coemar

i Spot Flex

Index

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.

2.1. Manufacturer

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

2.2. Model Information

Product Model
iSPOT Flex™, part number 9116

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

3.1. Mechanical Specifications
Mechanical drawings

595mm
23,43"

545mm
21,46"

35mm
1,38"

600mm
23,62"

315mm
12,40"

315mm
12,40"

145mm
5,70"

910mm
35,83"

630mm
24,80"

560mm
22,05"

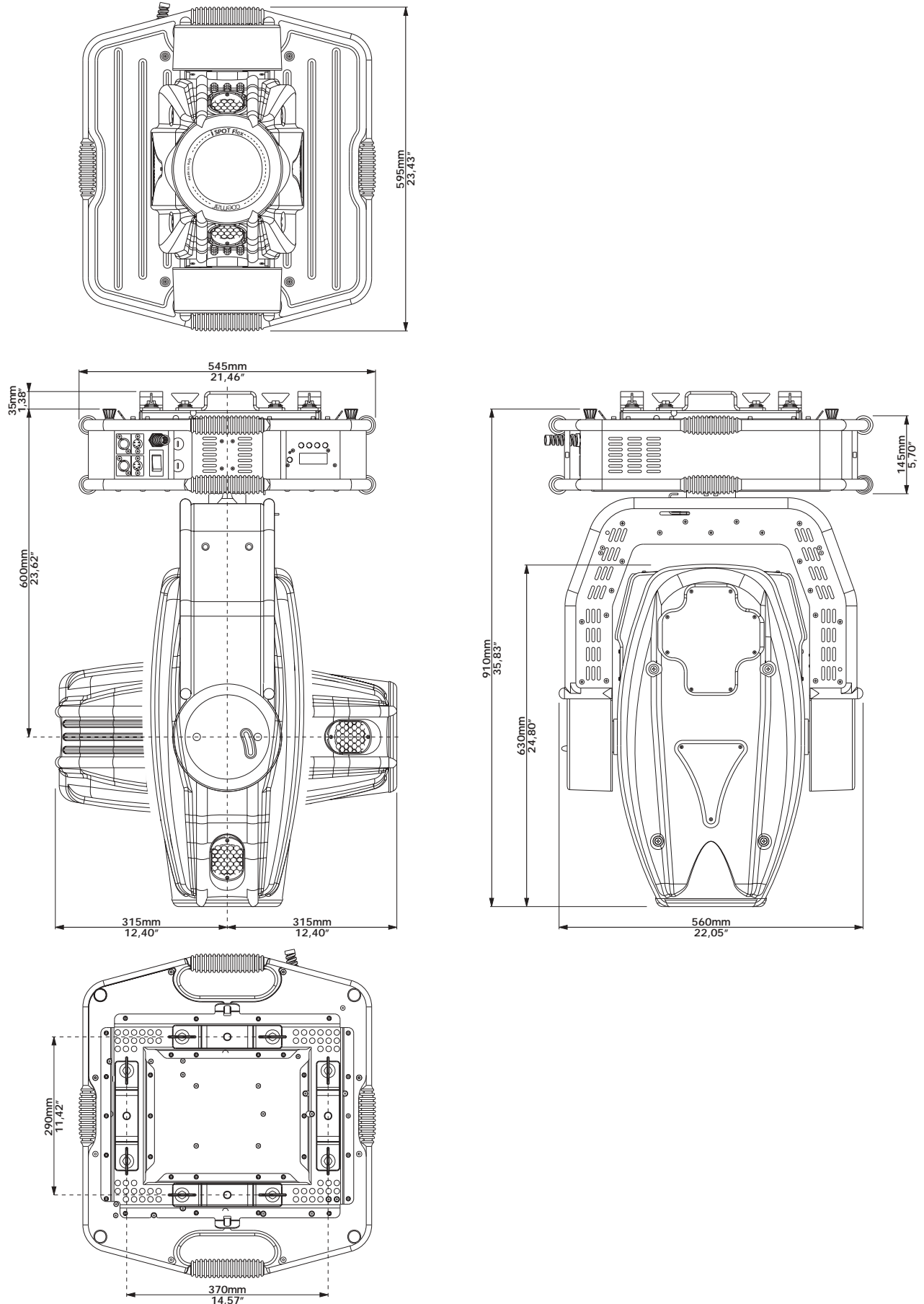290mm
11,42"

370mm
14,57"

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

Materials

Housing: Carbon Fiber / epoxy composite/ rubber overmold on aluminum
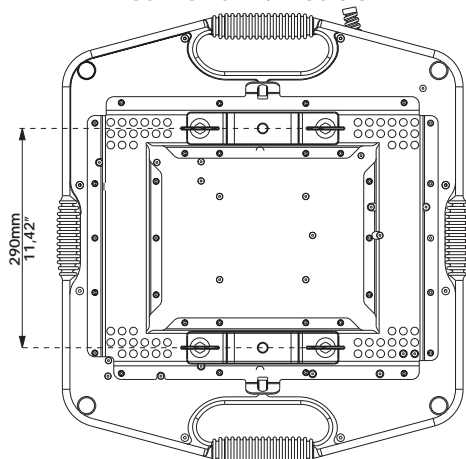Internal: Passivated steel and aluminum
Flammability rating:Housing – V0

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.

Posizione 1 / Position 1   Posizione 2 / Position 2
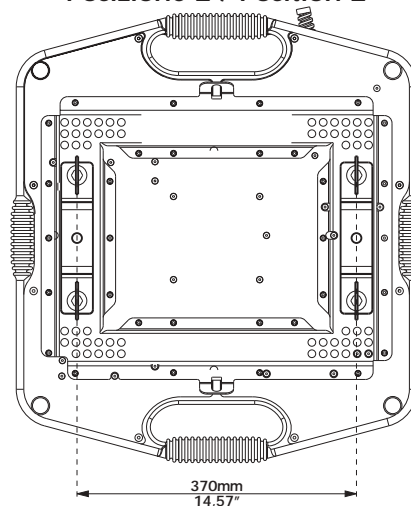
Figure W2: Mounting Centers

Weight

47.5kg (104.7 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: 28

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.

4.1. Display Overview

Fig. *W3* 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 $A001$ (A followed by three numeric characters), this indicates the current fixture DMX address. See Sec. 4.3 for addressing functions.
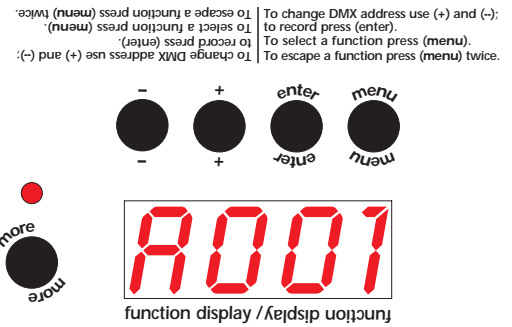
Figure W3 Detail of display

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 $A001$ 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 $A001$ by pressing **<menu>** button.

Measure Menu $MEAS$

Measure allows you to measure and display operating parameters of the fixture. Enter the $MEAS$ feature from the default address menu $A001$ by pressing **<menu>** then **<+>**. To enter the individual menus from $MEAS$ 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. $HOUR$ displays the working time on lamps and fixture. To access the sub-menus from the $HOUR$ 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
$IRIS$	iris open/close + pulse macro effect
$FOCU$	variable focus
$ZOOM$	variable zoom
$GOB1$	gobo 1 select
$GR.1$	gobo 1 rotation
$GOB.2$	gobo 2 select
$GR.2$	gobo 2 rotation
EFF	effect (gobo 3) select
$EFF.R$	effect (gobo 3) rotate
$PRIS$	prism select
$PR.RO$	prism rotate
$COL1$	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. *SFAN* displays the velocity for each of the 16 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 *SFAN* 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.

FOCU	test focus lens sensor
ZOOM	test zoom lens sensor
COL1	test color wheel 1 sensor
COL2	test color wheel 2 sensor
GOB1	test gobo wheel 1 wheel sensor
G.RO1	test gobo wheel 1 rotation sensor
GOB2	test gobo wheel 2 wheel sensor
G.RO2	test gobo wheel 2 rotation sensor
EFF	test effect (gobo 3) wheel sensor
EFRO	test effect (gobo 3) rotation sensor
PRIS	test prism 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. *PDIR* allows pan inversion for mirror-imaging of fixtures. From the *PDIR* menu press **<enter>** then **<+>** or **<->** to select *CW* (clockwise) or *CCW* (counter-clockwise) then **<enter>** to accept.

2. *TDIR* allows tilt inversion for mirror-imaging of fixtures. From the *TDIR* menu press **<enter>** then **<+>** or **<->** to select *CW* (clockwise) or *CCW* (counter-clockwise) then **<enter>** to accept.

2. *LAMP* allows selection of lamp operation under DMX control *STRD* or always *ON*. *ON* **is only recommended for testing purposes. LAMP should be reset to *STRD* 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 than it turn 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, than a count down sequence will start, the fixture begins to initialize and finally *A001* 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. *PROT* provides selection of fan protection modes. From the *PROT* menu select one of the following modes:

ON if one fan fails, auto lamp off

OFF protection disabled

SAFE auto lamp power reduction on fan fail

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 as 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:

PAN	pan offset	*COL-2*	color wheel 2
TILT	tilt offset	*FOCU*	focus
SH-R	shutter right	*PR.1*	prism 1
SH-L	shutter left	*PR.2*	prism 2
GOB.1	gobo wheel 1	*IRIS*	iris
GOB.2	gobo wheel 2	*ZOOM*	zoom
GR.1	gobo rotate 1	*CYAN*	cyan color mix filter
GR.2	gobo rotate 2	*MAG*	magenta color mix filter
EFF	effect (gobo 3) wheel	*YELL*	yellow color mix filter
EF.R	effect (gobo 3) rotate	*CTO*	CTO color mix filter
COL-1	color wheel 1	*END*	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.ALR* 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.ALR* to verify the test has run. The details of any error can be viewed in the following menu *B.ALR*.

B.ALR

Displays any buss alarms. From *B.ALR* 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.

DMX ERR

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) RST ERR

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) INI ERR

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) OPTO ERR

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) ENC ERR

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 iSPOT 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 particullarlty useful to test the sensors, load the new software to PCBs and to re-address the PCBs network. To resume normal fixture functioning, turn the projector off and on again via the **power** button or reset the light using the display *RST* command.

Section 5: DMX Chart

5.1.DMX Chart
Refer to Additional Technical Information, Section 1 for DMX chart

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, horizontal, vertical, angular, floor, ceiling or truss mounted. Vertical and overhead mounting require special attention to the mounting means and safety.
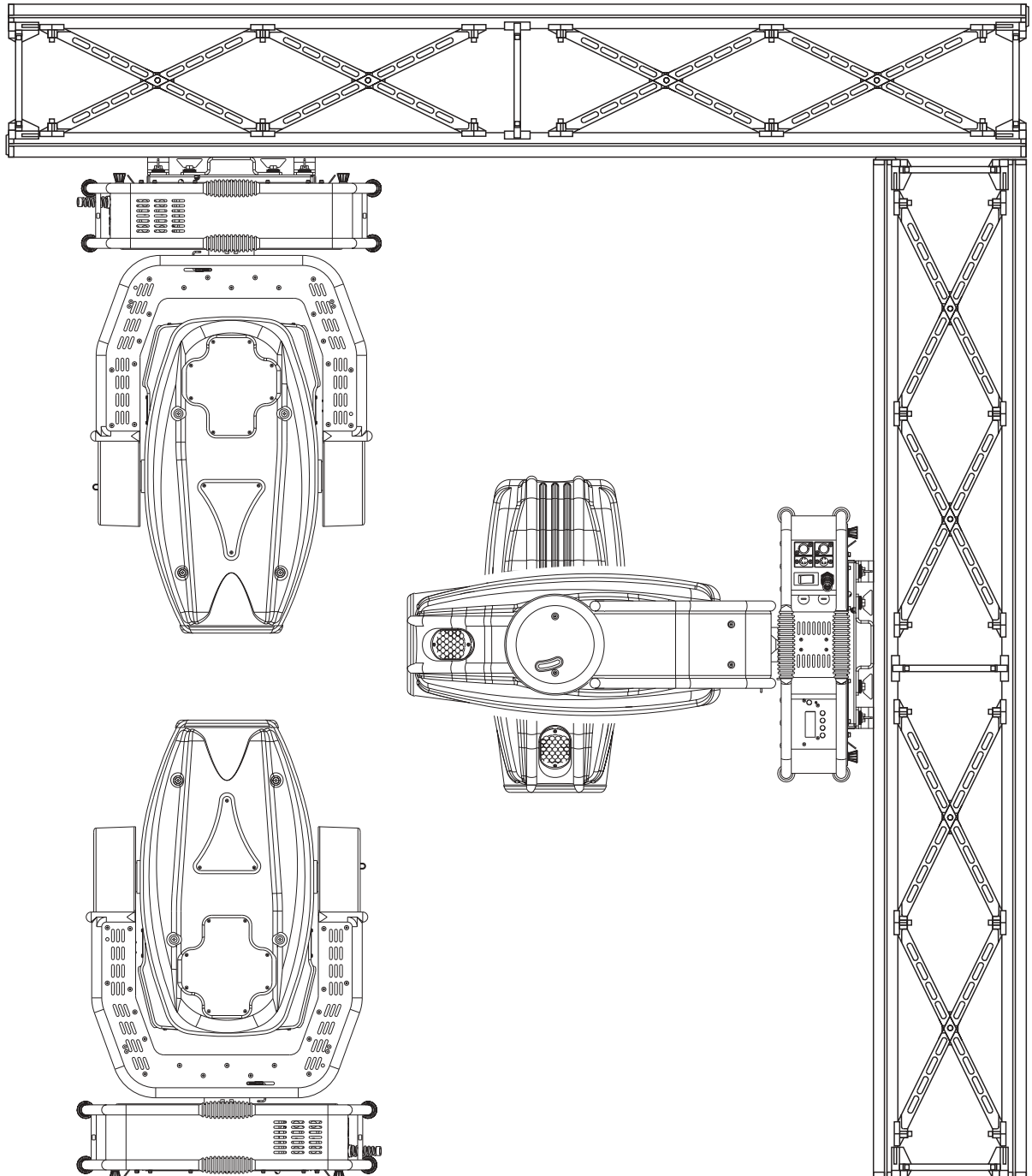

Figure W4 showing floor, truss and vertical mounting

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 X** 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 should comply with RS-485 standard, 22AWG stranded twisted pair with braided shield, low capacitance with 85Ω to 150Ω impedance. The fixture is fitted with both 3 pin and 5 pin XLR connectors wired as follows:

pin 1 – shield
pin 2 – data (-)
pin 3 – data (+)
pin 4,5 – not used

To insure optimum performance of your new **Flex** fixture we recommend using *coemar* digital DMX cable. Contact your *coemar* dealer to obtain *coemar* digital DMX cable.

6.3.1. Grounding

Proper grounding practice for digital data is also critical to proper performance of your new **Flex** products. Insure that XLR pin 1 is *NOT* connected to electrical ground or line voltage. Also, insure that the XLR connector body is *NOT* connected to pin 1 within the connector or to the shield of the data wire at any point. Use an ohm meter to verify isolation between the XLR body and pin 1 shield.
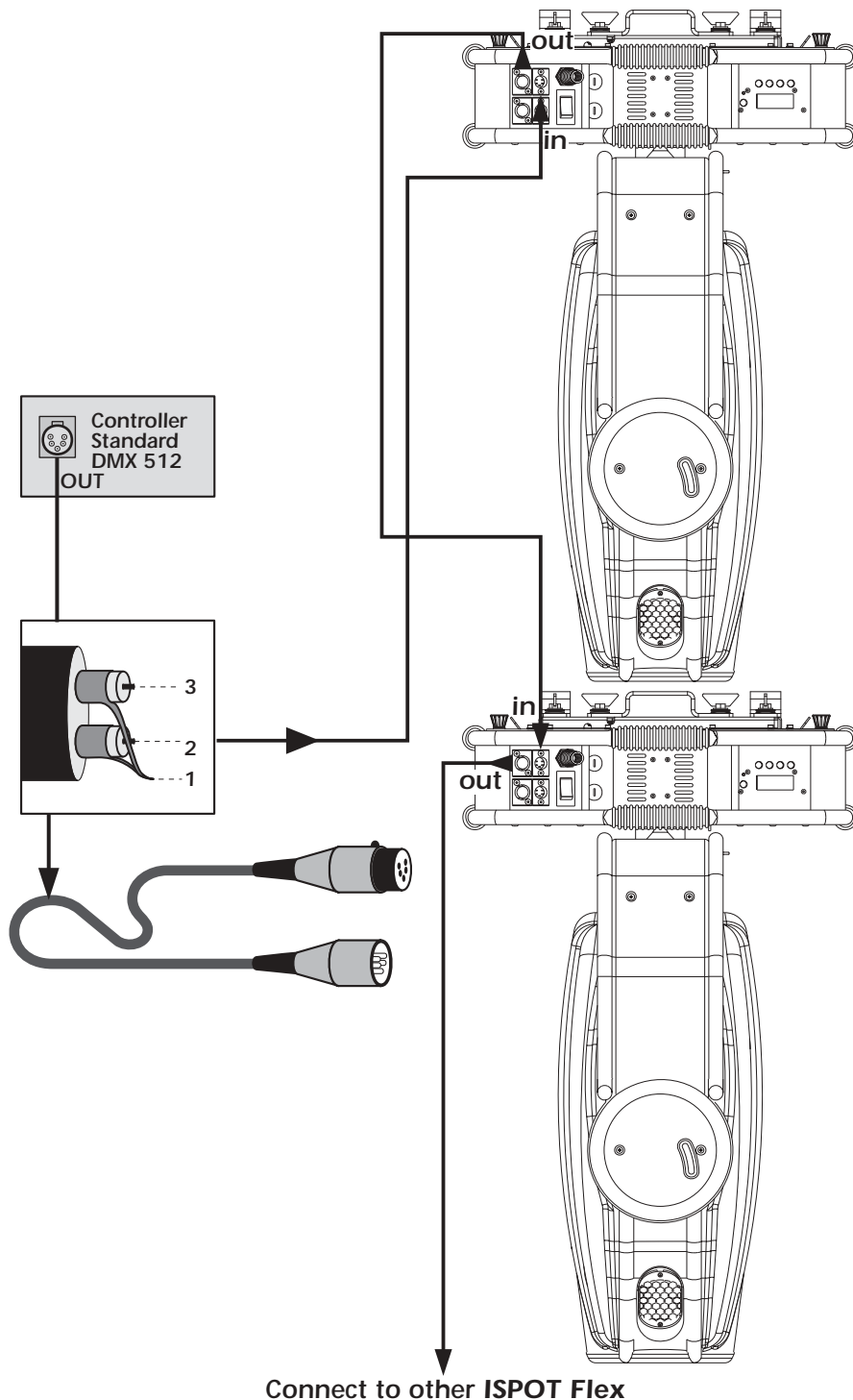
Connect to other **ISPOT Flex**

Figure W7 Data Connection and 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 24th fixture or 100m of data cable. Following proper wiring practices will insure you trouble free performance of your new **Flex** products.
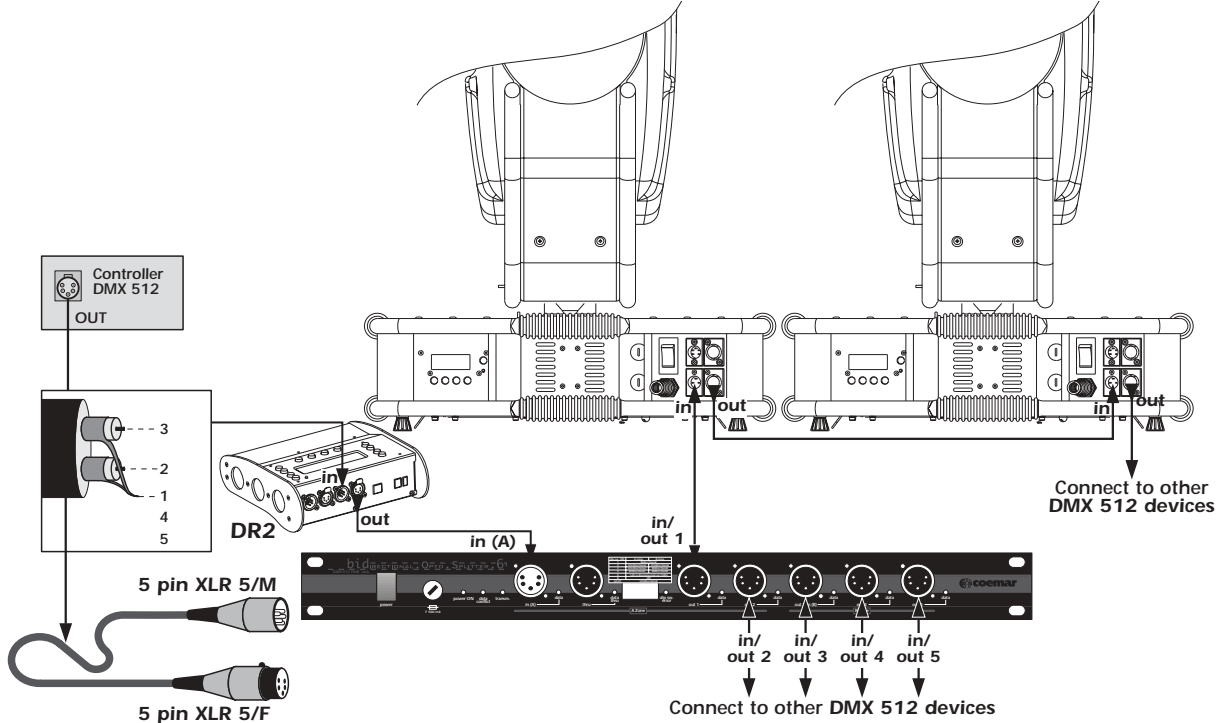

*Figure W8 Fixture – console- **bidos** Bidirectional Opto Splitter – **dr2** interconnect*

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* / *DMIN* and the *MEAS* / *RATE* menus. See the Functions section for details on using the DMX analysis features of your **Flex**.
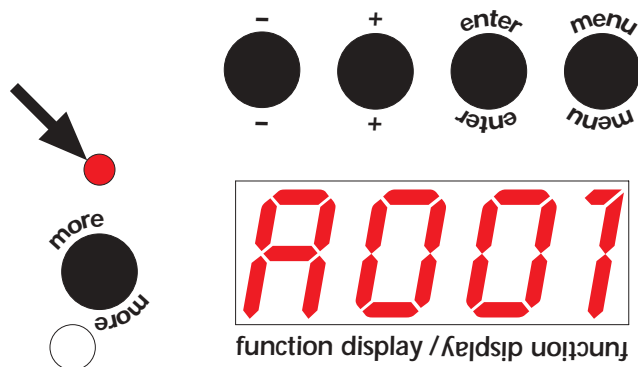

Figure W9 Detail of display with DMX LED identified

Section 7: Maintenance

7.1. Lamp Replacement

⚠️ ***Disconnect mains before servicing!*** 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 before servicing the lamp. Follow the procedure for lamp installation and optimization in the accompanying **Quick Start** manual. Always optimize the lamp positioning when installing a new lamp.

7.2. Fuses

⚠️ ***Disconnect mains before servicing!*** Replace fuses only with the same type and rating. **Flex** uses three fuses, two accessible externally as shown in Fig. W10 and another internal fuse on the switching power supply. To replace the switching supply fuse remove the base covers as in Figure 11A, followed by removing the 4 supply retaining screws on the bottom of the fixture as in Figure 11B. Locate the switching supply from the top as shown in Fibure 11C and remove it from the fixture base. Remove the blown fuse and Figure 11D. Check for any indications of damage to the switching supply and wiring before replacing fuse. Reinstall the supply.
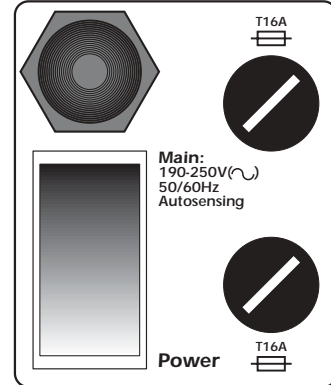

Figure W10 Main Fuses

Figure W11A - Removing Base Covers

Figure W11B - Removing Switching Supply

Figure W11C- Removing Switching Supply

Figure W11D - Changing Switching Supply Fuse

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.

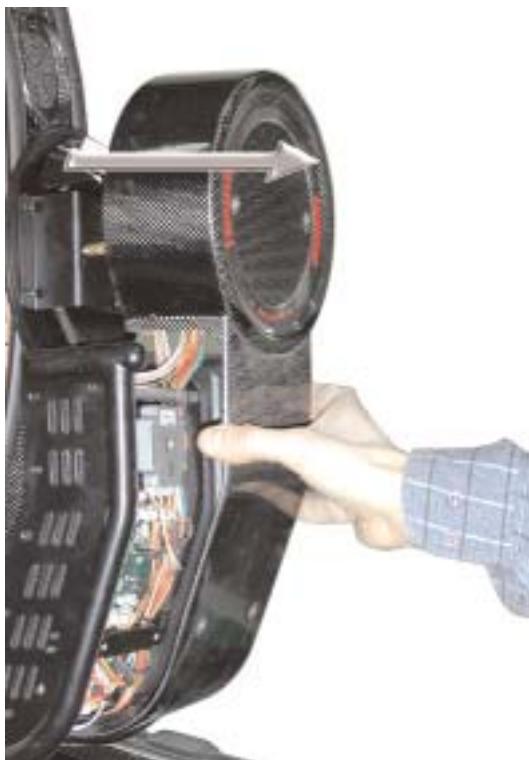*Figure W12A Removing Fixture Covers*

Figure W12B Removing Fixture 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.
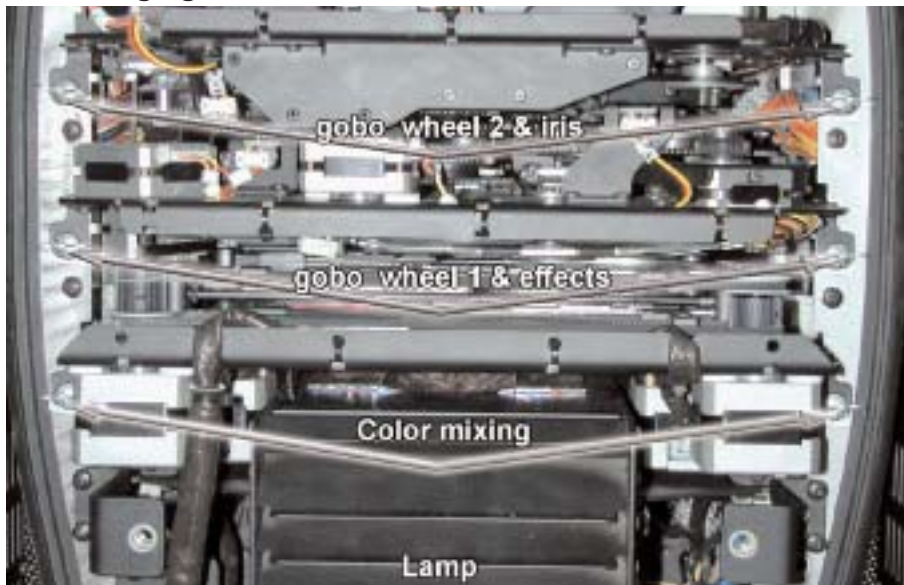

Figure W13A Removing Yoke Covers

W13B Removing Yoke 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.

7.4. Changing Colors, Gobos and Prisms

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

The *i*SPOT **Flex** is fitted with three removable modules to provide easy access to the colors and gobos. The module closest to the lamp housing is the CYM+CTO+Dim module. The second module is the Color+Gobo module which includes the two fixed color wheels and the first two rotating gobo wheels.

The third module includes the Effect+Iris module.

Figure W14: Module Locations

Changing Fixed Colors

Remove the top cover of the fixture and locate the Color+Gobo module as in Figures W12. 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. Remove the color wheels from the module as follows:

1) Remove the sensor assembly (A) by removing the 2 retaining screws and setting the sensor assembly aside.
2) Remove the #1 Phillips screw at the center of the color wheel shaft.

Figure W15A: Removing Sensor

Figure W15B: Loosen Screws on Color Wheel

3) Gently pull the first color wheel upward and over the shaft, removing the belt, and set it aside.
4) Gently pull the second color wheel upward and over the shaft, removing the belt, and set it aside.
5) Loosen the #1 Phillips screws on the center hub by one turn and pull the selected color outward to remove it.

Figure W15C: Loosening Color Wheel Screws

Figure W15D: Removing Color Wedges

6) 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 W17 to determine the coated side of the color filter and always orient the filter with the coated side to the lamp. Retighten the hub screws.
7) Replace the belt on the color wheel and over the motor pulley then replace the color wheel on the shaft. Repeat for the second color wheel.
8) Install the screw and washer on the top of the color wheel shaft to retain the color wheels. ***DO NOT OVERTIGHTEN***. Check to insure that the wheels rotate freely.

Figure W16 Removing Color Filter

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.

Orientation of colors / gobos / effects:

Use the Figure W17 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. When using a metal gobo install the gobo with the painted side **AWAY** from the lamp. Texutred glass should be installed with the texured surface **AWAY** from the glass.

Changing Gobos on Color+Gobo Module:

Remove the top cover of the fixture and locate the Color+Gobo module as in Figure W12. 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. Remove the gobos from the module as follows:
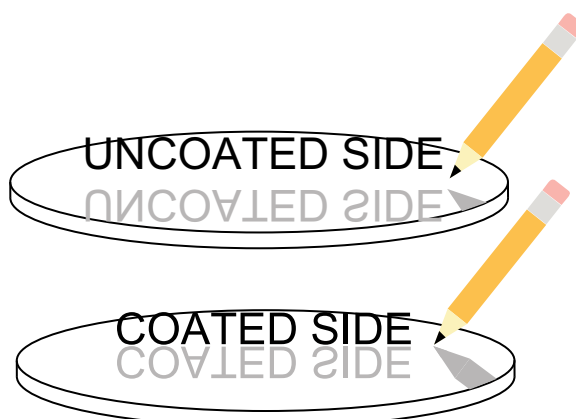

Figure W17 Determining Coated Side of Dichroic

Gobo Wheel 1:

1) Rotate the gobo you wish to change under the opening in the gobo plate. Hold the gobo gear on the underside of the plate by hand while you unscrew the retaining ring using the gobo tool provided with a counter-clockwise rotation. Remove the spring and gobo.
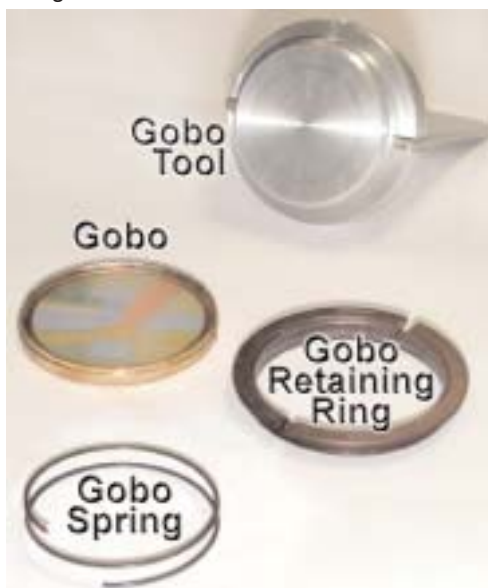

Figure W19 Gobo Tool and Component Parts

Figure W18 Remove Gobo

2) Install the gobo with the coated side directed toward the top (color wheel up) followed by the spring and retaining ring. Refer to Figure W17 for assistance in determining the coated side. When using a metal gobo install the gobo with the painted side **AWAY** from the lamp. Texutred glass should be installed with the texured surface **AWAY** from the lamp

Gobo Wheel 2:

1) Rotate the gobo you wish to change under the opening in the gobo plate. Hold the gobo gear on the underside of the plate by hand while you unscrew the retaining ring using the gobo tool provided with a counter-clockwise rotation. Remove the spring and gobo.

2) Install the gobo with the coated side directed toward the top (color wheel up) followed by the spring and retaining ring. Refer to Figure W19 to determine coated side. When using a metal gobo install the gobo with the painted side **AWAY** from the lamp. Texutred glass should be installed with the texured surface **AWAY** from the glass. Reinstall the Color+Gobo module into the fixture.

Changing the Gobos on Gobo+Iris Module:

Refering to Figure W14, remove the Gobo+Iris module from the fixture. Lay the fixture on a work surface with the gobo wheel down.

1) Rotate the gobo you wish to change under the opening in the gobo plate. Hold the gobo gear on the underside of the plate by hand while you unscrew the retaining ring using the gobo tool provided with a counter-clockwise rotation. Remove the spring and gobo

2) Install the gobo with the coated side directed toward the top (color wheel up) followed by the spring and retaining ring. Refer to Figure W17 to determine coated side. When using a metal gobo install the gobo with the painted side **AWAY** from the lamp. Texutred glass should be installed with the texured surface **AWAY** from the glass.

Reinstall the Gobo+Iris module into the fixture

Changing the Prisms

Optional prism effects are available from Coemar. To change the prism effect remove the bottom cover. Move the prism assembly as far back as possible from the front lens by rotating the lead screw of the focus motor. Using a small flat blade screw driver, remove the 4 screws holding the prism assembly to the rail and remove the prism assembly. Install the new prism assembly in place of the one removed.

7.5. 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.

7.6. Service Information

In the event that you require support for your new **Flex** product, please contact your dealer of 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 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
   USA - 1-888-987-2266 or 1-954-689-8833 or e-mail tech-support@coemarusa.com