

# **i Wash** *FLEX*

provisional  
instruction  
manual

2<sup>st</sup> edition, july 2004



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## Section 1: Warnings

### **WARNING! / AVERTISSEMENT!** **Please read these warnings before proceeding /** **Prière de lire ces avertissements avant de continuer**



#### **Risk of Electrical Shock**

Disconnect AC mains power before servicing and when not in use.  
Insure that a proper earth ground is provided to the fixture.  
Connect to an AC power source provided with overload protection with sufficient current capacity and in compliance with local electrical codes.  
Do not expose this fixture to rain or moisture.



#### **Risque de choc électrique**

Débrancher l'appareil de sa source de courant avant d'effectuer l'entretien, et lorsque l'appareil n'est pas utilisé.  
S'assurer qu'une bonne mise à la terre est fournie à l'appareil.  
Brancher à une source d'alimentation munie d'un mécanisme de protection contre les surcharges, de capacité de courant suffisante, raccordée selon les normes électriques locales en vigueur.  
Ne pas exposer cet appareil à la pluie ou humidité.



#### **Risk of UV Exposure**

The lamp utilised in these fixtures produces high levels of ultra-violet (UV) radiation which can cause eye and skin burns.  
Never operate the fixture without lenses installed and intact and all covers in place.  
Protect your eyes with UV inhibiting safety glasses whenever servicing the fixture.  
Do not look directly into the light.  
Never look directly at an illuminated lamp.  
To avoid possible lamp explosion, replace the lamp at the end of its service life.

#### **Risque d'exposition aux rayons ultra-violets**

La lampe utilisée dans cet appareils produits de hauts niveaux de rayons ultra-violets (UV) qui peuvent causer des brûlures aux yeux et à la peau.  
Ne jamais utiliser cet appareil sans les lentilles intactes en place, et sans tous les couvercles en place.  
Protégez vos yeux avec des lunettes de protections avec filtage des UV quand vous réparez cet appareil.  
Ne pas regarder le rayon de lumière directement.  
Ne pas regarder directement la lampe allumée.  
Pour éviter les risques d'explosion de la lampe, remplacer la lampe à la fin de sa durée de vie.



#### **Risk of Fire and Burns**

Fixture surfaces are hot and can cause burns.  
Always disconnect mains power and allow the fixture to cool to room temperature before attempting service.  
Keep any flammable materials at least 2 m (6 ft) from the fixture.  
Keep air intakes and exhaust open and free of debris.  
Replace fuses only with specified type and rating.  
Do not cover the fixture or lens with any material.  
Do not operate the fixture at ambient temperatures above 35C (91F)

#### **Risque de feu et de brûlures**

Les surfaces externes de l'appareil sont chaudes et peuvent causer des brûlures.  
Toujours débrancher l'appareil et le laisser refroidir jusqu'à température ambiante avant d'entreprendre toute réparation.  
Tenir tout matériau combustible à au moins 2 mètres (6 pieds) de l'appareil.  
S'assurer que les entrées et sorties d'air sont ouvertes et libres de tout débris.  
Ne remplacer les fusibles qu'avec des fusibles de même type et de même capacité.  
Ne pas recouvrir l'appareils ou les lentilles avec tout produit.  
Ne pas utiliser l'appareil à des températures ambiantes dépassant 35C (91F).



#### **Risk of Injury from Overhead Mounting**

Never mount the fixtures directly overhead.  
If suspended above ground insure that the mounting means are capable of supporting > 10 times the fixture weight and are rigidly fixed.  
Use only hardware approved for rigging this type of fixture.  
Always use safety cables as a secondary attachment means.  
Insure all covers are securely fastened and any retaining cables in place before installing the fixture.  
Block access below the work area when installing, servicing or removing a fixture.



#### **Risque de blessure lorsque monté au dessus des gens**

Ne jamais installer directement au dessus des gens.  
Si cet appareil est installé au dessus du niveau du sol, s'assurer que le support peut tenir au moins 10 fois le poids de l'appareil et que celui-ci est fixé solidement.  
N'utiliser que de la quincaillerie approuvée pour suspension pour ce type d'appareil.  
Toujours utiliser des câbles de sécurité lors de suspension de ce type d'appareil.  
S'assurer que tous les couvercles sont solidement en place et que les câbles de sécurité sont bien fixés avant de suspendre cet appareil.  
Bloquer l'accès sous l'espace de travail lors de l'installation, le service ou l'enlèvement d'un appareil.

## Section 2: Compliance & Safety Information

### 2.1. Manufacturer

coemar, SpA, Via Inghilterra 2/a, 46042 Castel Goffredo (MN) Italy

### 2.2. Model Information

#### Product Model

iWASH Flex™, part number 9120

### 2.3. Fuse Specification

Power supply: 5x20 mm, T 6,3 A/250V

Main (2 fuses): 6,3x32 mm, T 16 A/250V

### 2.4. Lamp Specification

Philips MSR-2000/SA, coemar part number 105258

Rated Lamp Life: 750 hours at 2000W

Luminous flux: variable, 100.000 lumens @ 1200W to 170.000 lumens @ 2000W

Color Temperature: 6000°K

## Section 3: Product Specifications

### 3.1. Mechanical Specifications Mechanical drawings

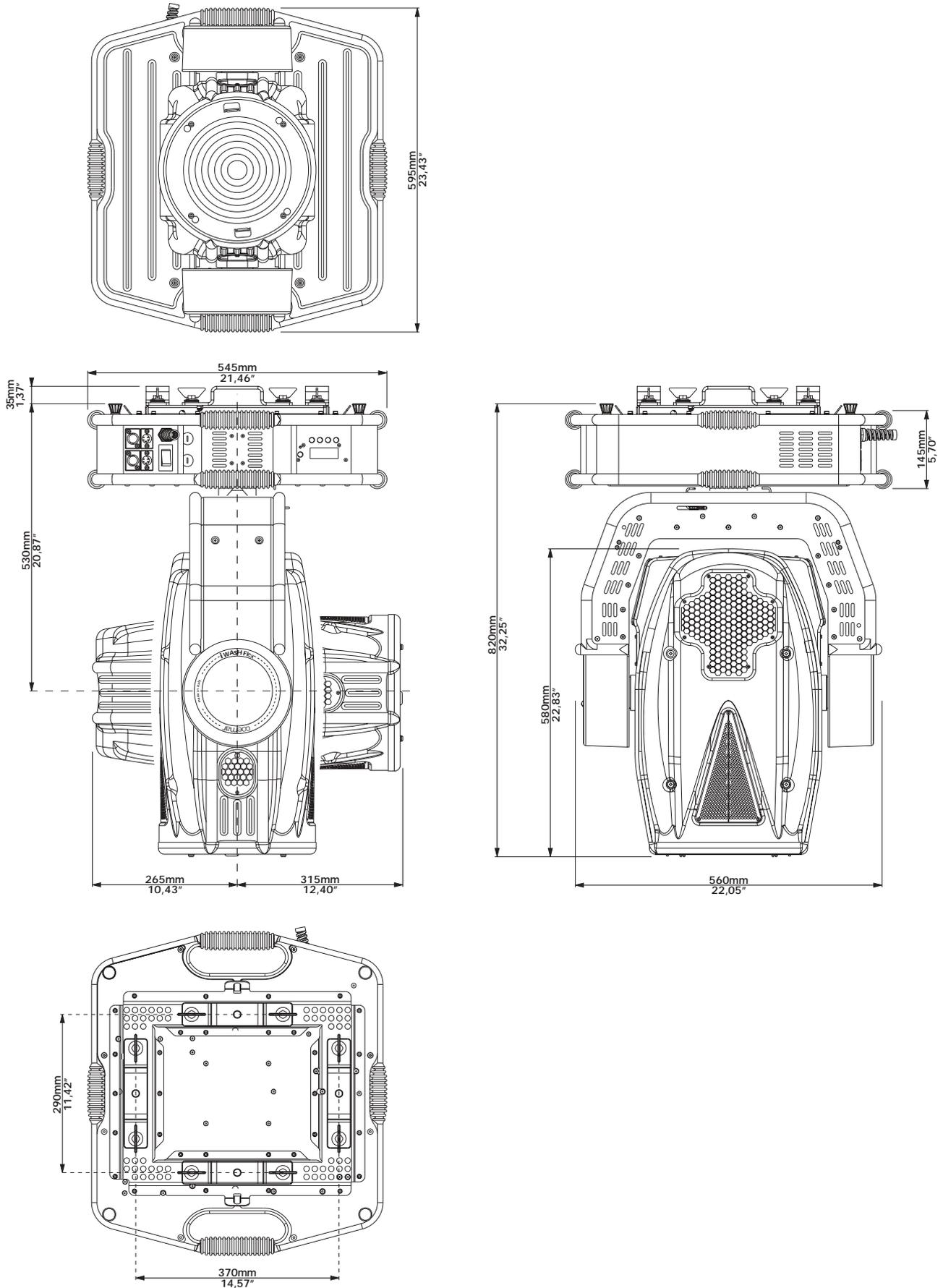


Figure W1 Dimensioned line dwgs. as shown + angular rotation values

## Materials

Housing: Carbon Fiber / epoxy composite/ rubber overmold on aluminum

Internal: Passivated steel and aluminum

Flammability rating:Housing – V0

## Installation

Orientation: Any orientation

Mounting: Supplied with two mounting brackets fitted with quarter turn fasteners to attach to track on fixture base suitable for use with clamps fitted with 1.3cm (0.5") bolts.

## Weight

43.5kg (95.9 lb)

## 3.2. Electrical Specifications

### Power Requirements

Voltage: mains supply: 190/245V ~ 50/60 Hz

Current: 5.5A @240V ~ for 1200W output to 11,3 A @240V ~ for 2000W output

Fuse ratings: power supply: 5x20 mm, T 6,3 A/250V

mains fuses (2): 6,3x32 mm, T 16 A/250V

### Data

Data Protocol: Conforms to USITT DMX-512 digital data standard.

Data Wiring: XLR, 3 pin or 5 pin: pin 1 data gnd, pin 2 data -, pin 3 data +

Number of channels required: 22

## 3.3. Certifications

ISO-9001,



CE



Satisfies the essential requirements of Directive 73/23/EEC as modified by Directive 93/68/EEC, and essential requirements of Directive EMC 89/336, 92/31e 93/68.

## Section 4: Navigating the Display Panel

### 4.1. Display Overview

Fig. T below shows the display panel. The 4 character alpha-numeric display provides information on the addressing and status of the fixture. The five push buttons are utilized to address the fixture and gain access to the menu functions. The **<menu>** button is used to access the menu features. The **<enter>** button is used to accept a menu selection and proceed. To escape from any function press **<menu>** button twice. The **<+>** and **<->** buttons are used to increment through the numbers for addressing or menu selections. . Depressing the **<enter>** button accepts a menu selection and proceeds. The **<more>** button is used only for advanced technical functions.

The addressing feature is the default menu feature. When the display is indicating **ADD1** (**A** followed by three numeric characters), this indicates the current fixture DMX address. See Sec. 4.3 for addressing functions.

To change DMX address use (+) and (-);  
To record press (enter).  
To select a function press (menu).  
To escape a function press (menu) twice.

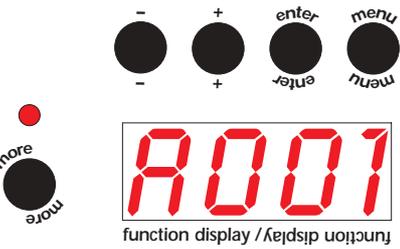


Figure W2 Detail of display

### 4.2 Menu Constructs Map

Refer to the **Additional Technical Information Section 2** for the Menu Constructs Map

### 4.3. Menu Functionality

#### Address

The default display **ADD1** is the fixture address. Starting from this display you may increment the address up or down using the **<+>** and **<->** buttons. Holding either button down causes the number to increment rapidly. Holding down the **<+>** button then the **<->** button will cause the number to jump to its highest value. Holding down the **<->** button then simultaneously the **<+>** button will cause the display to jump to its lowest value. Once you have entered a new address the display will flash prompting you to accept or reject the new address. Press **<enter>** within 6 seconds to select the new address. If you do not wish to accept the new address you can change it or it will revert back to the original address at the end of the six second period.

#### Mode

The **MODE** function allows you to select either the normal **DMX** mode of operation or the **DEMO** mode. The **DMX** mode is the default operating mode under DMX control. The **DEMO** mode will allow you to run the default demo program or record and run your own demo program. Enter **MODE** from the default address menu **ADD1** by pressing **<menu>** button.

#### Measure Menu **MERS**

Measure allows you to measure and display operating parameters of the fixture. Enter the **MERS** feature from the default address menu **ADD1** by pressing **<menu>** then **<+>**. To enter the individual menus from **MERS** press **<enter>** followed by **<+>** or **<->** to the desired feature.

1. **ALRM** displays any alarms that have been encountered by the operating system. This would include buss addressing, communications, data and homing errors. A description of errors can be found in Sec. 4, Error Messages.
2. **TEMP** displays the internal temperatures of the fixture in °C. Three different temperatures may be displayed. See the fan & sensor map *Figure W13/A* for locations of the sensors.
3. **DMIN** displays the DMX input value on each of the fixture channels 1 - 22. From the **DMIN** display press **<enter>** to access **CH01** then use the **<+>** or **<->** buttons to access the desired channel then press **<enter>** to view the DMX value for that channel.
4. **RATE** displays the input DMX data rate. From **RATE** press **<enter>** to display the DMX data rate.
5. **HOURL** displays the working time on lamps and fixture. To access the sub-menus from the **HOURL** menu press **<enter>** followed by **<+>** or **<->** to access the desired menu option, then **<enter>** to display the value.
  - LIFE**, displays current lamp hours
  - LIFS** displays total lamp hours for all lamps
  - UNIT** displays total fixture hours.
6. **TEST** provides access to a full array of function tests allowing individual control of all motors in the **Flex** over their operating range of 0-255. To access the sub-menus from the **TEST** menu press **<enter>** followed by **<+>** or **<->** to access the desired menu option, then **<enter>** to accept the selection then **<+>** or **<->** to alter the motor position over the range 0 - 255. The features that can be tested are:
  - PAN** pan movement
  - TILT** tilt movement
  - DIMM** dim shutter movement
  - KF-U** framing blade upper
  - KF-D** framing blade lower
  - KF-L** framing blade left
  - KF-R** framing blade right
  - KF.RO** framing blade rotation
  - ZOOM** zoom
  - COL1** color wheel 1 (closest to the lamp)
  - COL2** color wheel 2
  - CYAN** cyan color mix
  - MAGN** magenta color mix
  - YELL** yellow color mix
  - CTO** CTO color correction

7. **S.FAN** displays the velocity for each of the 13 different fans in your **Flex** from 0 to maximum RPM. See the fan and sensor map in the **Additional Technical Information Section 3** to identify the location of fans. To access the sub-menus from the **S.FAN** menu press **<enter>** followed by **<+>** or **<->** to access the desired fan number, then **<enter>** to accept the selection and display the fan velocity.
8. **S.VER** displays both the fixture version **F.VER** and operating system software versions **OP.SY** of your **Flex**. To access the sub-menus from the **S.VER** menu press **<enter>** followed by **<+>** or **<->** to access either **F.VER** or **OP.SY** display then **<enter>** to accept the selection and display the version number.
9. **PFC** displays the status of power factor correction section of the lamp ballast. The display will vary according to the operating status of the PFC. To access the sub-menu from the **PFC** menu press **<enter>** to view either **ON** or **OFF**.
10. **LAMP** displays the lamp power and mode. The display will vary according to the operating status of the lamp. A numerical reading from **800** to **2000** indicates the lamp power while **ZAP** indicates that the ZAP mode is operating. **OFF** indicates that the lamp is currently turned off. To access the display from the **LAMP** menu press **<enter>** to display lamp power mode.
11. **ID** allows you to display the unique ID number assigned to your **Flex**. This allows the dr2 to uniquely identify each **Flex** fixture. To access the display from the **ID** menu press **<enter>** to display the fixture ID number.

The following menu pops up **only** if you power the fixture on with the **<more>** button pressed:

12. **SENS** performs a test of each of the position sensors in the fixture. To access the sub-menus from the **SENS** menu press **<enter>** followed by **<+>** or **<->** to access the desired menu option, then **<enter>** to accept the selection. The following features are fitted with sensors and can be tested:

**PAN** test the pan sensor

**TILT** test the tilt sensor

Rotate the fixture manually and the display will indicate either **OK** if functioning properly or **BAD** if the sensor is defective.

**FRES** test Fresnel lens sensor

**COL1** test color wheel 1 sensor

**COL2** test color wheel 2 sensor

**PC.LE** test the PC lens sensor

Move the selected device manually such that the magnet passes over the sensor. The display will indicate **ON**, when the sensor is triggered, otherwise **OFF**.

### Function Menu **FUNC**

The function menu **FUNC** provides access to most commonly used fixture functions. To access **FUNC** from the default address display press **<menu>** then **<+>** or **<->** to access the **FUNC** feature then **<enter>**. To access the sub-menus from the **FUNC** menu press **<enter>** followed by **<+>** or **<->** to access the desired menu option, then **<enter>** to accept the selection. The following function features are provided:

1. **POIR** allows pan inversion for mirror-imaging of fixtures. From the **POIR** menu press **<enter>** then **<+>** or **<->** to select **CW** (clockwise) or **CCW** (counter-clockwise) then **<enter>** to accept.
  2. **TOIR** allows tilt inversion for mirror-imaging of fixtures. From the **TOIR** menu press **<enter>** then **<+>** or **<->** to select **CW** (clockwise) or **CCW** (counter-clockwise) then **<enter>** to accept.
  3. **LAMP** allows selection of lamp operation under DMX control **STRO** or always **ON**. **ON is only recommended for testing purposes. LAMP should be reset to STRO when testing is completed.** To enter the sub-menu from **LAMP** press **<enter>** then **<+>** or **<->** to select the desired mode then **<enter>** to accept.
- 
4. **DISP** allows inversion of the display to accommodate floor or ceiling mounting of the fixture. The display orientations are **UP** for fixture base down, **DOWN** for truss or ceiling mounting or **AUTO** for automatic display orientation. To enter the display sub-menus press **<enter>** then **<+>** or **<->** to the desired mode then **<enter>** to accept.
  5. **LED** disables the display for situations where the light from the display is not desirable, such as theatrical applications. The display modes are **DARK**, **ON** or **AUTO**. **AUTO** leaves the display on in high light environments and turns the display off in low-light environments. **DARK** leaves the display on for one minute at the end of the reset and then it turns it off. To illuminate the display when off push any button. To enter the display sub-menus press **<enter>** then **<+>** or **<->** to the desired mode then **<enter>** to accept.
  6. **RESE** function allows for reset of the fixture. From **RESE** press **<enter>** to initiate reset. Display will show **CHEK** on reset command, then a count down sequence will start, the fixture begins to initialize and finally **ROOI** or other message upon completion of reset.
  7. **MAX.P** sets the upper power limit for the fixture from 1250W to 2000W. This allows the light output to be closely matched to other lighting in use or as a high powered special. To set the maximum power from **MAX.P** press **<enter>** then **<+>** or **<->** to alter the lamp power over this range followed by **<enter>** to accept.
  8. **REC.D** allows you to record your own fixture demo program.
  9. **FAN** allows to impose higher fan speed to individual fans instead of the value imposed by the system. To set a fan speed press **<enter>** then **<+>** or **<->** to the desired **FAN** number **<enter>** to accept, then **<+>** or **<->** to the desired speed value. Press **<enter>** to accept. The forced minimum speed will be maintained if not forced to 0 or **FAN DFSE** is pressed.
  10. **DFSE** allows you to save the settings you have altered using the **FUNC** features, such as display orientation, **LED** display and **MAX.P** lamp power as the fixture defaults. To store custom defaults from the **DFSE** display press **<enter>**. The display will ask you to confirm by displaying **SURE**. Press **<enter>** to accept the new default settings.

### Special Functions **ALIG**, **AMS** and **RE.LA**

The special functions menus **ALIG**, **AMS** and **RE.LA** allows for recalibration of the internal components including pan, tilt, shutter, iris, lens, color, gobo and effects positioning along with buss addressing and lamp reset. It is **NOT** recommended to alter these settings unless rebuild of a module requires it to be recalibrated or readdressed. To enter the Special Functions menu from the default address display press and hold **<more>** then the **<menu>** button. Use the **<+>** or **<->** keys to select either **ALIG**, **AMS** or **RE.LA** then **<enter>** to accept.

## Alignment Menu *ALIG*

The *ALIG* menu allows for precise alignment of the motorized functions. Each subset allows for adjustment from the default *000* position over a range of *-999* to *999*. This feature allows precise positioning of the various components in the optical path. From the *ALIG* menu press **<enter>** then **<+>** or **<->** to access the desired subset function then **<enter>** to accept. Use **<+>** and **<->** to alter the offset then **<enter>** to accept the new offset value. Offset is available on the following features:

<i>PAN</i>	pan offset	<i>COL-1</i>	color wheel 1 rotation
<i>TILT</i>	tilt offset	<i>COL-2</i>	color wheel 2 rotation
<i>SH-R</i>	dimmer right	<i>FR.LE</i>	Fresnel lens
<i>SH-L</i>	dimmer left	<i>PC.LE</i>	PC lens
<i>KN-U</i>	framing shutter upper	<i>CYAN</i>	cyan color mix filter
<i>KN-D</i>	framing shutter lower	<i>MAG</i>	magenta color mix filter
<i>KN-L</i>	framing shutter left	<i>YELL</i>	yellow color mix filter
<i>KN-R</i>	framing shutter right	<i>CTO</i>	CTO mix filter
<i>KN-RO</i>	framing shutter rotation	<i>END</i>	Accept and exit

When you have completed adjustment of the offset(s) select *END* to accept changes and exit.

If you want to escape from the function without changing any value, press **<menu>** to exit without save.

## *AMS* Menu

The *AMS* menu provides access to the buss management features within *Flex*. The subsets provided within *AMS* include *BUS2* for assigning the two motor busses, *BUS4* for assigning the 4 motor busses, *BU.CK* for buss check and *B.AL.R* for viewing buss conflict alarms. From the *AMS* menu press **<enter>** then **<+>** or **<->** to access the individual submenus. To enable the *BUS2* and *BUS4* programming features the fixture must be powered up while depressing the **<more>** button.

### *BUS2*

This feature allows the two motor driver board to be assigned a buss address. From *BUS2* press **<enter>** then **<+>** or **<->** to select *01B2* for position 1 or *02B2* for position 2. Then press **<enter>** to accept the address change.

### *BUS4*

This feature allows the four motor driver board to be assigned a buss address. From *BUS4* press **<enter>** then **<+>** or **<->** to select *01B4* for position 1 or *02B4* for position 2 or *04B4* for position 4. Press **<enter>** to accept the address change and exit.

### *BU.CK*

Performs a buss check of the installed motor driver boards and displays an alarm if there is an error encountered. From *BU.CK* press **<enter>** to perform the test. The display will indicate *B.AL.R* to verify the test has run. The details of any error can be viewed in the following menu *B.AL.R*.

### *B.AL.R*

Displays any buss alarms. From *B.AL.R* display press **<enter>**. The display will indicate any alarm codes or *NO.AL* if no buss errors are detected.

### *RE.LA*

This function resets the lamp hour meter to 0. From *RE.LA* display press **<enter>**. The display will show *SURE* to ask you to confirm reset. If you wish to reset press **<enter>** and the display will show *0000* confirming reset of the lamp hours to zero.

## 4.4. Error messages

### *ESYS*

Operating system error, often caused by an incomplete data transfer from DR-2. Retry the data transfer to correct the problem.

### *EFIX*

Memory error, often caused by an incomplete data transfer from DR-2. Retry the data transfer to correct the problem.

### *EDMX*

Communication error between the fixture processor and DMX. If caused by a recent incomplete data transfer from DR2 retry the transfer, upgrade the DMX software or replace the CE107 Main PCB.

### *DMXERR*

DMX communication error. Verify that DMX data is present. Possible causes include the wiring between the DMX input and CE107 Main PCB or defective CE107 PCB.

### *(MOTOR NUMBER) NO LINK*

Communication error between the CE107 Main PCB and the indicated motor. Possible causes include the wiring between CE107 PCB and the Motor PCB or the Motor PCB may have failed.

### *FAN2 NO LINK*

Communication error between the CE107 Main PCB and the fan driver board on bus 2. Possible causes include the wiring between CE107 PCB and the Fan PCB or the Fan PCB may be defective.

### *FAN4 NO LINK*

Communication error between the CE107 Main PCB and the fan driver board on bus 4. Possible causes include the wiring between CE107 PCB and the Fan PCB or the Fan PCB may be defective.

### *BUS2 FAIL*

The number of motor cards found on bus 2 does not match the software version installed.

### *BUS4 FAIL*

The number of motor cards found on bus 4 does not match the software version installed.

### *(MOTOR NUMBER) RSTERR*

The indicated motor has failed to reset in the allotted time. Check that the motor is free to move and that the wiring from the motor board to the motor is intact. Use the sensor test mode to verify that the sensor is detecting the motor when the sensor passes the magnet or the flag interrupts the opto sensor.

#### **(MOTOR NUMBER) INIERR**

The indicated motor has not completed its initialization routine in the allotted time. Check that the motor is free to move and that the wiring from the motor board to the motor is intact. Use the sensor test mode to verify that the sensor is detecting the motor when the sensor passes the magnet or the flag interrupts the opto sensor.

#### **(MOTOR NUMBER) OPTOERR**

The opto sensor associated with this motor did not detect the flag. Check that the motor is free to move and that the wiring from the motor board to the motor is intact. Use the sensor test mode to verify that the sensor is detecting the motor when the flag passes through the opto sensor. Check that the sensor is clean.

#### **(MOTOR NUMBER) ENCERR**

The position encoder associated with the motor has detected an error. This may be due to the opto sensor or encoder wheel failing to properly encode the motor motion. Check the sensor, encoder and wiring.

#### **(FAN NUMBER) ERR**

The indicated fan has produced an error. Fan velocity is returned to the microprocessor through a third wire on the fan motor. Check that the fan is free to move, that the wiring from the fan to the fan board is intact. Check that the air filters are clean and airflow is unrestricted.

#### **DR2L**

Flex is connected to DR2, The +/-/menu/enter/more buttons are disabled

**UPGR** indicates upgrade in process.

Flex is connected to DR2, The +/-/menu/enter/more buttons are disabled, software upgrade is active.

## **4.5. Special Features**

### **Turning on the iWash FLEX without movement**

This function may be useful should you need to power up the fixture inside its roadcase or for any other reason where you may wish to power up the unit without it moving pan and tilt motors. All motors will be energized and reset as normal except for pan and tilt motors.

- 1) Power up the projector while pressing the **<more>** button.  
The projector will switch on without the usual reset functions.  
You may at this point alter a DMX address, or any other menu-based parameter without pan and tilt movement.  
This function is particularly useful to test the sensors, load the new software to PCBs and to re-address the PCBs network.
- 4) To resume normal fixture functioning, you must turn the projector off and on again via the **power** button or reset the light using the display **RST** command.

## Section 5: DMX Functions

### 1. DMX Chart

See Additional Technical Information Section DMX for DMX functions

## Section 6: Installation

### INSTALLATION

READ ALL WARNINGS AND SAFETY INFORMATION BEFORE ATTEMPTING INSTALLATION, SERVICE OR MAINTENANCE OF THE LIGHTING FIXTURE.

#### 6.1. Power



Always remove power from the fixture prior to installation. Verify that the power to be supplied is compliant with the power settings on the fixture. Confirm that the electrical mains is of the correct voltage and capable of delivering the maximum current required by the fixture and is fitted with a circuit breaker protection means. **ALWAYS** verify that the electrical ground is a true ground. "Floating" or noisy grounds may affect fixture performance, cause erratic behavior or damage and present a shock hazard. **DO NOT** power the fixture through a dimmer system.

#### 6.2. Mounting

##### 6.2.1. Orientation



Your **Flex** fixture may be operated in any orientation, vertical, angular 30°, floor, ceiling or truss mounted. Vertical and overhead mounting require special attention to the mounting means and safety.

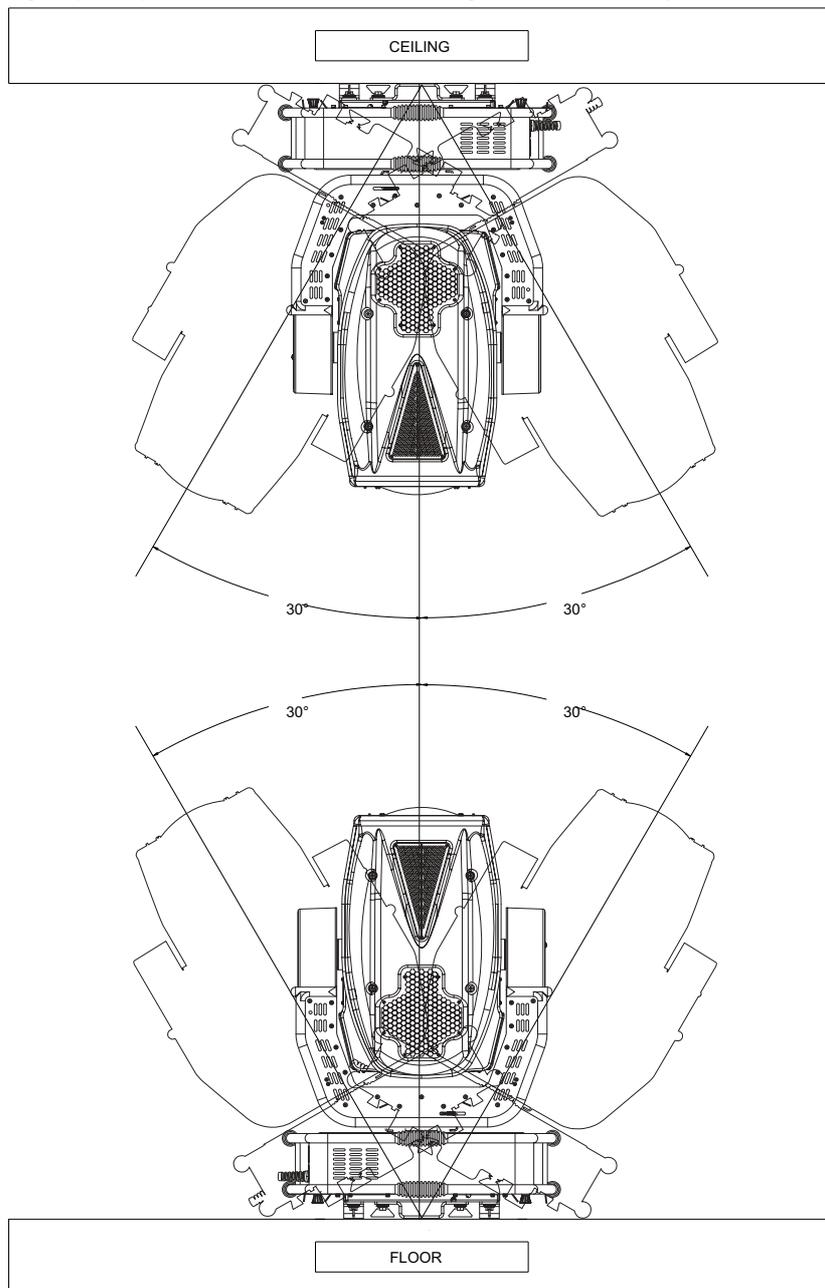


Figure W4 showing floor, ceiling and wall mounting

### 6.2.2. Fitting Clamps

When installing the fixture always use clamps or fasteners that are designed for this purpose and rated for at least 10X the weight of the fixture. This fixture is a dynamic load and must be RIGIDLY mounted. All fasteners used to secure the fixture should be fitted with lock washers and nuts or flat washers with locking nuts to insure that the fasteners cannot work loose. Insure that the fixture has freedom to move without encountering any obstruction.



Figure W5 showing clamps fitted

### 6.2.3. Fitting Safety Cables

Safety cables should always be used in conjunction with proper rigging means to insure safety. The safety cable(s) should be fitted to the safety cable points provided on the base of the **Flex** and then to a secure structural member. The safety cable(s) and securing points should be capable of supporting 10 times the weight of the fixture.



Figure W6 showing safety cables fitted

### 6.2.4. Secure power and data cabling

Data, power and safety cables should be dressed such that no wires are adjacent to the fixtures moving parts or might become entangled in the fixture when moving. Avoid running wiring adjacent to hot areas of the fixture.



### 6.2.5. Flammable materials

The fixture produces intense heat both within the fixture and through the light beam produced by the fixture. Keep the fixture away from any flammable materials and surfaces and never aim the light beam at a flammable surface less than 2 meters from the fixture. Never block the lens of the fixture. Never block the air intakes or exhaust in the fixture base or head. **Flex** includes thermal safety means that will shut the fixture down in the event of overheating. Proper cooling will result in better performance and longer lamp life. The fixture environment should be kept clean and ambient temperatures should not exceed 35°C (91°F).



### 6.2.6. Mounting Location:

The fixture should only be mounted where it cannot be touched or bumped and where it is protected from rain and moisture.



### 6.3. Data Connection

Digital DMX data requires proper data distribution practices be employed to insure proper operation of your lighting fixtures. This is particularly true of the new **Flex** fixture range which utilizes bi-directional communication with the fixture. Fixtures must be connected in series, i.e., "daisy chained" with the console located at the front end of the line. Data should not be "split off" from the line. Paralleling data can result in collisions and erratic performance of the lighting fixtures. If more than 24 fixtures are going to be used or the data cable runs will exceed 100m a splitter/repeater should be utilized. The section below describes the proper installation and use of the **coemar dr2** display replicator and **coemar bidos** dmx splitter/repeater. If there is any question regarding proper wiring and the use of the **dr2** and **bidos** splitter/repeater please contact your coemar dealer. Following proper data distribution practice will insure optimum performance of your new **Flex** fixtures for years to come.

Cable specification: Cable used for data

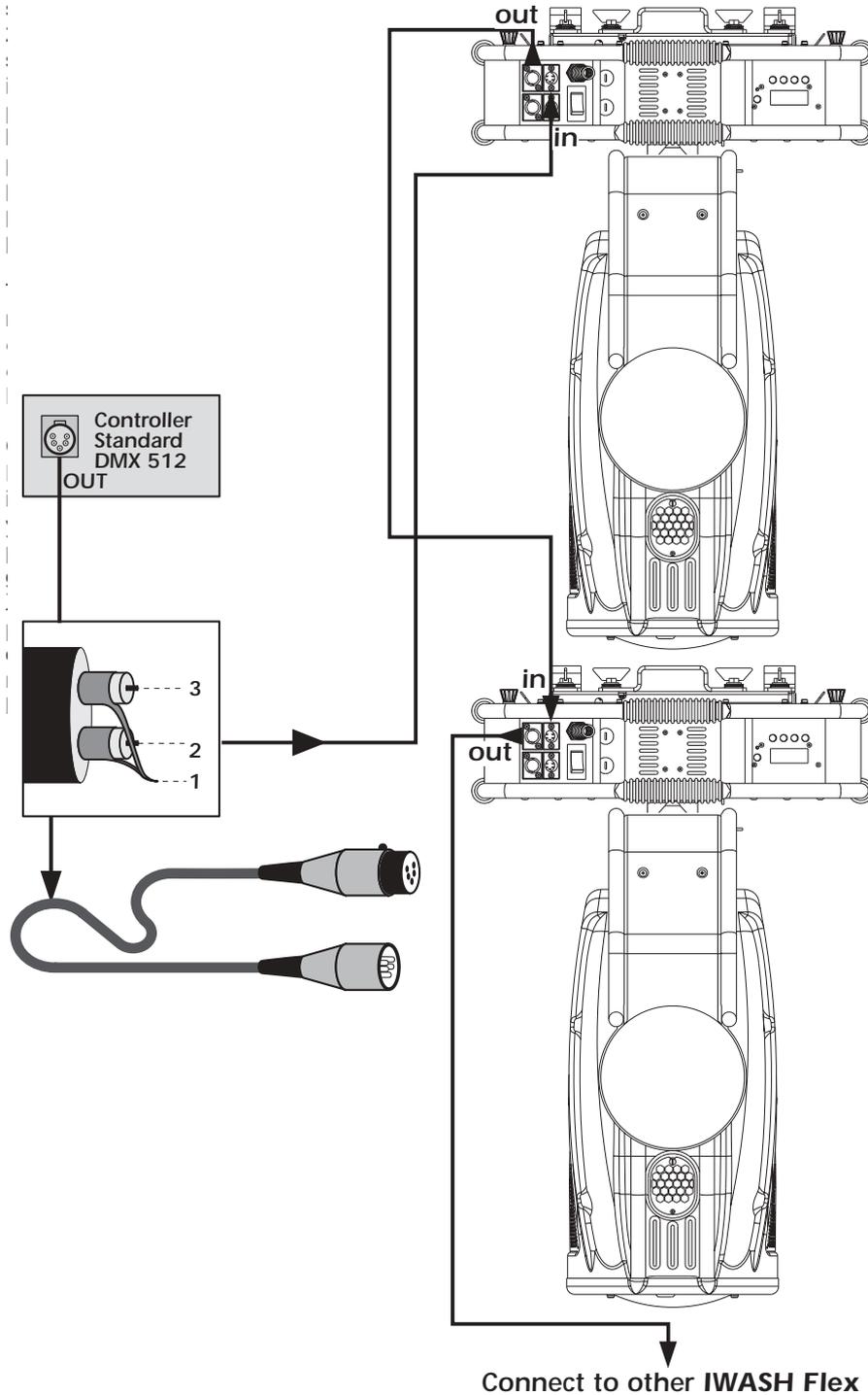


Figure W7 showing XLR wiring

### DMX accessories

Fig. W8 below shows a system including **Flex** fixtures, console, **coemar dr2** and **coemar bidos** bi-directional DMX opto-splitter. **Flex** fixtures utilize the newest standards for bi-directional communication between the fixture, the console (when RDM enabled) and **dr2**. Using the **dr2** the operator can view and set all the parameters of the lighting fixture previously discussed from the convenience of the console location without having to access the fixture. This includes addressing, changing menu features, monitoring temperatures, etc., all from the convenience of the console. The **dr2** should be installed in the DMX line at the front end, preferably adjacent to the console to allow for easy access. In the event that more than 100m of data cable or 24 fixtures are utilized on the DMX data line, a bi-directional splitter/repeater such as the **coemar bidos** should be inserted in the line immediately after the 24<sup>th</sup> fixture or 100m of data cable. Following proper wiring practices will insure you trouble free performance of your new **Flex** products.

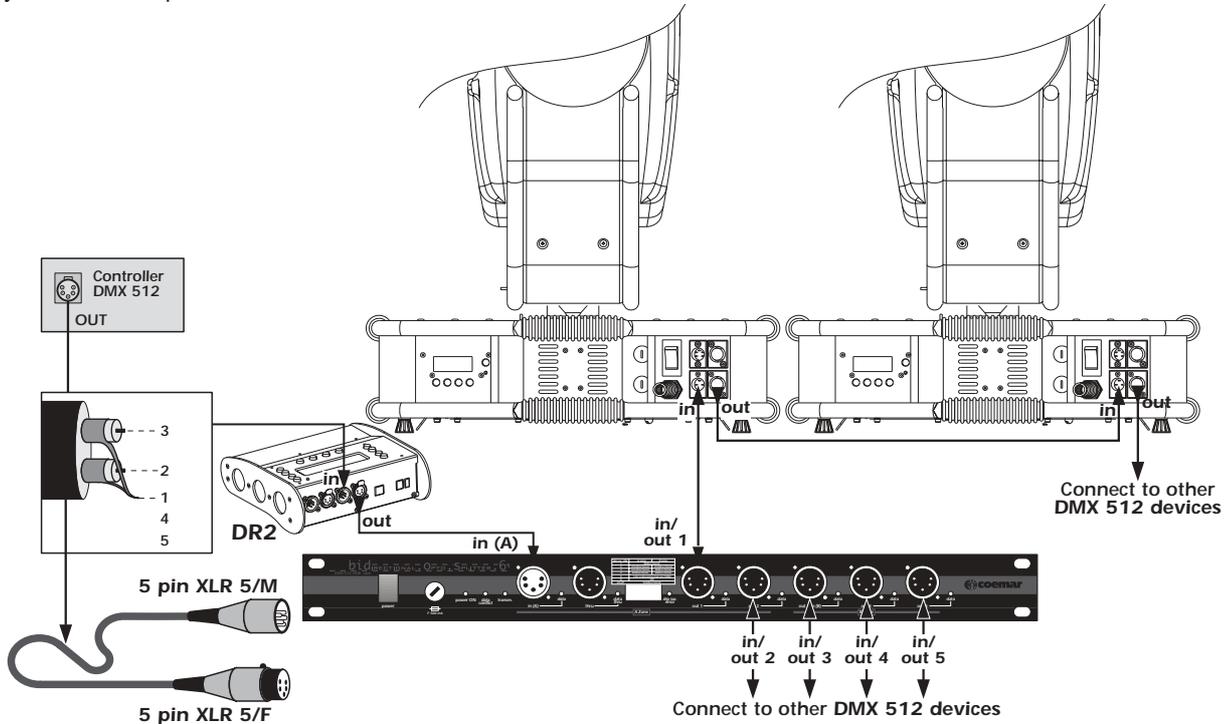


Figure W8 Fixture – console- **bidos** Bidirectional Opto Splitter – **dr2** interconnect

### DMX data present

Your **Flex** fixture allows you to confirm the presence of DMX data as well as the DMX level of each channel and the data rate. The DATA LED on the display will light when DMX is present. Data analysis can be performed through the **MEAS / DIMM** and the **MEAS / RATE** menus. See the Functions section for details on using the DMX analysis features of your **Flex**.

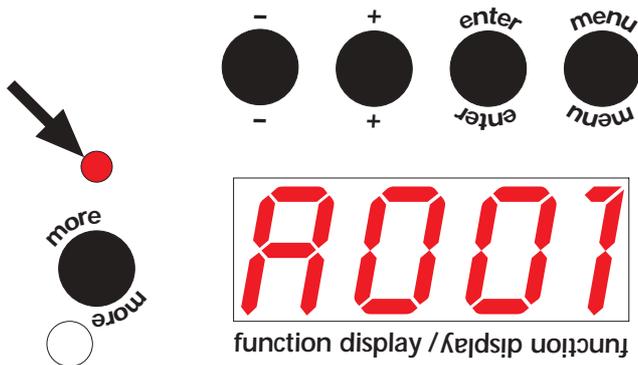


Figure W9 Detail of display with DMX LED identified

## Section 7: Service and Maintenance

### 7.1. Lamp Replacement

The lamp should be replaced at the end of its service life to avoid possible lamp explosion and damage to the **Flex** fixture. The service life for the MSR-2000/SA is 750 hours. It is suggested that you use the **HOUR / LIFE** feature in the **MEAS** menu to keep track of lamp hours and replace the lamp when the display shows **OLD.L**. Always wear safety glasses when servicing the lamp. The lamp gets *extremely* hot. Allow the fixture to cool down before servicing the lamp. Follow the procedure for lamp installation and optimization in the Quick Start manual. Always optimize the lamp positioning when installing a new lamp.

### 7.2. Fuses

Replace fuses only with the same type and rating. **Flex** uses three fuses, two accessible externally as shown in Fig. W10

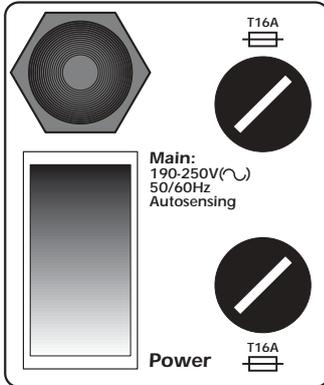


Figure W10 Main Fuses

and another internal fuse as shown in Fig W11.



Figure W11A Removing Switching Supply

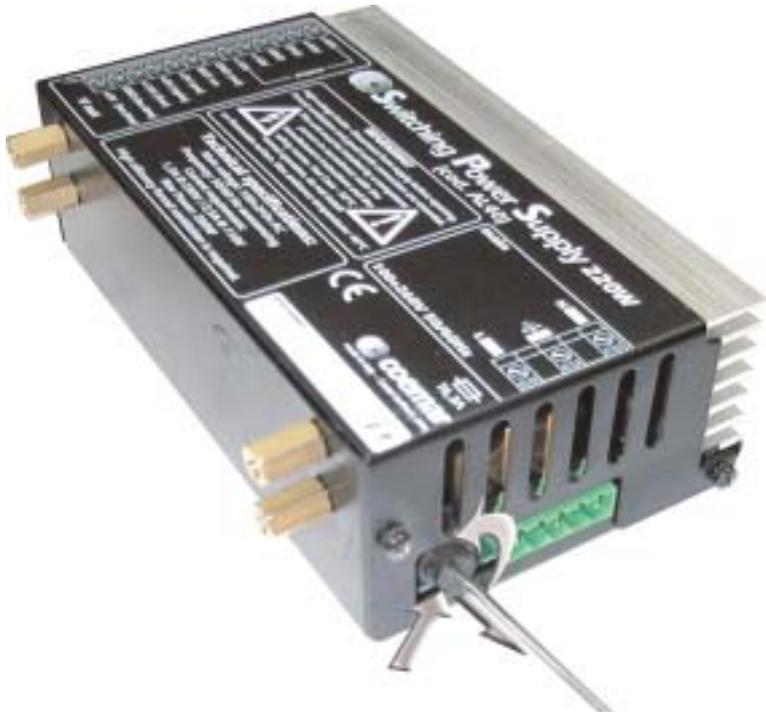


Figure W11B Fuse Replacement on Switching Power Supply

When replacing a blown fuse check for any damage or debris that might have contributed to the failure before powering the fixture.

### 7.3. Accessing the internal components

#### Removing covers

To access the internal components in the head of the **Flex** remove the top cover. The top cover is the one with the lamp exhaust fins over the lamp housing. Remove the cover by unscrewing the four retaining screws.



Figure W12/A Removing covers

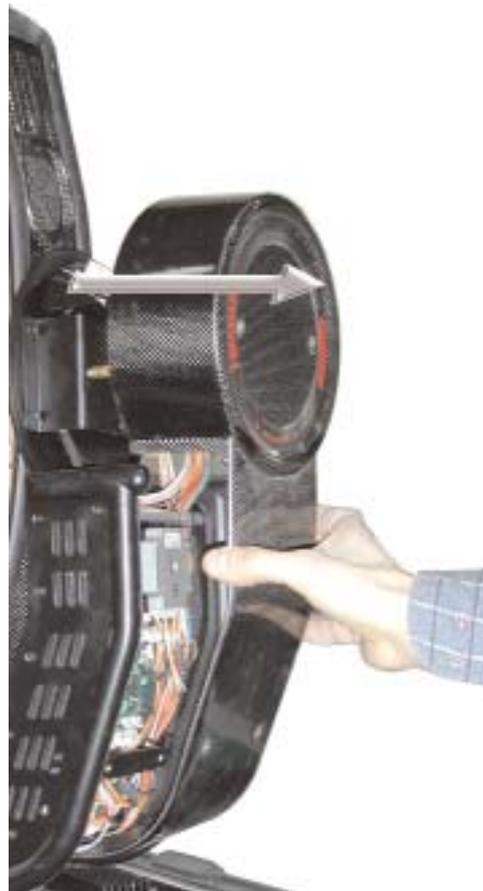


Figure W12/B Removing covers

To access the PCB's located in the yoke remove the four screws retaining the covers and pull the covers upward and out. You now have access to all 4 motor PCBs.



Figure W12/C Removing covers



W12/D Removing covers

To access the base remove the four screws retaining the covers and pull the covers upward and out. You now have access to all major components.



Figure W12/E Removing covers

### Location of major components

Refer to Additional Technical Information Section 8 for details

### 7.4. Altering beam angles by inserting diffusion filters

Several optional and interchangeable diffusion filters may be utilized on the unit to vary the beam characteristics in particular applications.

All filters are rotatable through 360°

Figure W14 /A

- Beam shape: circular
- Clear glass**
- cod. VT 194
- 1/2 peak angle: 8-21°
- 1/10 peak angle: 16-52°
- maximum visible angle 68°



Figure W14 /B

- Beam shape: circular
- Prismatic, semi-diffusion lens**
- cod. LE 06
- 1/2 peak angle: 8-21°
- 1/10 peak angle: 16-52°
- maximum visible angle 68°



- Figure W14 /C- Beam shape: square
- Prismatic, maximum diffusion lens**
- cod. LE 05
- 1/2 peak angle: 40-56°
- 1/10 peak angle: 42-64°
- maximum visible angle 68°

Prior to changing lenses, make sure the fixture is powered off and cool. Locking the pan and tilt locks in a convenient position will make lens replacement easier.

## WARNING!

Do not operate the fixture without the lenses in place. Do not use cracked or chipped lenses. Do not look directly into the beam. Verify lenses are secure before operating the fixture. Use only Coemar approved lenses.

- 1) Loosen the 4 screws (A) one full turn using a flat blade screwdriver.
- 2) Rotate the retaining ring counter-clock-wise and remove the retaining ring.



Figure W15 /A Lens Replacement

- 3) Remove the currently installed lens.
- 4) Insert the new lens with the desired orientation. Lenses can be rotated through 360°
- 5) After inserting the new lens, replace the retaining ring and tighten the four (4) retaining screws. Verify that the lens is correctly seated and flush with the mounting surface and the retaining screws are securely tightened .



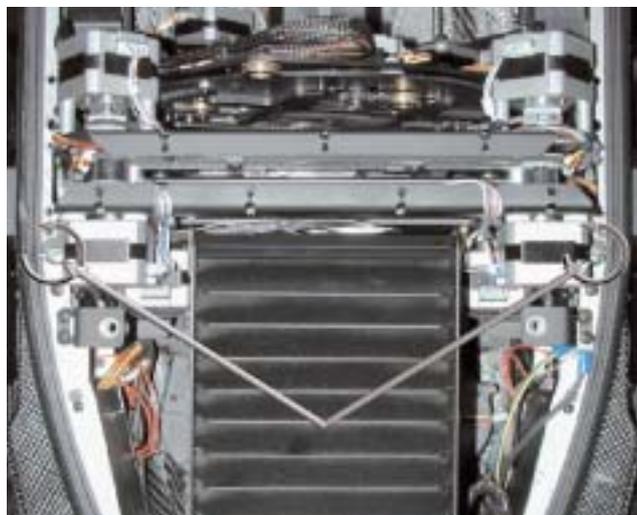
Figure W15 /B

## 7.5. Changing Colors

Refer to the Additional Technical Information Section 6 for a chart of standard fitted colors.

The *iWASH Flex* is fitted with a removable color/dim module which includes the two fixed color wheels, a CYM color mix module with CTO and dimming shutters. Remove the top cover of the fixture and locate the color mix module as in Figure WXX. Turn the two quarter turn fasteners one quarter turn counter-clockwise, then grasp the module by the metal frame and pull it straight out from the fixture. Lay the module on a work surface with the color wheels up. **DO NOT** lay the module on the color wheels. Each of the color wheels is fitted with 4 removable color filters. To remove a color on the top color wheel loosen the three #1 Phillips screws by one full turn and pull the selected color outward to remove it. To replace the color simply align the color with the slot and press inward until the color seats and the outer edge aligns with the other colors. Orientation of the color filter to the lamp is important. Refer to Figure W18 to determine the coated side of the color filter and always orient the filter with the coated side to the lamp. Retighten the three screws.

Figure W16A Color Mix Module Removal



To change a color filter on the second color wheel a small access hole is provided on the side opposite the color wheels. Using a #1 Phillips screw driver loosen the three screws by one turn. **DO NOT** loosen the screws completely. Pull the selected color outward to remove it. To replace the color simply align the color with the slot and press inward until the color seats and the outer edge aligns with the other colors. Orientation of the color filter to the lamp is important. Refer to Figure W18 to determine the coated side of the color filter and always orient the filter with the coated side to the lamp. Retighten the three screws. Reinstall the color mix module.



Figure W16B Color Mix Module Removal



Figure W17 Loosen Screws 1 Turn to Release Colors

**Orientation of colors / gobos / effects:**

Use the diagrams below to aid in identifying the coated side of the dichroic filters. The coated side should always be oriented toward the lamp to minimize heating of the dichroic filter.

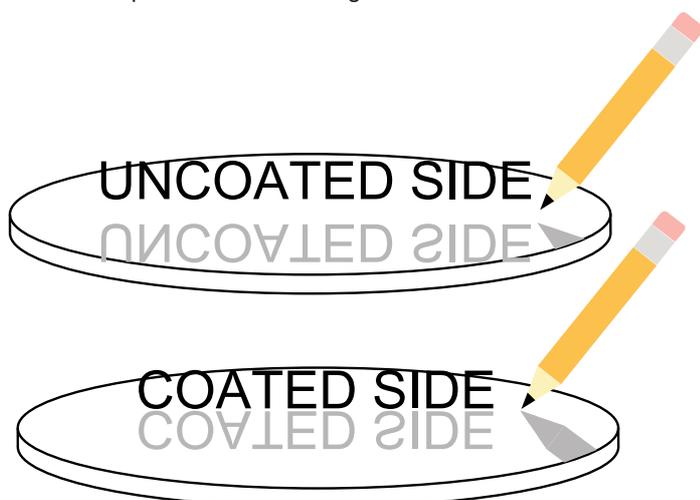


Figure W18 Determining coated side of dichroic color and orientation to lamp

### **Obtaining replacement colors for your Flex:**

Your new **Flex** produces very high energy levels. To withstand this level of energy, **coemar** uses only the most advanced dichroic filter technology available. To insure continued performance of your **Flex** we recommend that you utilize only **coemar** dichroic filters. Contact your **coemar** representative to obtain replacement dichroic filters.

## **7.6. Cleaning**

Recommended cleaning procedures: Keeping your **Flex** clean will ensure years of trouble free performance. It is imperative that all fan intakes be kept clean and free of contamination to insure proper air flow. Your **Flex** will shut down in the event of over-heating due to restricted air flow. Keeping the optical components clean will help to insure maximum light output efficiency as well as to reduce heating of the optical components inside your **Flex**. Always handle dichroic filters by the edge or using a soft cloth. Oil from your skin on the dichroic surface will result in heating and failure of the coating. We recommend the following cleaning procedures:

### **Optical**

Use isopropyl alcohol or Windex™ with a soft cloth. Repeat *gentle* cleaning of the lenses or dichroic filters with solution until the surface is bright and free of any contamination or smearing.

### **Exterior**

Use non-volatile, non-abrasive cleaning agents, such as mild soap and water or Windex™ glass cleaner with a soft cloth.

### **Fans / PCB's**

Use dry compressed air and gently blow out any dust or debris until the air passages, fans and components are free of loose dust and contaminants. DO NOT use any cleaning solvents of any type on internal electrical or electronic components.

## **7.7. Service Information**

In the event that you require support for your new **Flex** product, please contact your dealer or one of our Customer Support staff in your country. **Coemar Global Support** offers world wide support of all our products to insure you outstanding performance and support of your new **Flex** fixture. Full support information is available on our web-site. Please follow the suggested procedure for obtaining prompt Customer Support:

Have your **Flex** part number and serial number and date of purchase available as well as your current software version number.

- 1) Contact your dealer or,
- 2) Contact factory authorized service centers in your area listed at [www.coemar.com](http://www.coemar.com) or,
- 3) Contact Coemar World Wide Service for your region by contacting one of the following Coemar World Wide Service centers:  
Italy -39-0376-779-336 or e-mail [tech-support@coemar.com](mailto:tech-support@coemar.com)  
USA - 1-888-987-2266 or 1-954-689-8833 or e-mail [tech-support@coemarus.com](mailto:tech-support@coemarus.com)

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