rosco

Silk™ 210

pure, soft white light

User Guide

PLEASE READ & SAVE
THESE ORIGINAL INSTRUCTIONS

CE

www.rosco.com/silk

Silk™ 210 ▪ User Guide

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INTRODUCTION

Congratulations on your purchase of a Rosco Silk™ LED fixture. Engineered to meet the requirements of the most discerning filmmaker, the Silk™ series LED lighting system has been specifically developed for film and video applications that demand extremely color-accurate, high-quality light.

Your new Silk™ fixture will create a high volume of enticingly soft, broad spectrum white light utilizing state-of-the-art tungsten & daylight balanced LEDs. Silk™ LED fixtures also feature a non-glare diffuser that provides uniform, single-source light that gently embraces its subjects, making it the perfect fixture for illuminating feature films and television productions, on stage or on location.

IMPORTANT SAFEGUARDS

The symbols below are used throughout this manual to identify important safety information.

Heed all warnings and safety information.

SYMBOL	MEANING
	**WARNING, DANGER OR CAUTION** Risk of injury to yourself or the product
	**RISK OF ELECTRICAL SHOCK** Risk of severe electrical shock

 PREVENTING ELECTRIC SHOCK

- This machine uses mains electrical power at 100-240 VAC. When directly contacted, such voltages are hazardous to human life. Follow all local electrical codes and take precautions when using this product.
- This product is designed to operate from three-wire power systems, where one of the wires is a safety ground. DO NOT disconnect the safety ground, or use extension cords or adapter plugs to connect this machine to a two-wire system. Operation without a safety ground may result in hazardous electrical shock.
- Use only extension cords that are of appropriate length and are rated for Silk™ 210's specified voltage and current. If an extension cord shows signs of wear or gets warm to the touch, discontinue its use and obtain a cord with a higher current rating. Improper extension cords are hazardous and may result in poor performance due to excessive voltage drop.
- Disconnect unit from power source before servicing and when not in use.

IMPORTANT HEALTH & SAFETY INFORMATION

Silk™ lighting fixtures use high strength magnets on the front face

Do not place within 300mm of credit cards

Magnets can adversely affect heart pacemakers

MAINTAINING SAFE OPERATION

- Use only ROSCO spare parts and accessories so as to not void the warranty.
- Allow the unit to cool before attempting to service. Silk™ LED fixtures must only be serviced by a qualified technician.
- Silk™ LED fixtures are not intended for residential use. Use only in a professional studio or mobile broadcast environment by trained personnel under proper training and supervision. Keep out of reach from children. Children shall be supervised to ensure that they do not play with the appliance.
- Silk™ LED fixtures are capable of reaching a maximum surface temperature of 185˚F (85˚C). Keep minimum 4 inches (10cm) distance away from flammable materials/objects. The top of the unit may become hot to the touch during operation. Contact during or immediately following operation may result in burns.
- Silk™ LED fixtures are IP20 rated – for indoor use and/or a dry environment. Do not operate outdoors in a wet environment.
- Silk™ LED fixtures are not certified for use in hazardous locations.
- Silk™ LED fixtures are designed for operation within the range of 32˚ to 95˚F (0˚ to +35˚C).
- Ensure Silk™ LED fixtures are stored within the range of -4˚ to 140˚F (-20˚ to +60˚C).
- Do not look directly into a Silk™ LED fixture for long periods of time, as prolonged exposure may be harmful to the eyes.

MAINTAINING SAFE OPERATION

- High voltage and stored energy may be present inside the unit. Only trained service personnel should engage in repairs.
- The use of a safety cable is strongly recommended when hung overhead. There are safety wire mounting ports in the extruded sides in all four corners.
- When suspended on the yoke, the yoke cannot be used as mounting point for secondary safety cable.
- All ventilation holes in the back plate must remain clear and are not to be obstructed during the operation of the appliance.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

UNPACKING

Carefully remove the unit from the box.

Do not attempt to operate Silk™ LED fixtures if there are any signs of physical damage. In case of damage, contact your local Rosco dealer. Ensure the Light Stand Receiver is securely mounted onto the yoke before rigging.

Your Rosco Silk™ LED fixture will arrive with a power supply attached to the back of the unit, and the power cord detached from the unit. Plug the IEC connector into the power supply.

Safety cables must securely be attached to the designated slots on the Silk™ fixture (detailed on page 7) and be as short as possible to reduce travel distance if primary hanging accessory fails. The Silk™ 210 weighs 12.8 lbs (5.9 kg) excluding accessories. The combined weight should be considered when choosing a suitable safety cable.

Ensure that the yoke locking handle is correctly tightened after positioning Silk™. If the locking handle is not tightened correctly, the fixture may swing.

ACCESSORY MOUNTING POINTS

CONTROLS

Silk™ LED fixtures can be controlled via the on-board, Rear Control Panel located on the back of the fixture, or via user-supplied DMX512 data input.

REAR CONTROL PANEL

Left Rotary Knob:
Controls light intensity

Green Indicator LED:
Power

Blue Indicator LED:
DMX signal present

Power Switch

Right Rotary Knob:
Controls color temperature with the rotary controller and accesses pre-sets with a push button

DMX Set Button:
Used to select DMX address, selected with color wheel

The QR code will take you to the Silk web page on the Rosco web site where you will find the latest manual PDF, latest accessories and details on other fixtures in the range.

DISPLAY

Top Left	Dimming percentage
Top Right	DMX address
Bottom Left	Color temperature
Bottom Right	Input DC voltage

NOTE: If the input voltage drops below 13.5V, all characters will flash.

OPERATION

POWERING ON

1. Silk™ LED fixtures are supplied with a standard 90 – 240 VAC switching power supply, which is mounted in a cradle on the rear of the unit. A lead with a 4-pin XLR connector brings DC power from the power supply to the Silk™.
   a. Silk™ LED fixtures can be powered by V-Mount batteries. Remove the power supply and cradle, and then replace it with an optional Silk™ V-Mount Cheeseplate Battery Holder.
   b. Silk™ LED fixtures can be powered by Anton/Bauer batteries. Remove the power supply and cradle, and then replace it with an optional Silk™ Anton/Bauer Cheeseplate Battery Holder.

2. Make sure the 4-pin XLR connector from the power supply is plugged into the Silk™, and then plug the power supply into mains power: 100 – 240 VAC. Then switch on the unit with the rocker switch on the User Interface.
   a. The rear display will illuminate.
   b. Settings will default to those in use when the unit was last powered down.

3. If desired connect the Silk™ LED fixture to a DMX console using the 5-pin XLR ports on the rear control panel.
   a. The presence of a DMX input signal is automatically detected.
   b. The Blue LED Indicator LED will illuminate.

INFORMATION

Silk™ units have a digital serial number and firmware version, which is viewable on the initial LED display load screen.

This information is also accessible by pressing and holding down the DMX/MODE/SELECT button.

The display will revert to default once the button is released.

MANUAL CONTROL

1. Select the output level of the fixture by rotating the left-hand knob until the desired set point has been achieved. The current set point will be shown in the upper left-hand portion of the display.
2. Select the color temperature of the fixture by rotating the right-hand knob until the desired set point has been achieved.

   a. Silk™ LED fixtures can be set to color temperatures ranging from 2800K to 6500K.

   b. The current set point will be shown in the lower left portion of the LED display.

   c. Seven pre-set color temperatures are stored in the fixture's control logic. Push the right-hand knob to index to the desired pre-set color temperature:

Preset Chart:

2900K
3200K
3600K
4300K
5000K
5600K
6500K

NOTE: The rear LED display will automatically dim after several seconds if no inputs have been entered. The display will resume full illumination the next time any of the controls are operated.

DMX OPERATION

Silk™ LED fixtures can be operated via DMX512 protocol using the standard 5-pin DMX In and DMX Out connectors on the Rear Control Panel. Once DMX is connected to the Silk™ fixture via the 'DMX In' port, it can be controlled by a DMX console. When a valid DMX signal is detected, the Blue Indicator LED will illuminate. The 'DMX Out' connector allows other DMX enabled fixtures to be daisy-chained together.

NOTE: Silk™ LED fixtures are self-terminating and do not require external DMX termination.

DMX Control uses two channels:

- DMX Channel 1 = Output (Dimming) Intensity
  (DMX value 0 - 255 = level 0 - 100%)
- DMX Channel 2 = CCT Color Temperature
  (DMX value 0 = 2900K, 255 = 6500K)

Silk™ LED fixtures use industry standard 5-Pin XLR male and female connectors to receive DMX signals and output DMX signals.

The DMX Pin wiring is as follows:

- Pin 1: Ground
- Pin 2: Data +
- Pin 3: Data –
- Pin 4: Spare
- Pin 5: Spare

NOTE: Silk™ uses LTP (Last Takes Precedence) protocol. LTP is a handy way of controlling intelligent lighting parameters that relate to intensity or color mixing. It you need a color wheel to change from tungsten to daylight, or dimmer position change, you want it to happen as you expect. This allows manual override 'on set' even if the fixture is being run back to the board on set or in the gallery. LTP control channels send the latest instruction to an intelligent fixture parameter and nothing changes until it sends another one on that channel.

SETTING THE DMX ADDRESS

Push the DMX Set Button and the DMX base address in the upper right corner of the display will flash. Rotate the right-hand knob to the desired DMX base address (001 to 511). Once the desired address has been selected, push the DMX set button again. The DMX address will stop flashing and will display the chosen address. Silk™ LED fixtures utilize 2 channels per fixture. Other, subsequent DMX addresses should be offset by 2.

Silk™ DMX mapping has been designed to enable easy access of color temperatures from simple or older DMX control boards. The color temperature relates directly to the percentage on the desk, such that if Channel 2, (base channel + 1), on the desk is at 30%, the color temperature will be at 3000K.

KELVIN/CCT	HEX	DEC	% Age
2800	0x48	72	28
2900	0x4a	74	29
3200	0x52	82	32
3600	0x5c	92	36
4300	0x6e	110	43
5000	0x7f	127	50
5600	0x8e	142	56
6500	0xa5	165	65

NOTE: Silk™ LED fixtures will maintain their current Color Temperature and Output/Dimming settings in the event of an interruption to the DMX signal.

A full DMX mapping table is available on the Rosco website at **www.rosco.com/silk**

SILK™ 210 RUNNING ON DC SOURCES

Silk™ 210 is designed to run on any voltage between 13V – 36VDC.

However it is most efficient running at 24V. Below 20V the fixture becomes steadily less efficient.

For optimal performance run Silk™ 210 on an AC transformer.

A second option is to run it on 24 V DC source, either with a block battery or with the Silk™ Double V – lock adaptor, BB-VLO-2X.

The third option is to run on one 12V battery using the V-lock or Anton/Bauer adaptor plate, BB-SIL-VLOCP or BB-SIL-ABCP. In this situation, it is advised to use the highest capacity battery available. High capacity and heavy duty V-locks and Anton/Bauer batteries are available and High Draw versions are available from some manufacturers such as Hawk-Woods.

At full output, Silk™ 210 can pull up to 10A as the battery voltage reduces, therefore it is advised to select a battery that is suitably rated.

Hawk-Woods and other manufacturers now offer a range of batteries that are designed for high current draw, up to 15A, ideal for use with Silk™ lighting products. A battery used on Silk™ 210 must have a current rating of >10A to cope with current draw at lower voltages to ensure it doesn't cut out early and reduce running time.

There are a range of variables that effect battery life such as capacity, age, number of duty cycles, quality, and ambient temperature.

Silk™ firmware has been designed to protect the driver electronics. At 13.5V input the entire display will flash to warn the user that there is limited remaining capacity. At 13V the lamp will switch off and display "Lo OFF". Please switch off the unit and change the battery or switch to an alternative power source. The time between the warning display and cut out will vary but a typical duration would be 4 – 6 minutes but typical duration on a 100W battery would be 10 minutes.

Additionally there are other steps you can take to prolong battery life on Silk™ 210 if running time is the priority. Roll off the output to <90% and walk the lamp in slightly closer to the subject if possible. This can increase the running time by up to 75%. Adjusting color temperature below 5300K if possible will also increase running time. 4300K, for instance, if appropriate to your situation will increase running time by as much as 25%.

Rosco extensively tests batteries with Silk™ 210 on a range of color temperatures and dimmer settings.

The batteries listed on page 15 have successfully passed benchmark testing and the table is derived from real life testing which can be used as a guide to expected running time at various fixture settings.

Many other batteries offered from a range of manufacturers may work but their performance and reliability cannot be confirmed by Rosco.

Use only Lithium Ion batteries >=100W with this Silk luminaires. Irreparable damage may occur to the driver board when using lower power batteries or batteries with a different chemistry.

Rosco has tested many Lithium Ion batteries currently available and a list of test results and expected run times are shown on page 15.

SILK™ 210 FLICKER FREE

Silk™ 210 has been tested at 1,000fps, 1,500fps, 2,000fps and 3,000fps at a range of color temperatures.

Silk™ has also been verified at 1,000 fps at 100%, 50% and 25% output and it is rock solid with no evidence of wavering or flicker.

A Vision Research Miro LG320S was used for the test and a high speed specialist validated the process and results.

BATTERY RUN TIMES

Bat 1	Bat 2	Manufacturer	CCT	running time
91		IDX	2800	0:36:00
91		IDX	4700	0:37:00
91		IDX	5600	0:24:00
94		AB PAGlink	2800	0:38:00
94		AB PAGLink	4700	0:40:00
94		AB PAGLink	5600	0:26:00
98		BCB	2800	0:47:00
98		BCB	4700	0:47:00
98		BCB	5600	0:36:00
98		BCB	6500	0:46:00
130		Dynacore	4300	0:58:00
130		Dynacore	5600	0:23:00
90H		Hawk-Woods	4300	0:50:36
90H		Hawk-Woods	5000	0:36:00
90H		Hawk-Woods	5600	0:30:00
140		Hawk-Woods	3200	0:24:00
140		Hawk-Woods	4300	1:12:00
140		Hawk-Woods	4700	1:01:00
140		Hawk-Woods	5000	0:26:00
140		Hawk-Woods	5600	0:25:00
140		Hawk-Woods	6500	0:53:00
150		AB HC Dionic	2800	0:31:00
150		AB HC Dionic	4700	0:30:00
150		AB HC Dionic	5600	0:27:00
150		AB HC Dionic	6500	0:37:00
190		Hawk-Woods	2800	1:16:00
190		Hawk-Woods	3200	0:48:00
190		Hawk-Woods	4300	1:40:00
190		Hawk-Woods	4700	1:23:00
190		Hawk-Woods	5600	0:30:00
90H		Hawk-Woods	4300	0:45:00
90H		Hawk-Woods	5600	0:26:00
150		Lanparte	4300	1:10:00
146		IDX	4300	1:21:00
87		IDX	5600	0:29:00
150		Lanparte	5600	0:44:00
146		IDX	5600	1:00:00
130		DYNACORE	5600	0:42:00
140	140	Hawk-Woods	3200	2:29:00
140	140	Hawk-Woods	4300	2:48:00
140	140	Hawk-Woods	5600	2:15:00
190	190	Hawk-Woods	3200	3:21:00
190	190	Hawk-Woods	4300	3:50:00
190	190	Hawk-Woods	5600	2:10:00

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Unit does not respond to DMX control, but DMX indicator LED 'lit'	Unit set to incorrect DMX address	Check DMX address
Unit does not respond to DMX, but DMX indicator LED 'off'	No DMX signal is being received Bad Cable No DMX plugged in Power off at the console	Check cable and DMX run from the console

ACCESSORIES

Mounting

BA-SIL-210-SY	Silk™ 210 Yoke
BA-SIL-210-POY	Silk™ 210 PoleOp Yoke

Battery Holders

BB-SIL-AB-CP	Silk™ Anton/Bauer battery holder
BB-SIL-VLO-CP	Silk™ V-Lock battery holder

Barn Doors

BD-SIL-210	Silk™ 210 Barn Doors (set)

Carrying Cases

CAS-SIL-210S	Silk™ 210 Carrying Case

Diffusion and Light Modifiers

DM-SIL-210LV45	Silk™ 210 Egg Crate Louver 45 degrees
DM-SIL-210LV60	Silk™ 210 Egg Crate Louver 60 degrees
DM-SIL-210SB	Silk™ 210 DOPChoice SoftBox, inc 1/4 grid cloth
DM-SIL210SG	Silk™ 210 DOPChoice SnapGrid, fabric louvre

Transformers (AC Mains PSU)

TR-COM-120WOC	AC PSU to XLR4 24V, no power cord
TR-SIL-120WC	Silk™ AC PSU cradle

Mains Power Cables

SCHI-C13-EU	EU IEC AC supply cable, 3 pin, 3m
SCHI-C13-UK	UK IEC AC supply cable, 3 pin, 3m
SCHI-C13-US	US IEC AC supply cable, 3 pin, 3m

Replacement Parts

XS-SIL-210DIF	Silk™ Diffusion Panel – Silk™ 210
XS-SIL-CC	Silk™ corner piece module with accessory retention mechanism

SPECIFICATIONS

Power:

Input Voltage 13 - 36 VDC

AC Power Transformer

- Power Supply Universal 100 - 240VAC input / 24VDC output
- Power Consumption 120W Max (DC)

DC Operation via standard Anton/Bauer, V-Mount or 4-Pin batteries (owner supplied)

Physical Characteristics:

Dimensions (excluding Yoke)

20.5" × 11.9" × 3.9" (520 mm × 302 mm × 98 mm)

Dimensions (including Yoke & Receiver)

21.9" × 13.9" × 3.9" (557 mm × 352 mm × 98 mm)

Weight (including Power Supply, Yoke & Receiver)

13 lbs. (5.9 kg)

Optical Characteristics:

The Silk™ LED Fixture is a broad spectrum, diffuse, white light source. Like all discontinuous spectrum lamps, this source can only emulate a black body radiator or daylight source. However Silk™ LED fixtures have been formulated to mix well with traditional sources, such as Tungsten Halogen, MSR and HMI fixtures, as they work within the color gamut of current broadcast and motion picture cameras and film stock.

Measuring Correlated Color Temperature (CCT)

Silk™ fixtures utilize an LED source that is optimized for the film, TV and image capture industries. Most existing color meters cannot be used to accurately read the correlated color temperature (CCT) of Silk™ and other discontinuous - spectrum light sources.

Color meters in use today are designed for a full spectrum source such as incandescent lights. These meters possess only 3 sensors to measure the light output: red, green, and blue. As such, a narrow band light source, such as Silk™ may not read correctly.

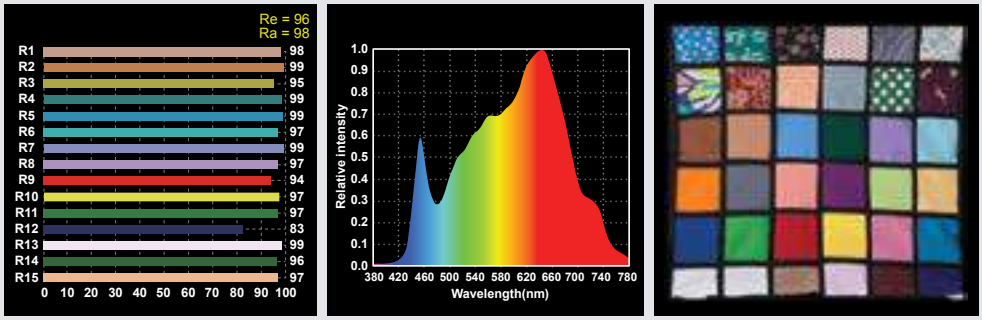
To ensure that the CCT of the light emanating from the Silk™ LED fixtures matches traditional light sources, the output from Rosco Silk™ LED fixtures has been validated using TLCI test algorithms and validated as a source of the highest quality. Metrics suggest the source will need negligible correction in post-production, save for subjective adjustments.

COLOR METRICS

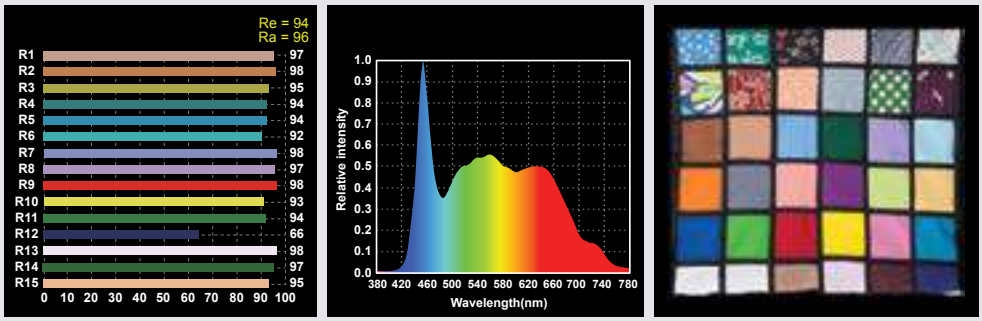
The diagrams below show, histogram, spectral power distribution and chip chart images gathered with a standard Silk™ 210 at the 3200K and 5600K set points.

These metrics are typical of a Silk™ LED fixture, but individual units may vary within manufacturing tolerance. It is the user's responsibility, as is customary and standard practice, to shoot image capture tests when combining sources using different core technology such as HMI, fluorescent, tungsten or RGB LED fixtures to ensure compatibility.

3200K



5600K



CRI is not a good measure of the appropriateness of the color output for image capture and should not be relied on when comparing fixtures.

COLOR METRICS

Parameter	3200K	5600K
CRI Ra	96	98
R9	96	98
CQS	91	96
TLCI	98	96

Data: DMX 512 - 5P XLR In / Out

Approvals: ETL/UL1573 and 8750

CE

RoHS

IP20 Rated

ENVIRONMENTAL: DISPOSAL OF OLD ELECTRICAL & ELECTRONIC EQUIPMENT

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste.

2 YEAR LIMITED WARRANTY

Rosco Laboratories warrants to the first retail purchaser that this Product will be free from defects in workmanship and material for a period of twenty four (24) months from the date of original purchase. For warranty service you must be able to provide proof of purchase. Should this Product prove defective during the warranty period, please contact your local Rosco office for Return Authorization. No warranty service will be performed without Return Authorization. At Rosco's sole discretion, covered Products will be repaired or replaced with new or refurbished equipment or a model of like kind and quality. Exchanged or replaced parts and Products assume the remaining warranty period of the original product covered by this limited warranty. You are responsible for securely packaging the defective Product and returning it to Rosco as per the instructions of the Return Authorization. Within North America, Rosco will ship the repaired or replaced Product to you freight prepaid. Shipments to other locations will be made freight collect. This warranty is non-transferable and does not extend beyond the first retail purchase of the Product.

This warranty does not cover damage to the Rosco Product caused by parts not manufactured, distributed or certified by Rosco. Rosco is not obligated to provide warranty service should the Product fail to be properly maintained or fail to function properly as a result of misuse, abuse, improper installation, neglect, improper shipping, damage caused by disasters such as flood, fire and lightning, improper electrical current or unauthorized service repairs other than those by a Rosco Authorized Servicer.

If a claimed defect cannot be identified or reproduced, you will be held responsible for the costs incurred. Unless otherwise stipulated by state law, all warranties expressed or implied are limited to the twenty four (24) month period of this warranty.

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