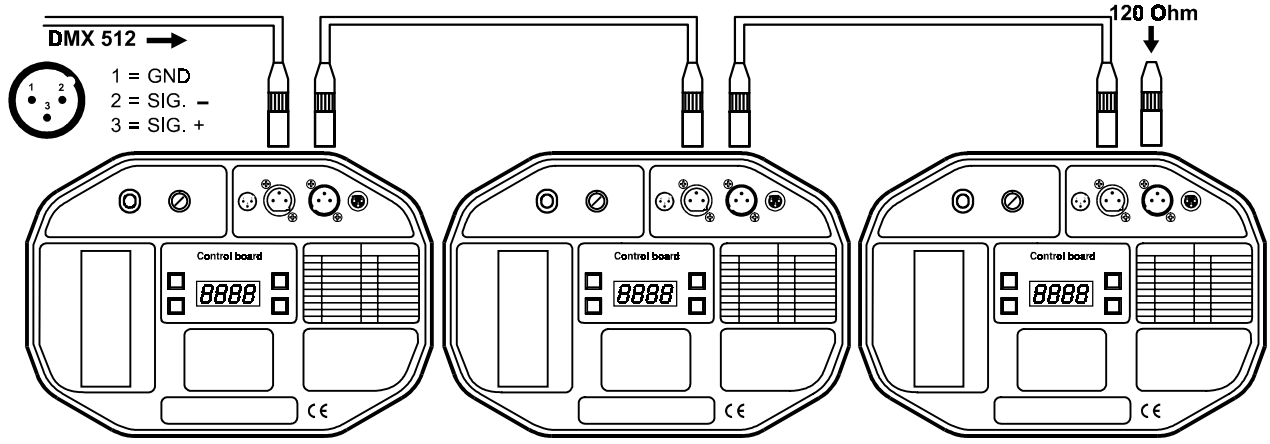
For fixing the projectors use the hole provided in the bracket. The hole in the adjustable mounting bracket has a diameter of 10 mm.
For overhead use, fit a safety chain or cord.

3.2 Connection to the mains

Connect the projector to the mains with the enclosed power-plug.

3.3 DMX-512 connection / connection between projectors

Connect the controller to the projector or one projector to another only by a stereo shielded cable and 3-pin XLR-plugs.
Caution: At the last scanner, the DMX-cable has to be terminated with a 120W resistor. Solder the resistance into a 3-pin XLR-plug and plug it in the DMX output of the last scanner.



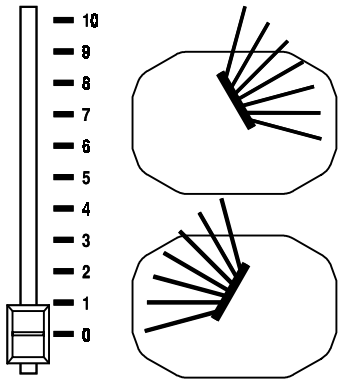
The wires must not come into contact with each other, otherwise the projectors will not work at all, or will not work properly.

4. Setup

4.1 Function of the control channels - 16 bit protocol

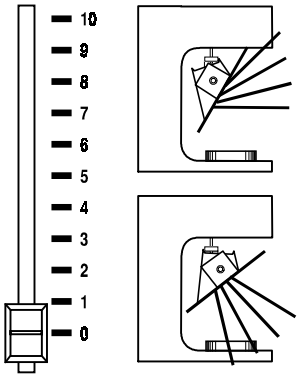
4.1.1 Channel 1 - Pan

Push slider up in order to move mirror horizontally (PAN). Gradual mirror adjustment from one end of the slider to the other (0-255, 128-center). The mirror can be stopped at any position you wish.



4.1.2 Channel 2 - Tilt

Push slider up in order to move mirror vertically (TILT). Gradual mirror adjustment from one end of the slider to the other (0-255, 128-center). The mirror can be stopped at any position you wish.



4.1.3 Channel 3 - Pan fine 16bit

4.1.4 Channel 4 - Tilt fine 16bit

4.1.5 Channel 5 - Speed of PAN / TILT movement

0	Max speed
249	Min. speed
250 - 252	Black-out while color 1, color 2, rot. gobo, stat. gobo or effect changes
253 - 255	Black-out while Pan, Tilt moving or color 1, color 2, rot. gobo, stat. gobo or effect changes

4.1.6 Channel 6 - Switch On / Off the lamp, reset, speed control of cooling fan

0	open, max. speed of fan
127	open, min. speed of fan (silent operation) from 0 to 127 - decreasing speed of fan
128 - 139	Switch On the lamp, reset, open position
140 - 239	No function
230 - 239	Switch Off the lamp after 3sec.
240 - 255	No function

4.1.7 Channel 7 - Colours 1

Linear colour change following the movement of the slider. In this way you can stop the colour-wheel in any position - also between two colours creating double-coloured beams.

0	Open / white
14	Red
28	Blue
43	Green
57	Yellow
71	Magenta
85	Cyan
100	Turquoise
114	Orange
127	White
128 - 189	Forwards rainbow effect from fast to slow
190 - 193	No rotation
194 - 255	Backwards rainbow effect from slow to fast
0 - 255	Colour macro function (channel 8 set from 128 - 255) - 64 different colours in following order: white, pink, magenta, red, orange, yellow, green, cyan, blue, UV

4.1.8 Channel 8 - Colours 2

0	Open / white
14	Pink
28	Yellow - green
43	Ligt blue
57	Yellow
71	Magenta
85	5600 K correction filter
100	3200 K correction filter
114	UV filter
127	White
128 - 255	Enable macro colour function on channel 7

4.1.9 Channel 9 - Effects

0 - 95	Open position (hole)
96 - 127	Frost filter
128 - 159	**3-facet rot. prism**
	128 max. forward rotation
	143 - 144 stop
	159 max. backward rotation
160 - 191	**5-facet rot. prism**
	160 max. backward rotation
	175 - 176 stop
	191 max. forward rotation
192 - 223	**5-linear facet rot. prism (Called "3D")**
	192 max. forward rotation
	207 - 208 stop
	223 max. backward rotation
224 - 255	**5-linear facet prism indexing**

4.1.10 Channel 10 - Static gobos

0 - 31	Open
32 - 63	Gobo 1
64 - 95	Gobo 2
96 - 127	Gobo 3
128 - 159	Gobo 4
160 - 191	Gobo 5
192 - 255	Gobo wheel rotation from slow to fast

4.1.11 Channel 11 - Rotating gobos

0 - 63	Open
64 - 95	Rot. gobo 1 (metal)
96 - 127	Rot. gobo 2 (metal)
128 - 159	Rot. gobo 3 (multicolor dichroic)
160 - 191	Rot. gobo 4 (glass)
192 - 255	No function (open)

4.1.12 Channel 12 - Rotating gobo index, rotating gobo rotation

0 - 127	Gobo indexing
128 - 190	Forwards rotation from fast to slow
191 - 192	No rotation
193 - 255	Backwards rotation from slow to fast

4.1.13 Channel 13 - Iris

0	Open
1 - 179	Max. diameter to min. diameter
180 - 191	Closed
192 - 223	Pulse closing slow to fast
224 - 255	Pulse opening fast to slow

4.1.14 Channel 14 - Focus, multistep zoom

0 - 85	Zoom 15° (Continuous adjustment from far to near)
86 - 170	Zoom 21° (Continuous adjustment from far to near)
171 - 255	Zoom 28° (Continuous adjustment from far to near)

4.1.15 Channel 15 - Shutter, Strobe

0 - 31	Shutter closed
32 - 63	No function (Shutter open)
64 - 95	Strobe-effect from slow to fast (max. 10 flashes/second)
96 - 127	No function (Shutter open)
128 - 159	Pulse-effect in sequences
160 - 191	No function (Shutter open)
192 - 223	Random strobe-effect from slow to fast
224 - 255	No function (Shutter open)

4.1.16 Channel 16 - Dimmer intensity

0 - 255	Gradual adjustment of the dimmer intensity from 0 to 100 %

4.2 Function of the control channels - 8 bit protocol:

DMX Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Function	PAN	TILT	PAN/TILT SPEED	FAN ON/OFF LAMP	COLOURS WHEEL 1	COLOURS WHEEL 2	EFECTS	STATIC GOBOS	ROTATING GOBOS	GOBO ROTATION	IRIS	FOCUS	STROBO	DIMMER

5. Addressing the SC-980

The control board on the top side of the SC-980 allows you to assign the DMX fixture address, which is defined as the first channel from which the SC-980 will respond to the controller.
If you set, for example, the address to channel 5, the SC-980 will use the channel 5 to 20 for control.
Please, be sure that you don't have any overlapping channels in order to control each SC-980 correctly and independently from any other fixture on the DMX data link.
If two, three or more SC-980 are addressed similarly, they will work similarly.

For address setting follow this procedure:

1. Switch On the SC-980 and wait until the fixture reset has finished (**"rSt"** is flashing at the display).
2. Press the [Mode] key in order to access the main menu. Browse through the menu by pressing the [Up] and [Down] keys until the display shows **"A001"**. Confirm by pressing [Enter] key and the letter **"A"** will flash.
3. Use the [Up] and [Down] keys to select the desired address.
4. Confirm by pressing [Enter] or [Mode] to cancel.

Controlling:

After having addressed all SC-980, you may now start operating these via your lighting controller.
Note:
After switching On, the SC-980 will automatically detect whether DMX 512 data's are received. If there are not received these data's at the DMX input, the display will start to flash **"A001"** with actually set address.

This situation can be occurred if:
there is not connected the 3 PIN XLR plug (cable with DMX signal from controller) in the input of the SC-980 the controller is switch Off or is failed the cable or connector is failed or the signal wires are swap in the input connector.

Note:
It's necessary to insert the XLR termination plug (with 120 Ohm) in the last lighting in the link in order to ensure proper transmission on the DMX data link.

6. Remotely Controllable Functions

6.1 Lamp

The SC-980 is run with a HMI/MSI 1200W lamp.
A relay inside of the SC-980 allows you to switch On and Off the lamp via itself control board on the top side or via your controller without affecting the rest of the lighting.

6.2 Switching On and Off the lamp by control board

1. Switch On the SC-980 and wait until the fixture reset has finished.
2. Press the [Mode] key in order to access the main menu. Browse through the menu by pressing the [Up] and [Down] keys until the display shows **"LAMP"**. Confirm by pressing [Enter] key.
3. Use the [Up] and [Down] keys to select **"On"** for switch On the lamp and **"Off"** for switch Off the lamp and press [Enter] to confirm or [Mode] to cancel.

Note:
It is also important to note, that the discharge lamp is cold restrike types, that means, that it has to be cold before re-striking. For this reason, you have to wait 5 minutes (max. speed of fan must be adjusted) after having switched Off the lamp before you can switch it back On again. If you try to switch On the lamp within 5 minutes after having switched it Off, the SC-980 will store this information and automatically ignite the lamp when the 5 minutes period has expired. The message **"HEAt"** will appear on the control board display at the back side of the SC-980. If the ignition of the lamp is seven times unsuccessful, on the display will appear **"LA.Er"**, meaning that the lamp could be damaged or even missed, or there could be a failure on the ignitor or ballast.

6.3 Colour wheels

The SC-980 has two colours wheels both with 9 color positions - 8 of these with dichroic colors and the last one open. The wheel can be positioned between two adjacent colors in any position. It is also possible to rotate the color wheel 1 continuously at different speeds „Rainbow effect". Hot and cold colour temperature filters (3200 K and 5600 K) are situated on the colour wheel 2.
By color macro function it is possible to obtain 64 different colours in following order: white, pink, magenta, red, orange, yellow, green, cyan, blue, UV

6.4 Static gobo wheel

This wheel has 5 metal gobos + open position, all gobos are interchangeable. Gobo wheel rotation from slow to fast can be also adjusted.

6.5 Rotating gobo wheel

2 metal gobos, 1 glass gobo and 1 dichroic gobo rotating in both directions, indexable.

6.6 Iris

Motorized iris for different beam diameters

6.7 Effect wheel

3-facet prism, 5-facet prism and 5-linear facet prism rotating in both directions at different speed are situated at the special effect wheel. Also wash light is provided by the special effect wheel.

6.8 Focus - multistep zoom

Motorized focus enables the beam to be focused anywhere on stage at different beam angles: 15°, 21°, 28°, provided by the special multistep zoom (3 steps).

6.9 Dimmer / Shutter / Strobe

Smooth 0 - 100 % dimming is provided by the combined mechanical dimmer / shutter unit. This unit may also be used for strobe effect (1 - 10 flashes per second)

6.10 Fan

The SC-980 is cooled by axial fan situated at the rear side of the lighting. The speed of the fan (of course the noice) can be continuously reduced if very quiet performance is required.
By the control board using the **"FAnS"** function you can choose 3 types of low fan speed operating :

1. "reG" - continuous controlling of the fan speed
the fan automatically raises its speed in order to control inside temperature of the lighting,
if the temperature inside increases about certain level (the low fan speed reduces the cooling of the lighting).
This cycle can repeat several times until the temperature inside is on suitable level.

2. "Lo.HI"- low/high speed of the fan operating
the fan keeps the adjusted low speed until the temperature exceeds max. inside temp. of the fixture, then the SC-980 automatically switch from low to high the fan speed.

3. "Lo.OF" - low speed / Switch Off the lamp operating
the fan keeps the adjusted low speed until the temperature exceeds max. inside temp.. then the SC-980 automatically switch Off the lamp.

7. The SC-980 Control Board

The control board situated on the top side of the SC-980 offers several features. You can simply set the lighting address, read the number of lamp or unit hours, switch On and Off the lamp, run test show, make a reset and also use special functions for manual, demo and service purposes.
The main menu is accessed by pressing the [Mode] key - press this one so many times until the display shows message **"A001"** (with actually stored address). Browse through the menu by the pressing [Up] and [Down] keys - the display shows step by step these messages: **"A001, rPAn, rTilt, 16br, Lati, Poti, LAMP, tESt, rESE, SPEC"**. Press [Enter] if you wish to select one of them. The functions provided are described in the following sections and the function hierarchy is shown below.

7.1 Main functions

A001 - DMX 512 Address settings:

The letter **"A"** flashes. Use the [Up] and [down] keys to select required address (001 - 496) and press [Enter] to confirm or [Mode] to cancel and return to the main menu.

rPAn - Pan reverse:

This function allows you to invert the pan movement. Use the [Up] and [Down] keys to select **"On"** if you wish this feature or "Off" if you don't wish this feature and press [Enter] to confirm or [Mode] to cancel and return to the main menu.

rtilt - Tilt reverse:

This function allows you to invert the tilt movement. Use the [Up] and [Down] keys to select **"On"** if you wish this feature or **"Off"** if you don't wish this feature and press [Enter] to confirm or [Mode] to cancel and return to the main menu.

16br - Movement resolution:

By this function you can adjust the desired movement resolution 8 or 16 bit. Use the [Up] and [Down] keys to select **"On"** if you wish the 16bit high resolution or **"Off"** if you wish only 8 bit resolution and press [Enter] to confirm or [Mode] to cancel and return to the main menu.
Note:
If you adjust the 16 bit resolution the fixture will occupy 16 DMX channels, if you adjust the 8 bit resolution, the fixture will be operated by only 14 DMX channels. Please, check the DMX protocol.

LAti - Lamp On time:

This option enables you to read the total number of hours that the lamp has been powered On. Press [Enter] or [Mode] to return to the main menu. In order to reset the counter to 0, you have to hold the Up- and Down-button and press the Enter-button.

PoEr - Power On time:

By this option you can read the total number of hours that the SC-980 has been powered On. Press [Enter] or [Mode] to return to the main menu.

LAMP - Switch On / Off the lamp:

Use the [Up] and [Down] keys to select **"On"** if you wish the switch On the lamp or **"Off"** if you wish switch Off the lamp and press [Enter] to confirm or [Mode] to cancel and return to the main menu.

tESt - Test program:

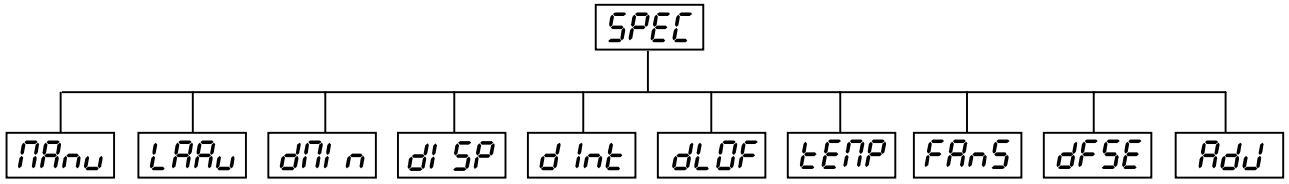
This function allows you to run a special test program without an external controller, which show you some possibilities of using SC-980. Press the [Enter] key to run the test program.

rESE - Reset Function:

Press [Enter] key to run reset. This option enables the SC-980 to index all effects (functions) and return to their standard positions.

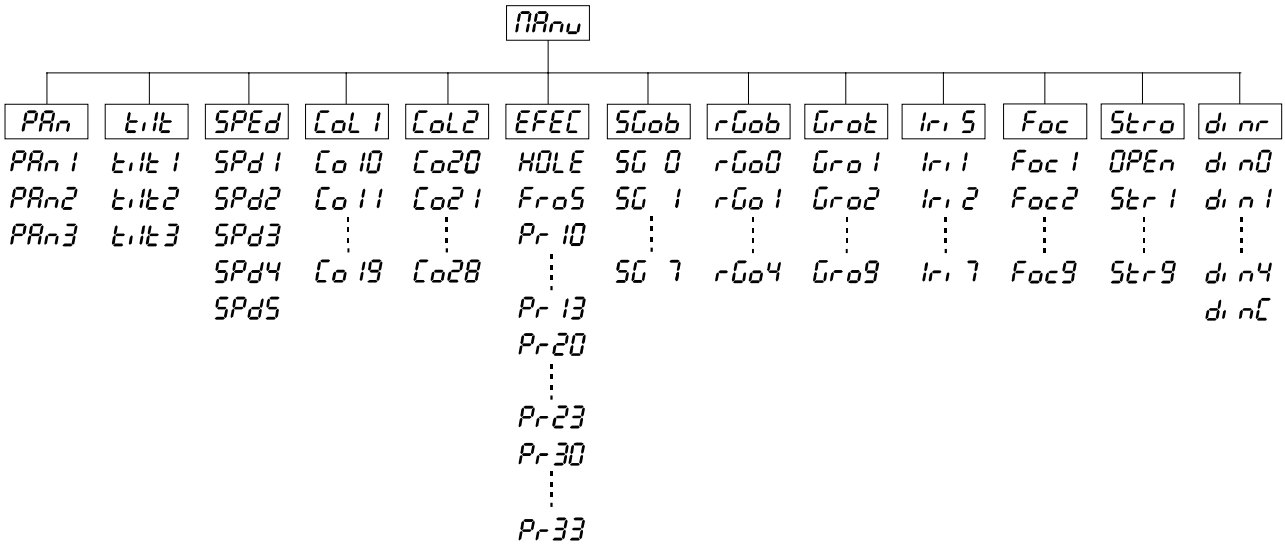
7.2 SPEC -Special functions

Use the [Up] and [Down] keys to browse through the special functions and select the one by pressing [Enter].



MANU - Manual control of effects

This function allows you to control manually the channel functions of the fixture. Use the [Up] and [Down] keys to select desired function and press [Enter] to adjust the effect or [Mode] to cancel and return to the menu.

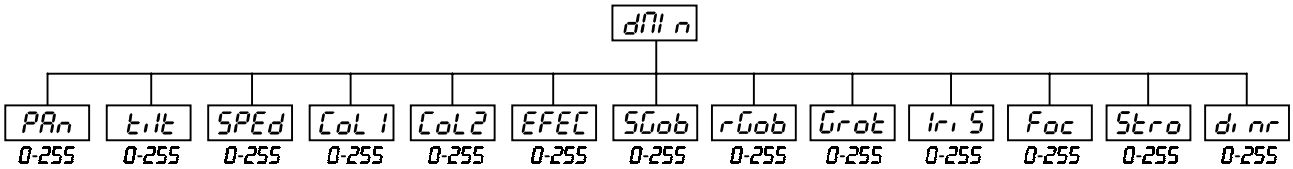


LAMU - Lamp on automatically

This function enables to switch On the lamp automatically after switching On the fixture. Use the [Up] and [Down] keys to select „On" if you wish to switch On the lamp automatically after switching On the fixture or „Off" if you wish the camp off after switching On the fixture and press [Enter] to confirm or [Mode] to cancel and return to the menu.

dMX n - DMX values

Readout DMX values of each channel received by the fixture. Use the [Up] and [Down] keys to select desired channel and press [Enter] to read its value coming to the fixture or [Mode] to cancel and return to the menu.



di SP - Automatic blackout of Display

This function allows you to keep the display On or to turn Off automatically 2 minutes after last pressing any key on the control board. Use the [Up] and [Down] keys to select **"On"** if you wish to keep the display On or **"Off"** if you wish to turn Off automatically 2 minutes after last pressing any key on the control board and press [Enter] to confirm or [Mode] to cancel and return to the menu.

d Int - Display intensity

By this function you can adjust from 20 to 100 the intensity of the display. Use the [Up] and [Down] keys to select the level of the display intensity and press [Enter] to confirm or [Mode] to cancel and return to the menu.

dLOF - Lamp Off via DMX

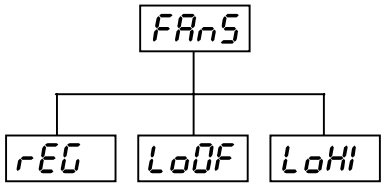
This function allows you to switch Off the lamp by DMX. Use the [Up] and [Down] keys to select **"On"** if you want to switch Off the lamp by DMX or **"Off"** if you don't want to switch Off the lamp by DMX and press [Enter] to confirm or [Mode] to cancel and return to the menu.

tEMP - Temperature

Temperature readouts of fixture inside in Celsius. Inside temperatures below 80° C are not critical. 80° C and more lead to the lamp being switched off. Please note that the outside temperature should not exceed 55° C.

FAnS - Low fan speed operating

By using this function you can choose 3 types of low fan speed operating. Browse through this menu by the pressing [Up] and [Down] keys - the display shows step by step these messages: **"reG, Lo.HI, Lo.OF"**. Press [Enter] if you wish to select one of them or [Mode] to cancel and return to the menu.



rEG - continuous controlling of the fan speed

the fan automatically raises its speed in order to control inside temperature of the lighting, if the temperature inside increases about certain level (the low fan speed reduces the cooling of the lighting). This cycle can repeat several times until the temperature inside is on suitable level.

LoHI - low/high speed of the fan operating

the fan keeps the adjusted low speed until the temperature exceeds max. inside temp..of the fixture, then the SC-980 automatically switch from low to high the fan speed.

LoOF - low speed / Switch Off the lamp operating

the fan keeps the adjusted low speed until the temperature exceeds max. inside temp.. then the SC-980 automatically switch Off the lamp.

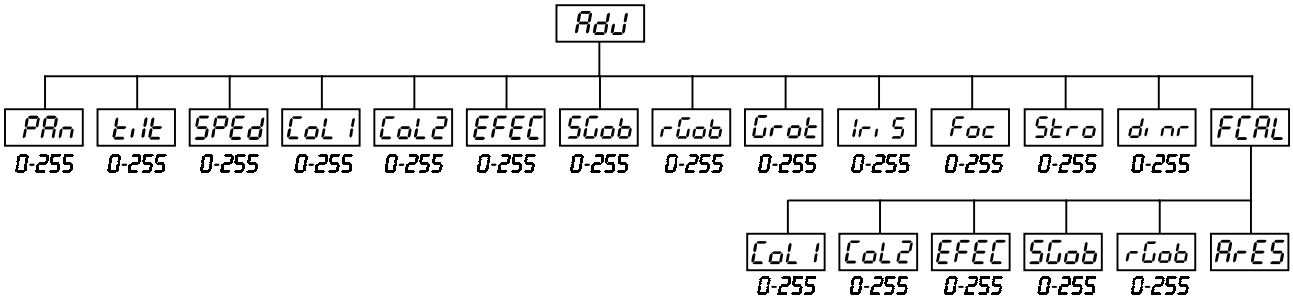
dFSE - Default settings

Press [Enter] to reset all fixture personalities (not the adjusting functions) to the default values. On the display will appear **„rSt"** meaning that the fixture makes the reset. See the table of personality setting and their default positions.

Personality	Display	Default values (SHADED)
Pan reverse	rPAn	On
		OFF
Tilt reverse	rtiLt	On
		OFF
Movement resolution	16br	On
		OFF
Lamp on automatically	LAMu	On
		OFF
Automatic black--out of display	diSP	On
		OFF
Display intensity	d Int	20 40 60 80 100
Lamp Off via DMX	dLOF	On
		OFF
Low fan speed operating	FAnS	rEG
		LoOF
		LoHI

AdJ - Adjusting the default positions of colour, gobo and effect wheels

By this function you can calibrate and adjust the colour, gobo and effect wheels to their standard/right positions. Use the [Up] and [Down] keys to browse through the adjusting menu - the display shows step by step these messages: **"PAn, Tilt, SPEd, Col1, Col2, EFEC, SGob, rGob, Grot, IriS, FoC, Stro, dinr"** by which you can adjust the fixture to the required / desired position (0-255) before the function calibration. Then when the positioning is finished use the last **"FCAL"** function (Fixture calibration).



1. Calibration via the control board

Press [Enter] and on the display will apper by using [Up] and [Down] keys these messages: **"Col1, Col2, EFEC, SGob, rGob"** for their very smooth function calibration. Select one of them press [Enter] and use the [Up] and [Down] keys in order to adjust their right value from 0-255 Then press [Enter] to confirm or [Mode] to cancel and return to the menu. This can be repeated for each calibration parametr if it is required. When the calibration works are finished it is necessary to use the **"ArES"** function in order to write the calibration values to the memory (EEPROM) and to make a reset in order to check the new adjusted positions of the colour, gobo and effect wheels. When the reset of the fixture is finished on the display will appear the **"FCAL"** message. Press [Enter] to repeat the calibration or [Mode] to return to the **"AdJ"** menu.

2. Calibration via the external controller

Press [Enter] and on the display will apper by using [Up] and [Down] keys these messages: **"Col1, Col2, EFEC, SGob, rGob"** - calibration parameters. Select one of them and press [Enter].
Now you can calibrate the colour, gobo and effect wheel by your controller. The DMX calibration protocol is described in the table mentioned below.

DMX Calibration protocol:

After having calibrated required functions press [Enter] to confirm (or [Mode] to cancel and return to the menu without reset by the **"ArES"** function) and use the **"ArES"** function in order to write the calibration values to the memory (EEPROM) and to make a reset in order to check the new adjusted positions of the colour, gobo, effect and rot. gobo wheels and gobo indexing.

DMX Channel	1	2	3	4	5	6
Function	COL. 1	COL. 2	EFEC.	SGOB	RGOB	-
	Calibration 0 - 255	Calibration 0 - 255	Calibration 0 - 255	Calibration 0 - 255	Calibration 0 - 255	
	Smooth microstep movement					

7	8	9	10	11	12	13	14	15	16
COLOURS 1	COLOURS 2	EFFECTS	STATIC GOBOS	ROTATING GOBOS	GOBO ROTATION	IRIS	FOCUS	STROBO	DIMMER
Standard protocol	Standard protocol	Standard protocol	Standard protocol	Standard protocol	Standard protocol	Standard protocol	Standard protocol	Standard protocol	Standard protocol

8. Error and Information messages

HEAt

This message appears if you try to switch On the lamp within 5 minutes after having switched it Off (the lamp is too hot). The message will come at the display if the lamp doesn´t ignite within 20 seconds. The SC-980 will store this information and automatically ignite the lamp when the 5 minutes period has expired.

LAEr

The ignition of the lamp is seven times unsuccessful (six times were appeared HEAt (message before), on the display will appear **"LAEr"**, meaning that the lamp could be damaged or even missed, the fixture is overheating (can be occured if the ambient temperature is 55°C or more) or there could be a failure on the ignitor or ballast. Please place or replace the lamp, check the ambient temperature or if the situation was not caused by the lamp please, contact your dealer.

nbEr

This messsage inform you that the main PCB does not communicate correctly with the control board.

C 1Er

(color wheel 1 error) This messsage will appear after the reset of the fixture if the magnetic-indexing circuit malfunctions (sensor failed or magnet missing) or the stepper motor is failed (or its driver circuit on the main PCB). The color wheel is not after the reset in the default position.

C2Er

(color wheel 2 error) This messsage will appear after the reset of the fixture if the magnetic-indexing circuit malfunctions (sensor failed or magnet missing) or the stepper motor is failed (or its driver circuit on the main PCB). The color wheel is not after the reset in the default position.

SGEr

(static gobo wheel error) This messsage will appear after the reset of the fixture if the magnetic-indexing circuit malfunctions (sensor failed or magnet missing) or the stepper motor is failed (or its driver circuit on the main PCB). The rotating gobo wheel is not after the reset in the default position.

FtEr

This error message inform you that the fixture was overheating (occured if the ambient temperature is 55°C or more) and that the relay switched Off the lamp. This message will shine on the display until the temperature will be on the suitable level, then on the display will appear the HEAt message meaning the lamp is too hot. (explanation see above).

SnEr

This message appears if the lamp lighting sensor is failed. Please, contact your dealer.

PoEr

This message will appear if the fixture was shortly disconnect from the main.

FrEr

It will appear if the frequency of the main is not standard 50 or 60Hz.

9. Technical Specifications

Power supply:

230 V/50 Hz

Power consumption:

1500 W, Fuse: T10A

Lamp:

HMI/MSI 1200W

Optical System

- Double condensor lens with high efficiency parabolic mirror, focus lens and multistep zoom lenses system (15°, 21°, 28° beam angles)

Colours

Colour wheel 1:

- 8 dichroic-filters plus white, colour-wheel with variable rotation speed

Colour wheel 2:

- 5 dichroic-filters, colour temperature filters 3200 K and 5600 K, UV filter plus white,

Static gobos

- 5 metal gobos plus full circle
- static gobo wheel cont. rotation

Rotating gobos

- 2 metal gobos, 1 glass gobo and 1 multicolor dichroic gobo rotating in both dirrections at different speeds
- gobo indexing

Strobe

- Strobe effect with variable speed (1 - 10 flashes per second)

Dimmer

Smooth dimmer from 0 - 100%

Effects

- 3-facet prism, 5-facet prism, 5-linear facet prism, rotating in both dirrections at different speeds
- 5-linear facet prism indexing
- Wash light filter (frost)

Iris

Motorized iris for different beam diameters

Focus - multistep zoom

Motorized focus enables the beam to be focused anywhere on stage at different beam angles: 15°, 21°, 28°, provided by the special multistep zoom (3 steps).

Motor

- 14 high quality stepper motors controlled by microprocessors

Electronics

- Digital serial input DMX-512
- 16 control-channels (full 16 bit protocol):

Channel 1: Horizontal mirror-movement 8 bit
Channel 2: Vertical mirror-movement 8 bit
Channel 3: Fine Horizontal mirror-movement 16 bit
Channel 4: Fine Vertical mirror-movement 16 bit
Channel 5: Pan/Tilt speed
Channel 6: Fan speed, On/Off lamp, reset
Channel 7: Colour 1
Channel 8: Colour 2
Channel 9: Effects - rotating prisms, wash light
Channel 10: Static gobos
Channel 11: Rotating gobos
Channel 12: Gobo rotation, gobo indexing
Channel 13: Iris
Channel 14: Focus - multistep zoom
Channel 15: Shutter, strobe
Channel 16: Dimmer

Housing

- Easy access to lamp and main components thanks to large opening cover and the projector‘s modular construction.

Dimensions:

L x W x H: 1060 x 410 x 230 mm

Weight:

57kg (brutto)

10. Maintenance and cleaning

It is absolutely essential that the projector is kept clean and that dust, dirt and smoke-fluid residues must not build up on or within the projector. Otherwise, the projector‘s light-output will be significantly reduced. Regular cleaning will not only ensure the maximum light-output, but will also allow the projector to function reliably throughout its life.
A soft lint-free cloth moistened with any good glass cleaning fluid is recommended, under no circumstances should alcohol or solvents be used!

DANGER !
Disconnect from the mains before starting any maintenance work

The front mirror and objective lens will require weekly cleaning as smoke-fluid tends to building up residues, reducing the light-output very quickly. The cooling-fan should be cleaned monthly.

The gobos may be cleaned with a soft brush. The interior of the projector should be cleaned at least annually using a vacuum-cleaner or an air-jet.
The dichroic colour-filters, the gobo-wheel and the internal lenses should be cleaned monthly.

To ensure a proper function of the gobo-wheel, we recommend lubrication in six month intervals. The quantity of oil must not be excessive in order to avoid that oil runs out when the gobo-wheel rotates.

11. Appendix

We hope you will enjoy your SC-980. We can assure you that you will enjoy this device for years if you follow the instructions given in this manual.

Should you have further questions, do not hesitate to contact your local dealer.

Please note: errors and omissions for every information given in this manual excepted. Every information is subject to change without prior notice. Any claim due to missing or wrong information in this manual is herewith excluded!