

ROSCO

X24 Projector Original Instructions



TABLE OF CONTENTS

Introduction	3
Warnings	4
Modules	6
Base Unit	6
Wheel Module.....	8
Lens Module	10
Analog Control Panel.....	11
Preparing for Use.....	12
Installing the Lamp (Base Unit).....	12
Installing a Glass Pattern (Wheel Module)	13
Installing a Lens Barrel (Lens Accessory)	14
Unit Operation (Analog, Wheel, Lens)	15
Mounting	15
Powering Up	15
Adjusting Brightness	16
Adjusting Focus.....	16
Adjusting Wheel Speed and Direction	16
Adjusting Shutters on the Wheel Module.....	16
DMX Control Module.....	17
Dowser.....	18
Manual Mode	19
DMX Mode	20
Troubleshooting	22
Specifications.....	24
Mechanical Specifications	24
Electrical Specifications	24
Wheel Module Specifications	24
Lamp Specifications.....	24
Lens Module Specification	24
Warranty.....	25
Certificate of Conformity	26

INTRODUCTION TO YOUR X24 PROJECTOR

Congratulations on your purchase of the Rosco Laboratories X-24 Projector. (Also known as the X-Effects).

This modular projector is intended to provide a range of unique lighting effects with high brightness in a compact package.

These effects include, but are not limited to, light reflecting off water and fire of varying intensities.

A variety of lenses provide a wide range of beam angles suitable for any situation. In reality, the effects are limited only by your imagination.

WARNINGS

-  The light beam near the front of the unit (< 1m / 3.3 ft.) is very concentrated.
-  Make sure that no object or person comes into the light beam at this range as burns or fire may result.
-  The top lid of the unit may become hot to the touch during operation. Contact during or immediately following operation may result in burns.
-  The lamp is subject to high temperatures and pressures during operation. Do not attempt to operate unit with lid open. Also do not attempt to handle lamp within 1 hour of operation.
-  High voltages are produced when the unit attempts to strike the lamp. Only apply power to the unit when a lamp is attached properly seated in the unit, and the lid is closed.
-  High voltages and stored energy are present inside the unit. Only trained service personnel should engage in repairs or replacements beyond the modules or lamp.
-  At very cold temperatures the lamp may need to warm up close to room temperature before it will properly strike.
-  The use of a safety cable is strongly recommended when hung overhead. Also make sure not to block the top, bottom, or rear vents when mounted during operation.
-  Ventilation openings 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.
-  Children shall be supervised to ensure that they do not play with the appliance.

-  This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
-  Children shall not play with the appliance.
-  Cleaning and user maintenance shall not be made by children without supervision.
-  Disconnect The X24 from power before maintenance, servicing or replacing parts.
-  Units in outdoor settings may need to be shielded from the elements and/or heated. There are commercially available enclosures that can serve this purpose, please call Rosco for more information. 1-800-767-2669.

MODULES

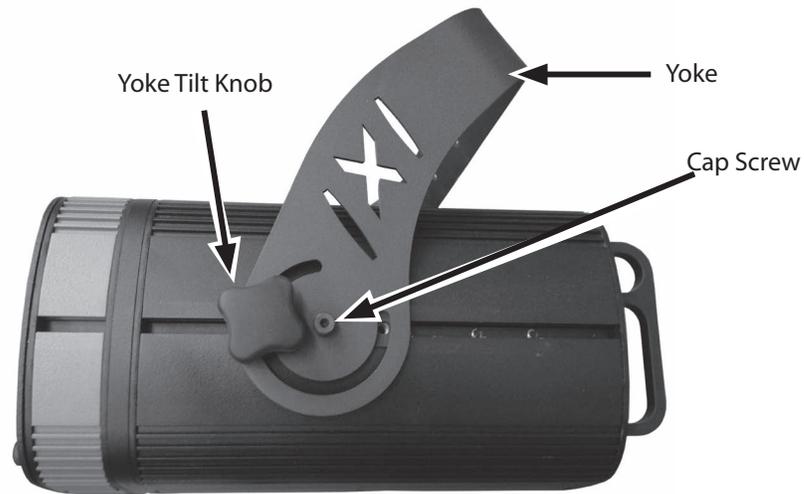
Base Unit

The base unit contains the lamp, electronic ballast, and accessory power supply. The yoke attaches to the side of the base unit in slots for positional adjustment. It also has a slot for special optical filters.

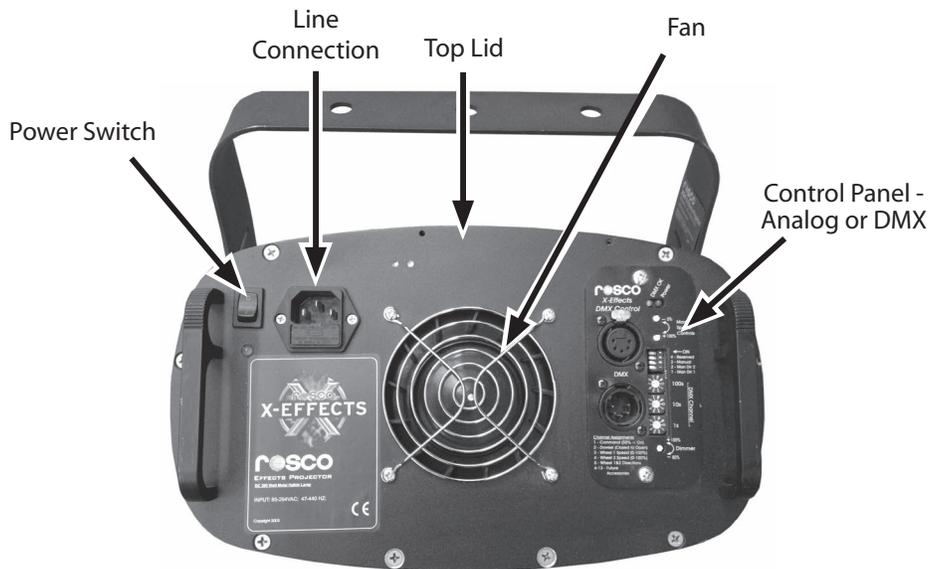
Note: In older versions of the X24 an aspherical lens was fitted behind the front plate.

If this lens is fitted please note when handling the base unit alone, be aware that it extends slightly beyond the front plate, and is subject to being scratched.

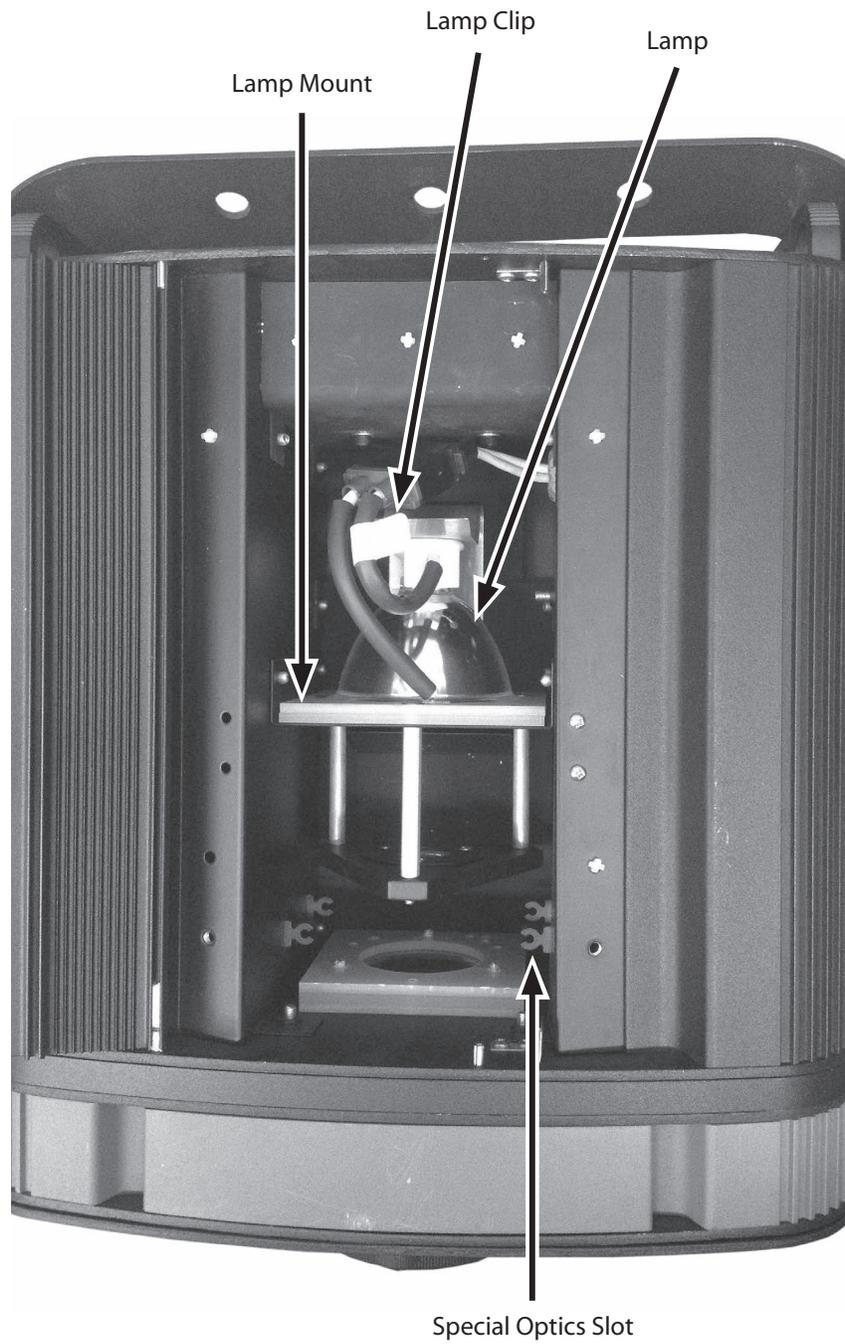
SIDE VIEW



BACK VIEW



TOP VIEW



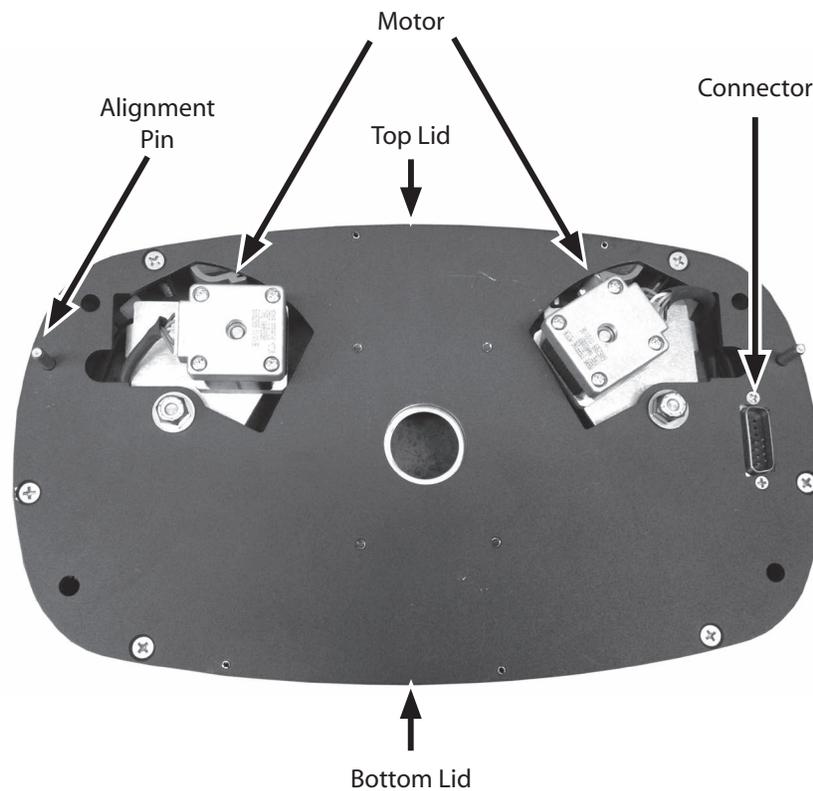
Wheel Module

The wheel module is made up of motors for rotating two overlapping glass patterns. It also has four shutters and a slot for placing an E-size gobo.

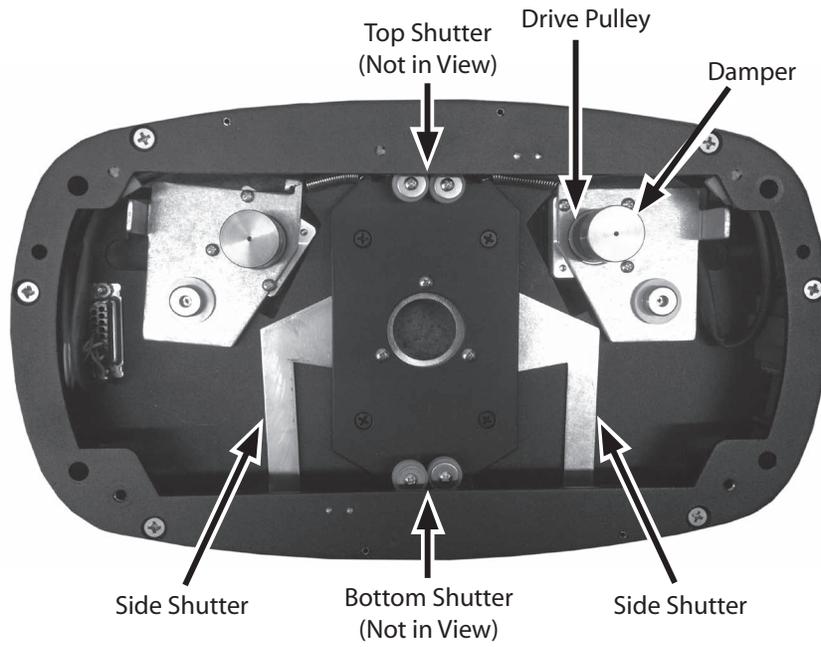
Note: In older versions of the X24 the glass discs were made to a thinner specification.

These should not be used in the latest version of the unit as this may result in damage to the drive pulley.

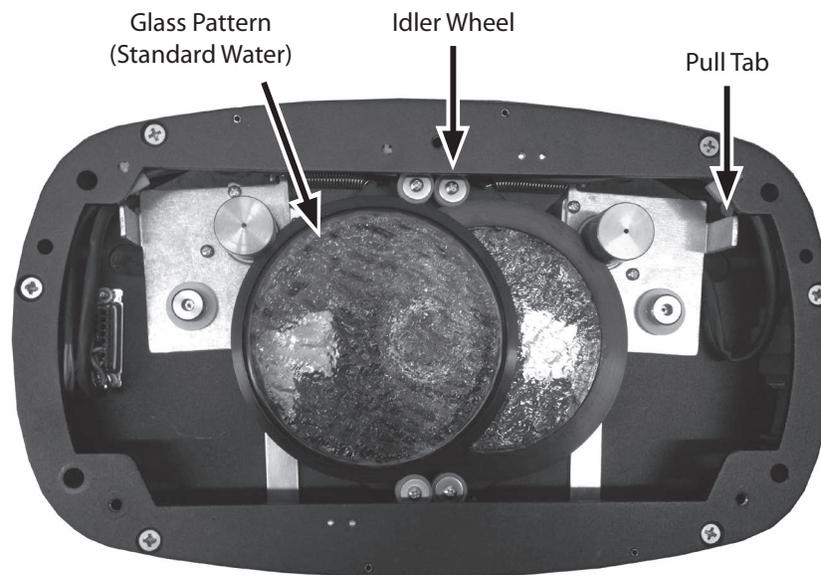
BACK VIEW



FRONT VIEW



FRONT VIEW (with wheels fitted)



Lens Module

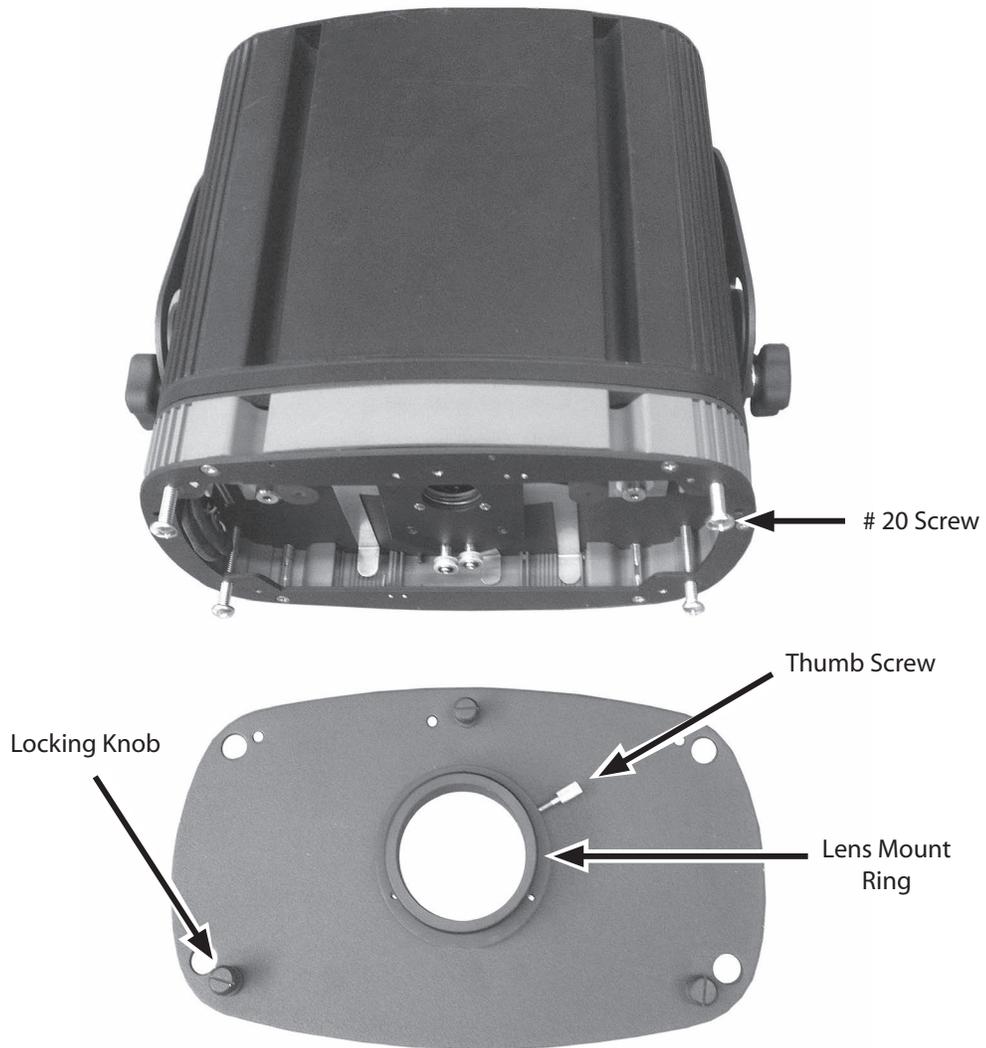
The lens module provides the mounting for the various lens barrels.

At the present time there are barrels available in 19°, 30°, 50° and 70° beam angles.

It provides screw focusing and a lock-down knob.

The lens barrels themselves also have a slot for inserting a dichroic filter. (See page 14).

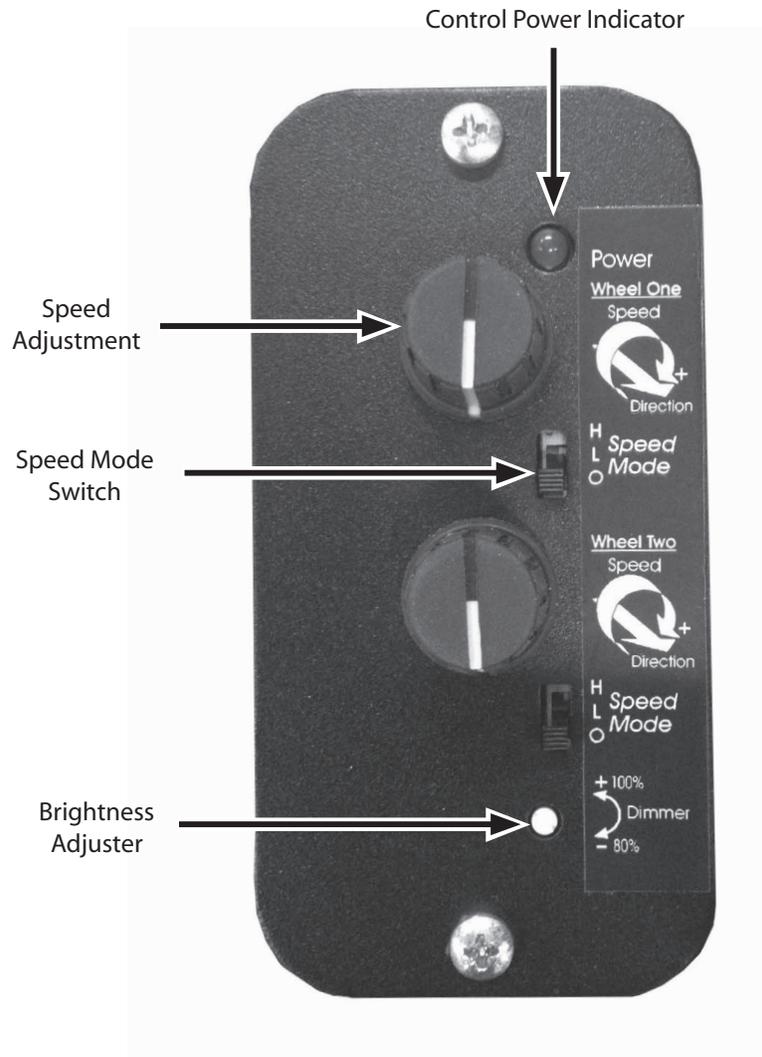
FRONT VIEW



Analog Control Panel

The analog control panel has all of the panel controls and electronics for controlling the electronic dimming of the lamp.

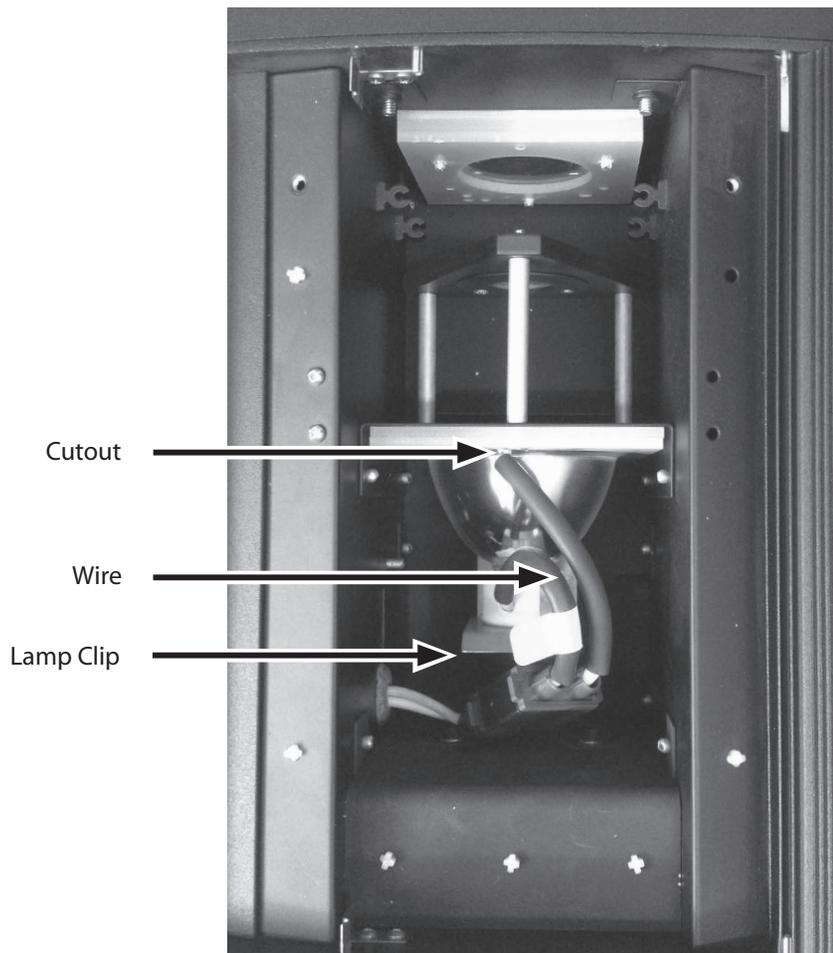
(For DMX see page 17)



PREPARING FOR USE

Installing the Lamp (Base Unit)

1. Unplug the unit.
2. Open the hinged lid on the top of the base unit.
3. Pull the lamp clip back away from the lamp gasket. Insert the lamp so that the front of the reflector is seated in the lamp gasket. The wire exiting from the front of the reflector should be positioned in the cut-out of the gasket.
4. Release the lamp spring clip to lock the rear of the lamp in place.
5. Attach the connector from the lamp to the connector in the unit. It is a polarized connector and will only connect in one position.



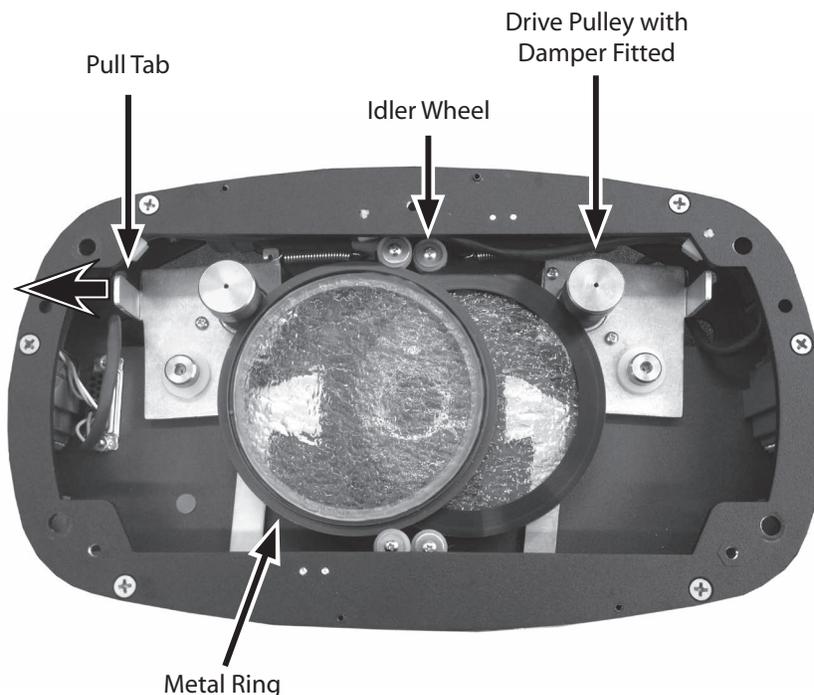
Installing a Glass Pattern (Wheel Module)

1. Unplug the unit.
2. Remove the lens module pmb knobs on the front.
3. Look for the pull tabs on the plates with metal pulleys on either side.
4. These pull the plates outward for installing new glass patterns.
5. Once the plate is pulled outward, the pattern should be inserted such that the metal ring sits in the groove in the rubber drive pulley and in the 2 plastic idler wheels on the corresponding side.

Notes: Only use 0.1in/2.5mm discs. Thinner discs risk damage to drive pulley. Observe correct orientation of the two discs.

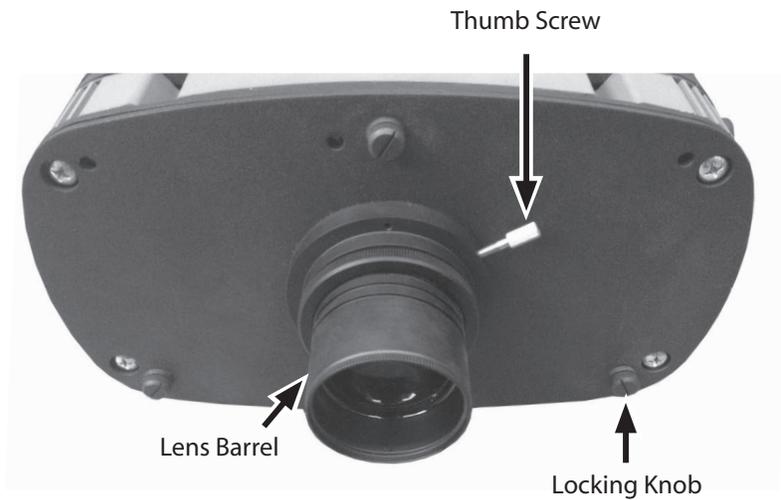
Once the discs are in position, the pull tab can be released.

6. Replace the lens module plate on the unit by lining up the mounting pins, then tightening the three thumb screws.
7. Tighten the thumb screw by hand to hold the lens barrel in position.

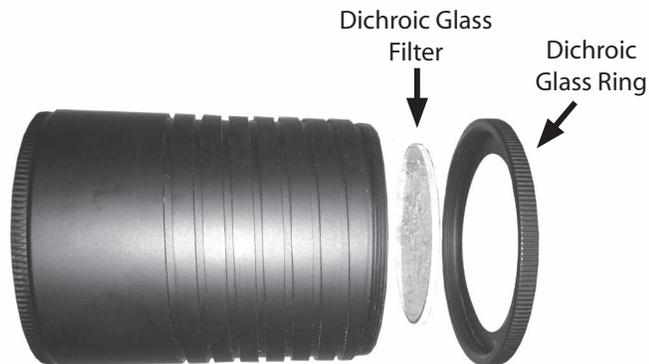


Installing a Lens Barrel (Lens Accessory)

1. Unplug the unit.
2. Remove the lens mount plate from the unit by loosening the three knobs on the front.
3. Loosen the thumb screw on the lens barrel holding ring.
4. Remove the dichroic glass ring from the rear of the lens barrel.
5. Thread the lens barrel into the holding ring (CW screws it in).
6. Optional] Place a dichroic filter in the rear of the lens barrel.
7. Replace the dichroic glass ring on the rear of the lens barrel.
8. Replace the lens mount plate on the unit by lining up the mounting pins, then tightening the three knobs.
9. Tighten the thumb screw by hand to hold the lens barrel in position.



LENS BARREL



UNIT OPERATION (ANALOG, WHEEL, LENS)

Mounting

The yoke angle can be adjusted by loosening the tilt knob on both sides of the unit.

In order to slide the yoke back and forth in its track, it is also necessary to loosen the cap screw at the pivot point.

When loosening the cap screw, it is strongly recommended to do this prior to hanging the unit to minimize the risk of the unit falling.

The unit can be hung from any C-clamp or other mounting device that uses a suitable bolt. The three holes in the yoke are provided for this purpose.

The use of a safety cable is strongly recommended when hung overhead. Also make sure not to block the top, bottom, or rear vents when mounted.

Powering Up

- Check to make sure that a lamp is installed.
- Make sure the power switch is in the off position and the hinged lid on the base unit is fully closed.
- Ensure the area in front of the lens is free of combustible materials.
- Plug the unit in (check electrical specifications to ensure compatibility).
- Flip the power switch to the on position.
 - a) If there are no lights on the rear of the unit, check the power cord and the circuit that the unit is connected to. Check also the fuse in the unit.
 - b) If the control panel lights, but there is no sound or lamp light indication, check that the lid is fully closed.

Note: there is a safety sensor on the lid. If the lid is open the lamp will not light.
 - c) If the control panel lights, and there is a ticking sound accompanied by flashing of the lamp indicator, wait 30 seconds, then turn the unit off. Wait a couple minutes, then try again. If it still does not work, the lamp may need to be replaced.
 - d) If the control panel lights and the lamp indicator comes on, then the unit is operating properly, but it will take a couple of minutes for the lamp to warm up.
- Once the lamp is warmed up the unit can be adjusted to suit your needs.

Adjusting Brightness

- Using a small flat screwdriver, turn the adjustment on the control panel to achieve the desired brightness.

Note: Maximum electronic dimming range is 160-200W.

Adjusting Focus

- Loosen the thumb screw on the lens barrel holding ring.
- Rotate the lens barrel to adjust the focus.
- Tighten the thumb screw by hand to hold the lens barrel in position.

Important: It is possible for the lens barrel to come in contact with a pattern while focusing. Do not force the lens barrel if it stops moving or encounters resistance. Proper rotation of patterns may require the lens to be backed off a bit.

Adjusting Wheel Speed and Direction

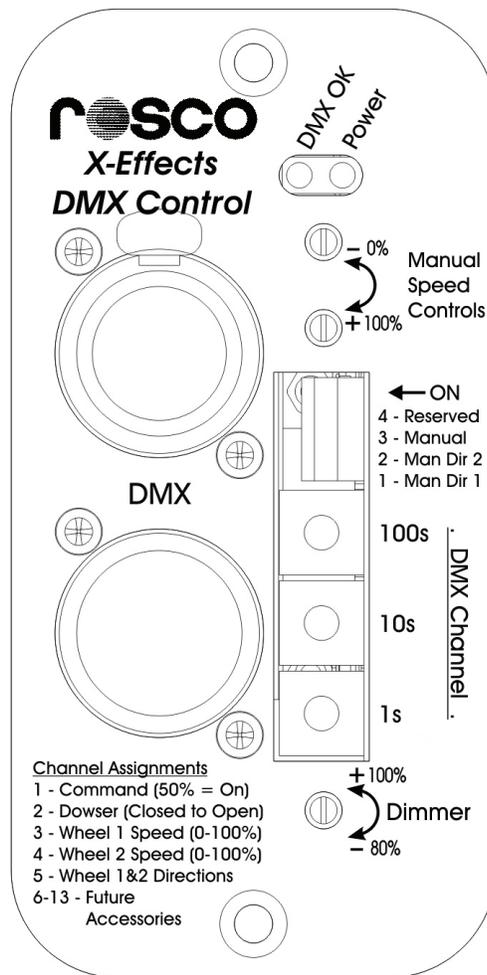
- The switches on the control panel will select between 3 speed modes: "Off", "Slow", and "Fast". One switch for each wheel.
- Turn the control panel knobs to fine tune the speed. One knob for each wheel.
- The potentiometer knobs can be pulled out or pushed in to change the direction of the wheels.

Adjusting Shutters on the Wheel Module

- Open the top and bottom hinged lids on the wheel accessory.
- The top lid gives access to the top shutter.
- The bottom lid gives access to the bottom and side shutters.
- Close the top and bottom lids.

DMX CONTROL MODULE

The DMX Control Module allows basic manual and full DMX control of the X-24 projector and its accessories. While some of the panel controls (Power, Dimmer, and DMX OK) are common to both manual and DMX modes, most are used only in a single mode.



Dowser

The dowser is fitted behind the front motor module and is only fitted to the DMX version of the X24.

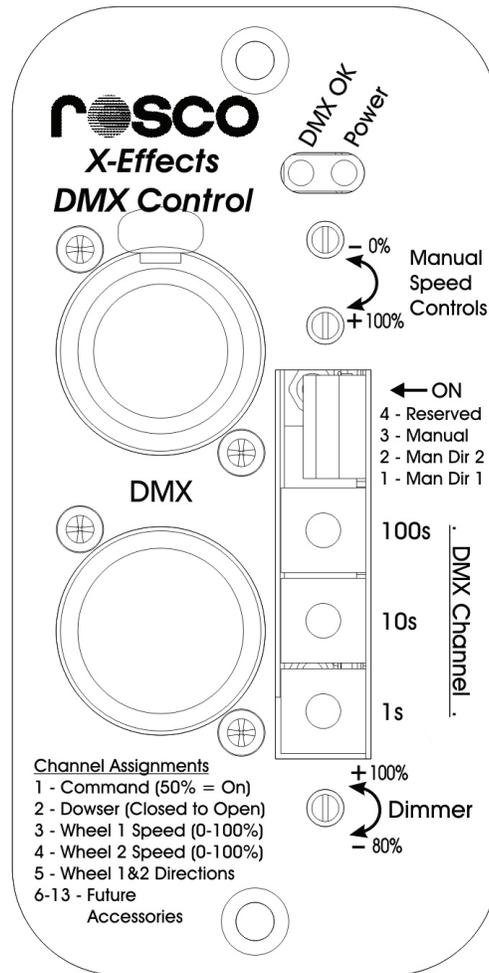
It allows for reduction of the light output, fades and blackout by use of one DMX channel. (See page 21).

When the unit is powered up the dowser will reset itself.

Dowser Shown in Open Position



Manual Mode



By turning DIP switch #3 ON, the module is placed into manual mode.

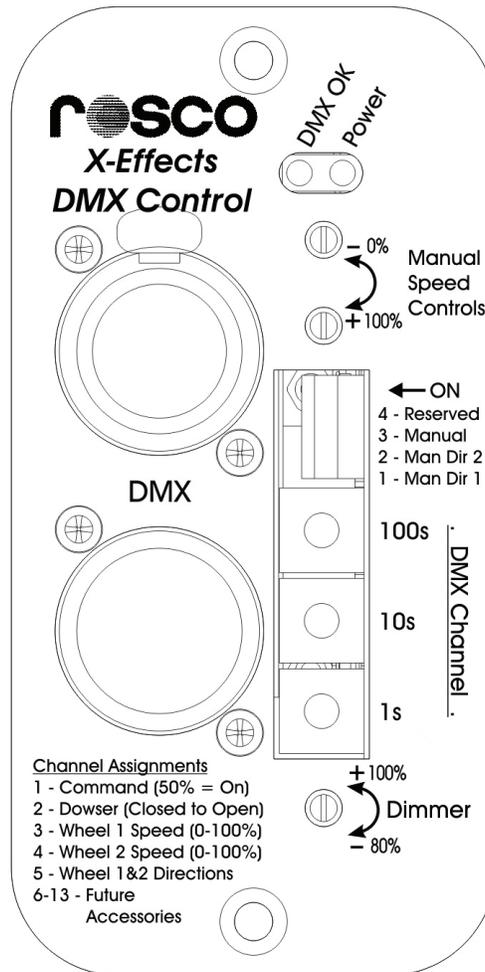
This will automatically turn the lamp on and open the dowser (if present). This mode also allows manual control of the dual wheel accessory.

The speed of the two wheels can be adjusted by turning the two shafts near the top of the module (full CW is fastest speed, full CCW is stop).

The direction of the two wheels can be adjusted by changing the position of DIP switches #1 and #2. Additionally, the brightness of the lamp can be adjusted by the shaft near the bottom of the module with a small flat screwdriver (full CCW is 200W, full CW is 160W).

Note: the DMX OK indicator will light if DMX is connected to the unit, even if the unit is not in DMX Mode.

DMX Mode



By turning DIP switch #3 OFF, the module is placed into DMX mode.

The unit can then be part of a standard DMX control system.

Standard male and female 5-pin XLR connectors are provided for easy connection. (Pin 1 = Ground, pin 2 = Data-, pin 3 = Data+. Pins 4 & 5 are not used by this unit).

Furthermore, the unit has pass-through wiring for easy daisy-chaining of multiple units. The DMX OK indicator will light if the unit is powered up and receiving a valid DMX stream.

We recommend the use of a 120 ohm termination at the end of the DMX cable run for highest reliability and best performance.

The starting address of the unit can be set by the three rotary switches in the middle of the module.

Each switch gives one digit in of the starting address, 1s, 10s, or 100s. If an invalid address is entered (0 or 513-999), the unit defaults to using a starting address of 1.

The unit uses 5-13 DMX channels depending on the accessories used. In the standard configuration with Dowser and Dual-Wheel Accessory, it uses only 5 channels.

Additional channels are built into the system for future accessories. The table below describes all functionality.

1	Command	0-44% (0-113) = No Action 45-49% (114-126) = All Home 50-54% (127-138) = Lamp On 55-59% (139-151) = Lamp Off 60-100% (152-255) = No Action Commands will only activate if level is held for 3 seconds.
2	Dowser	0-100% (0-255) = Full closed to full open
3	Wheel 1	0% (0) = Stop 1-100% (1-255) = 4.5-110RPM (linear)
4	Wheel 2	0% (0) = Stop 1-100% (1-255) = 4.5-110RPM (linear)
5	Wheel Directions	0-25% (0-65) = Wheel 1 CW, Wheel 2 CW 26-50% (66-128) = Wheel 1 CCW, Wheel 2 CCW 51-75% (129-192) = Wheel 1 CW, Wheel 2 CCW 76-100% (193-255) = Wheel 1 CCW, Wheel 2 CW
6-13	Additional Accessories	Exact function depends on accessories used.

Note that the lamp brightness function is not controlled by DMX. It is controlled in the same way as in Manual Mode.

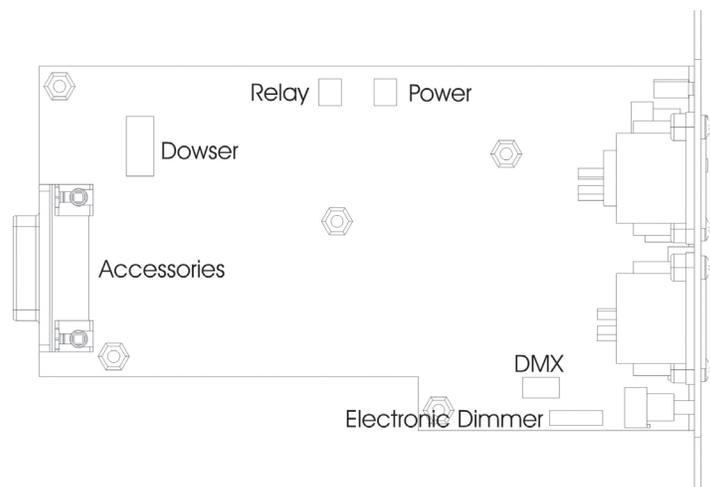
When the unit powers up in DMX mode, the lamp will be off and the shutter will be in the closed position.

If no DMX signal is detected, the system will stay in that state.

If a valid DMX signal is detected and the unit has finished homing, it will be fully controllable as described above.

TROUBLESHOOTING

1. Power indicator will not light.
 - Check that unit is plugged in and turned on.
 - Check that the fuse has not blown.
2. Power indicator lights, but DMX OK indicator will not light.
 - Check that unit is properly connected to a DMX controller.
 - Check cabling.
 - Check DMX signal with another device.
 - Check that DMX cable run is properly terminated.
3. DMX OK indicator flashes erratically and/or unit behaves erratically.
 - Check that DMX cable run is properly terminated.
4. DMX OK indicator lights, but unit does not respond to commands.
 - Check that the DIP switch #3 is in the OFF position.
 - Check channel addressing.
5. Unit seems to respond to DMX, but not with all functionality.
 - Check the mechanics of the missing functionality to ensure that all parts can move freely and belts are properly in place.
 - If all else fails, the module can be slid partially out of the unit so that the connections can be checked.
 - The diagram below shows the location of key connections.
6. Fan does not operate.
 - Check the lamp has not failed. The fan will not run without the lamp.



For the most part, connectors can be matched up to headers on the PCB. The only exception is the relay and power headers, which are identical. The relay cable uses two blue wires while the power cable uses a red/black combination.

SPECIFICATIONS

Mechanical Specifications

Base Unit Size w/o Yoke:	14"L x 7"H x 12"W 35.5cm x 18cm x 30.5cm
Yoke Mounting Distance:	6.57"/167mm to mounting plane from pivot
Wheel Module Length:	1.5"/38mm
Lens Module Length:	1.27"/32.4mm (does not include barrel)
Complete Unit Weight:	18.1 lbs./8.21 kg

Electrical Specifications

Line Connection:	100-240 VAC 50/60hz 250W IEC 320 Grounded Outlet with Fuse Fuse – 5x20mm, 5A, 250V, Slo-Blo Power Factor Correction on Lamp Ballast
Accessory Power Supply:	24VDC @ 60W Max
Self-Protection:	Internal Thermal Protection on All Internal Electronics Short-Circuit Protection on Accessory Power Supply Internal Fan
Environmental:	50C Maximum Ambient

Wheel Module Specifications

Wheel Speeds:	At High Speed: .631-9 RPM At Low Speed: .375 - .8 RPM
Wheel Module Gobo:	X-size patterns: Metal or glass in bezel
Aperture:	1.04"/26.4mm between Shutter Sets

Lamp Specifications

Use only an USHIO 200W EmArc Lamp with Ellipsoidal Reflector (SMR200 D1).
Failure to do so may damage the unit and void the warranty.
Maximum electronic dimming is to 160W.

Lens Module Specification

70° Lens Barrel - Focal Length:	18mm
50° Lens Barrel - Focal Length:	27mm
30° Lens Barrel - Focal Length:	46.7mm
19° Lens Barrel - Focal Length:	80mm

LIMITED LIABILITY WARRANTY

Rosco products are covered by a limited liability warranty from defects in material and workmanship. This warranty does not apply if, in the judgement of Rosco, the product fails due to damage from shipment, handling, storage, accident, abuse or misuse, or if it has been used or maintained in a manner not conforming to product's instructions, has been modified in any way, or has a defaced or removed serial number.

Repair by anyone other than Rosco or a qualified Dealer voids this warranty. In accordance with the terms and conditions of this warranty, Rosco's liability is limited to the product itself, up to the full purchase price of the goods.

ONE-YEAR PARTS AND LABOR SERVICE WARRANTY

The Rosco X-Effects Projector is covered by a one-year parts and labor warranty. This warranty covers replacement and repair at the discretion of Rosco on all parts excluding the lamp (Ushio EmArc) and the supplied X-size effects discs.

In the event that the product needs repair or return, an RMA (Return Merchandise Authorization) is required.

Please contact Rosco Customer Service at 1-800-767-2669.

Any repair units received after their 1 year warranty has expired will be repaired and billed to the customer in full including shipping charges

EC Declaration of Conformity

In accordance with EN ISO 17050-1:2004

Dated: November 2012

We: Rosco Laboratories Inc.
Of: 52 Harbor View Ave
Stamford CT 06902

In accordance with the following Directive(s):-

2004/108/EEC The Electromagnetic Compatibility Directive

Hereby declare that:

Professional Lighting Control Products/X24 Projector

Is in conformity with the applicable requirements of the following documents:-

<u>Ref. No.</u>	<u>Title</u>	<u>Edition/date</u>
BS EN 61000-6-3	Conducted Emissions Radiated Emissions	2007
BS EN 61000-3-2	Harmonic Emissions	2006
BS EN 61000-6-1	Immunity to Radiated Electromagnetic Fields Immunity to Fast Transient Bursts - AC Power Lines Immunity to Fast Transient Bursts - Signal Lines Immunity to Conducted Field - AC Power Lines Immunity to Conducted Field - Signal Lines Immunity to Voltage Dips- AC Power Lines Immunity to Voltage Surges - AC Power Lines Immunity to Electrostatic Discharge	2007

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives.

Signed by:  01/02/2013
Joshua Alemany
Director of Product Marketing
Date

rosco
www.rosco.com