

ENGLISH

Mirrorball Motorcontroller V1

Ordercode: 60455

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Warning



**For your own safety, please read this user manual carefully
before your initial start-up!**

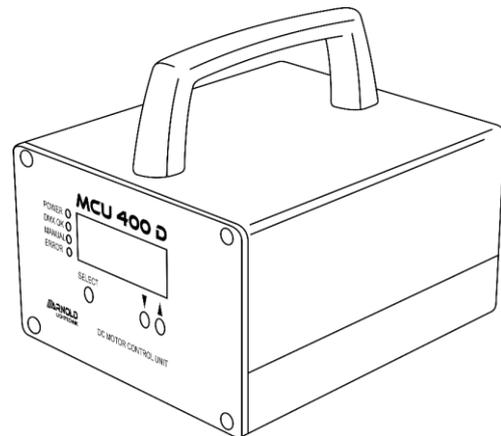


Unpacking Instructions

Immediately upon receiving this product, carefully unpack the carton and check the contents to ensure that all parts are present, and have been received in good condition. Notify the dealer immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Your shipment includes:

- Arnold Lichttechnik Mirrorball Motorcontroller
- Schuko to 3-pin XLR 12 V power adapter (1,4 m)
- User manual



CAUTION!

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



Safety Instructions

Every person involved with the installation, operation and maintenance of this device has to:

- be qualified
- follow the instructions of this manual



**CAUTION! Be careful with your operations.
With a dangerous voltage you can suffer
a dangerous electric shock when touching the wires!**



Before the initial start-up, please make sure that there is no damage caused by transportation. Should there be any, consult your dealer and do not use the device.

To maintain perfect condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes contained in this manual.

Please consider that damages caused by manual modifications to the device are not subject to warranty.

This device contains no user-serviceable parts. Refer servicing to qualified technicians only.

IMPORTANT:

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the device.

- Never let the power cord come into contact with other cables! Handle the power cord and all connections with the mains with particular caution!
- Never remove warning or informative labels from the device. Do not open the device and do not modify the device.
- Never use anything to cover the ground contact.
- Never leave any cables lying around.
- Never use the device during thunderstorms, unplug the device immediately.
- Do not connect this device to a dimmer pack.
- Do not switch the device on and off in short intervals, as this would reduce the device's life.
- Do not shake the device. Avoid brute force when installing or operating the device.
- Only use device indoors, avoid contact with water or other liquids.
- Only operate the device after having checked if the housing is firmly closed and all screws are tightly fastened.
- Only operate the device after having familiarized with its functions. Avoid flames and do not put close to flammable liquids or gases.
- Always hold the fixture by the transport handle.
- Always allow a free air space of at least 50 cm around the device for ventilation.
- Make sure that the device is not exposed to extreme heat, moisture or dust. Make sure that the available voltage is not higher than stated on the rear panel.
- Make sure that the power cord is never crimped or damaged. Check the device and the power cord from time to time.
- Make sure that the rotation of the mirror ball is not interrupted in any way by decoration parts, etc.
- Make sure that the mirror ball cannot start swinging due to air streams, etc. The mirror ball and the motor should be hanged and operated absolutely vibration-free.
- Regularly examine whether the keyring and the chain have any deformations. If they do, immediately detach the mirror ball.
- The length of the chain (with the mirror ball) may never exceed 100 cm.
- If the external cable is damaged, it has to be replaced by a qualified technician.
- If device was dropped or struck, disconnect mains power supply immediately. Have a qualified engineer inspect for safety before operating.
- If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.
- If your Arnold Lichttechnik device fails to work properly, discontinue use immediately. Pack the device securely (preferably in the original packing material), and return it to your Arnold Lichttechnik dealer for service.
- For adult use only. The Mirrorball Motorcontroller must be installed out of the reach of children. Never leave the device running unattended.
- Never attempt to bypass the thermostatic switch or fuses.
- The user is responsible for correct positioning and operating of the Mirrorball Motorcontroller. The manufacturer will not accept liability for damages caused by the misuse or incorrect installation of this mirror ball control system.
- This device falls under IEC protection class III. This device shall be connected to an external power supply.
- Before connecting the device to the external power supply, make sure that the current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- WARRANTY: Till one year after date of purchase.

Operating Determinations

- This device is not designed for permanent operation. Consistent operation breaks will ensure that the device will serve you for a long time without defects.
- To eliminate wear and improve lifespan, during periods of non-use, completely disconnect from power via breaker or by unplugging.
- The maximum ambient temperature $t_a = 40\text{ °C}$ must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40 °C.
- If this device is operated in any other way than the one described in this manual, the product may suffer damages and the warranty becomes void.
- Any other operation may lead to dangers like short-circuit, burns, electric shock, crash, etc.

You endanger your own safety and the safety of others!

Rigging

Please follow the European and national guidelines concerning rigging, trussing and all other safety issues.

Do not attempt the installation yourself !

Always let the installation be carried out by an authorized dealer !

Procedure:

- If the mirror ball or motor (60450) is lowered from the ceiling or high joists, professional trussing systems have to be used.
- The Mirrorball Motorcontroller must never be fixed swinging freely in the room.
- The installation must always be secured with a safety attachment, e.g. an appropriate safety net or a safety cable.
- Make sure that the installation area can hold a minimum point load of 10 times the device's load (e.g. maximum load: 3 kg = point load: 30 kg).
- When rigging, derigging or servicing the device, always make sure, that the area below the installation place is blocked and staying in the area is forbidden.

Improper installation can cause serious injuries and/or damage of property!



Return Procedure

Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Authorization Number (RMA number). Products returned without an RMA number will be refused. Highlite will not accept the returned goods or any responsibility. Call Highlite 0031-455667723 or mail aftersales@highlite.com and request an RMA prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause of the return. Be sure to properly pack fixture as any shipping damage resulting from inadequate packaging is the customer's responsibility. Highlite reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note: If you are given an RMA number, please include the following information on a piece of paper inside the box:

- 01) Your name
- 02) Your address
- 03) Your phone number
- 04) A brief description of the symptoms

Claims

The client has the obligation to check the delivered goods immediately upon delivery for any shortcomings and/or visible defects, or perform this check after our announcement that the goods are at their disposal. Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise.

It is the customer's responsibility to report and submit claims with the shipper in the event that a fixture is damaged due to shipping. Transportation damage has to be reported to us within one day after receipt of the delivery.

Any return shipment has to be made post-paid at all times. Return shipments must be accompanied with a letter defining the reason for return shipment. Non-prepaid return shipments will be refused, unless agreed otherwise in writing.

Complaints against us must be prepared in writing or sent by fax within 10 working days after receipt of the invoice. After this period complaints will not be handled anymore.

Complaints will only then be considered if the client has so far complied with all parts of the agreement, regardless of the agreement from which the obligation is resulting.

Description of the device

Features

The Arnold Lichttechnik Mirrorball Motorcontroller is a mirror ball control system.

- Input voltage: Power adapter 12 V to 240 V AC, 50 Hz
- Power consumption: 10 W
- Control modes: DMX-512
- Rotation speed: 0,5 RPM
- Maximum load: 500 kg
- Onboard: OLED display for easy setup
- DMX channels: 1, 2 channels
- Connections: 5-pin DMX IN/THRU, 3-pin power IN, 4-pin motor OUT
- Housing: Metal & flame retardant plastic
- IP rating: IP20
- Dimensions: 129 x 105 x 105 mm (LxWxH)
- Weight: 0,8 kg



In order to be able to use this device, you need to purchase the 60450 – Mirrorball Motor to 500kg DMX as well as the power cables listed below.



[60450](#) – Mirrorball Motor to 500kg DMX

[FL816](#) – FL81, XLR/M 4-pin > XLR/F 4-pin cable (6 m)

[FL8110](#) – FL81, XLR/M 4-pin > XLR/F 4-pin cable (10 m)

[FL8120](#) – FL81, XLR/M 4-pin > XLR/F 4-pin cable (20 m)

Front

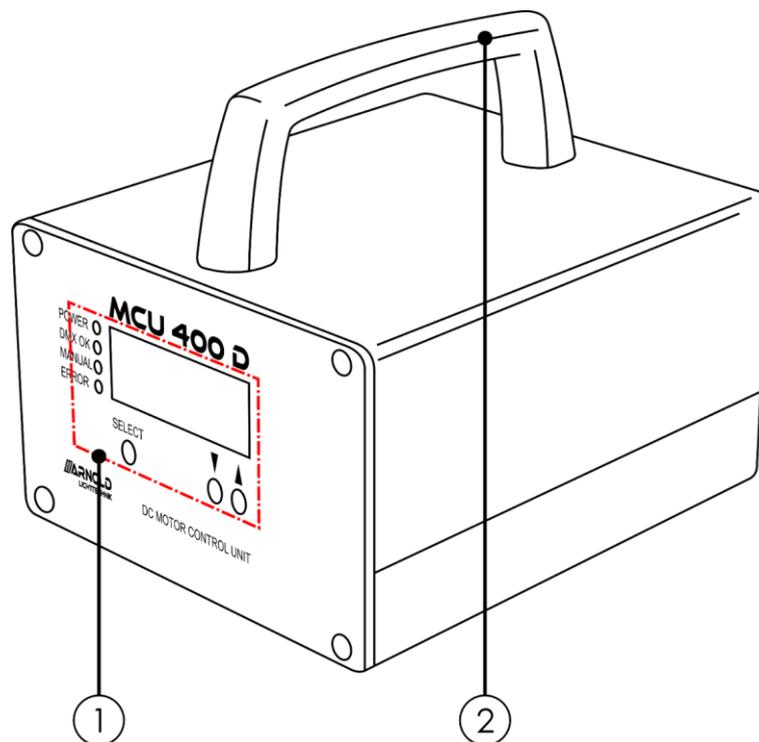


Fig. 01

01) OLED display + LED indicators and control buttons

- POWER: If the LED is on, the power is on.
- DMX OK: If the LED is on, DMX signal is present.
- MANUAL: If the LED is on, Manual mode is active.
- ERROR: If the LED is blinking, the current is too high. If the LED is on, the device will turn off to prevent overload.

02) Transport handle

Back

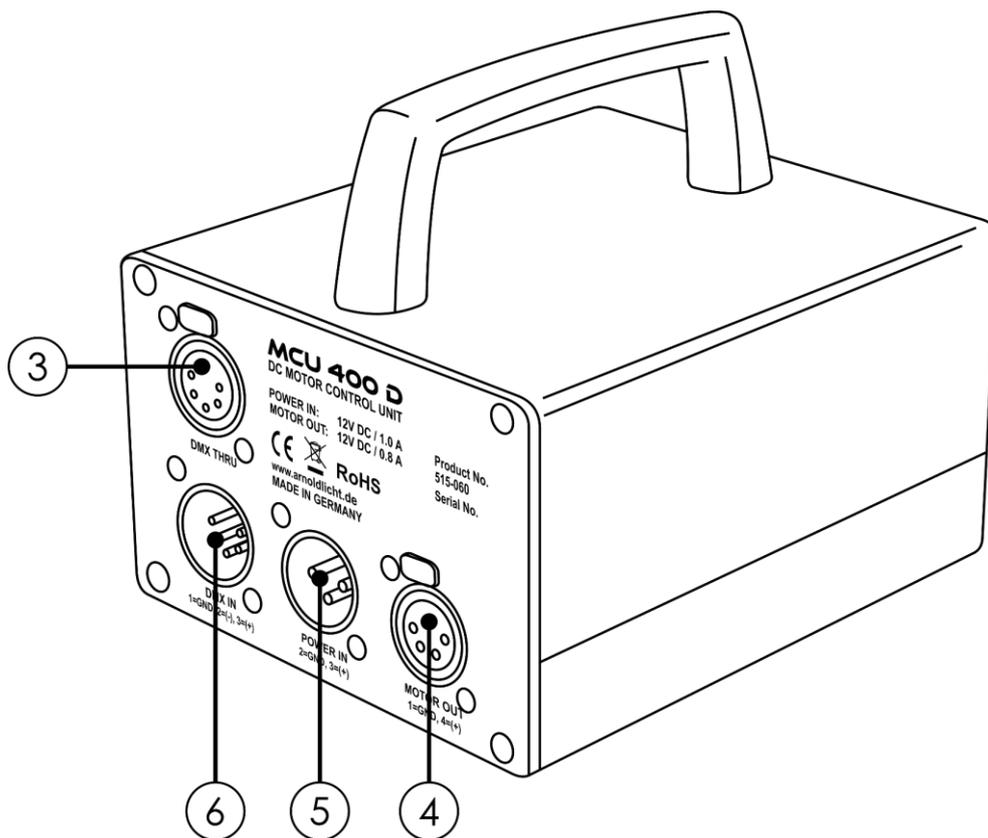


Fig. 02

- 03) 5-pin DMX signal connector THRU
- 04) 4-pin motor connector OUT
- 05) 3-pin power adapter connector IN
- 06) 5-pin DMX signal connector IN

Installation

Remove all packing materials from the Mirrorball Motorcontroller. Check if all foam and plastic padding is removed. Connect all cables.

Do not supply power before the whole system is set up and connected properly.

Always disconnect from electric mains power supply before cleaning or servicing.

Damages caused by non-observance are not subject to warranty.

01) Connect the devices as shown below.

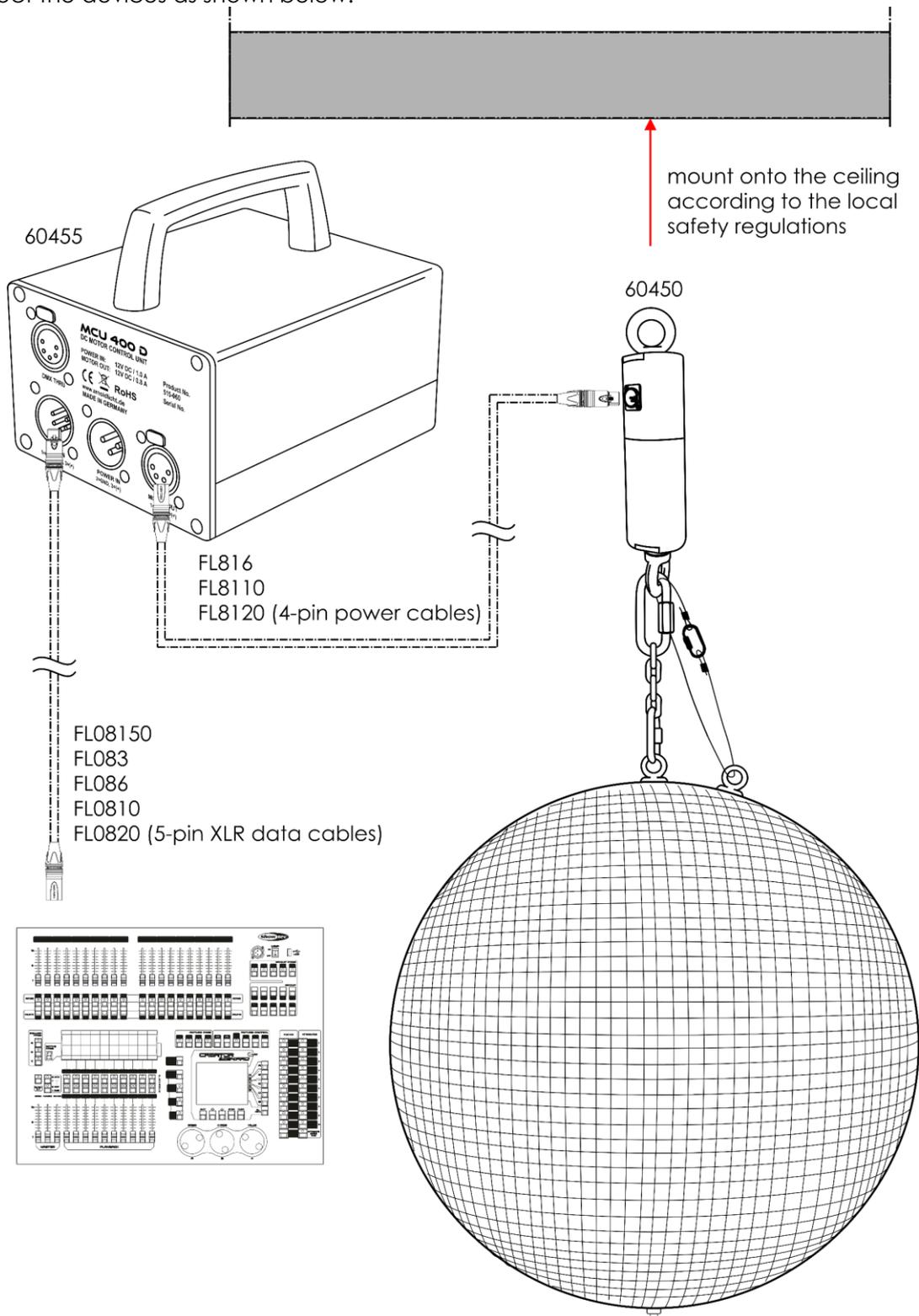


Fig. 03

Setup and Operation

Follow the directions below, as they pertain to your preferred operation mode.

Before plugging the device in, always make sure that the power supply matches the product specification voltage. Do not attempt to operate a 110 V specification product on 230 V power, or vice versa.

Connect the device to the main power supply.

- The motor must be installed at a vibration-free, oscillation-free and fire-resistant location. Make sure that the motor axle points are facing the bottom.
- If the motor and the mirror ball are to be operated above persons, a hazard analysis based on the location and application must be performed in order to ensure dimensioning and measures for a safe operation. Both the motor and the mirror ball meet the professional safety regulations regarding safety and operation.
- The installation of the mirror ball has to be carried out in a way that it can hold 10 times the device's weight for 1 hour, without any harming deformation.
- The installation must always be secured with a safety attachment, constructed in a way that no part of the installation can fall down if the main attachment fails.
- When rigging, derigging or servicing the fixture, staying in the area below the installation place, on bridges, under high working places and other endangered areas is forbidden.
- The operator has to make sure that safety-related and machine-technical installations are approved by an expert before taking into operation, after every four years in the course of an acceptance test and once a year by a skilled person.

Control Modes

There are 2 modes:

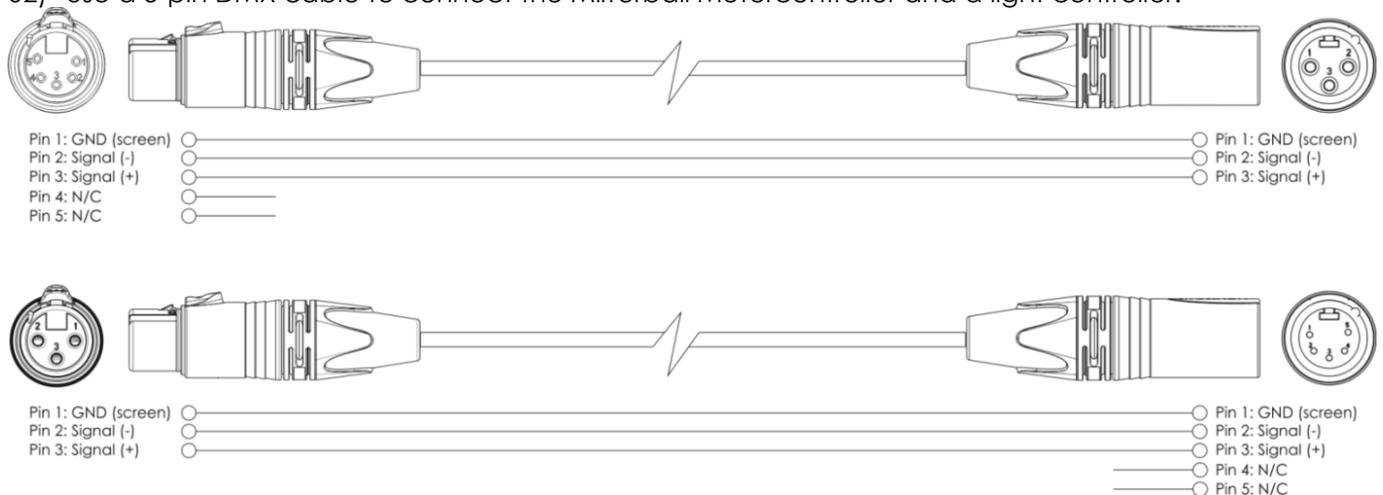
- Manual
- DMX-512 (1CH, 2CH)

One Mirrorball Controller (Manual)

- 01) Place the device on a flat surface. Leave at least 0,5 meter on all sides for air circulation.
- 02) Plug the adapter into a proper electric power supply socket.
- 03) When the Mirrorball Controller is not connected with a DMX cable, it functions as a stand-alone device. See page 14 for more information about Manual mode.

Multiple Mirrorball Motorcontrollers (DMX control)

- 01) Place the device on a flat surface. Leave at least 0,5 meter on all sides for air circulation.
- 02) Use a 5-pin DMX cable to connect the Mirrorball Motorcontroller and a light controller.



- 03) Link the devices as shown in Fig. 04 on page 10. Connect a DMX signal cable from the first device's DMX "thru" socket to the second device's "in" socket. Repeat this process to link the second, third, and fourth devices.
- 04) Supply electric power: Plug the adapter into a proper electric power supply socket, starting with the first device. Do not supply power before the whole system is set up and connected properly.

Multiple Mirrorball Motorcontrollers Setup

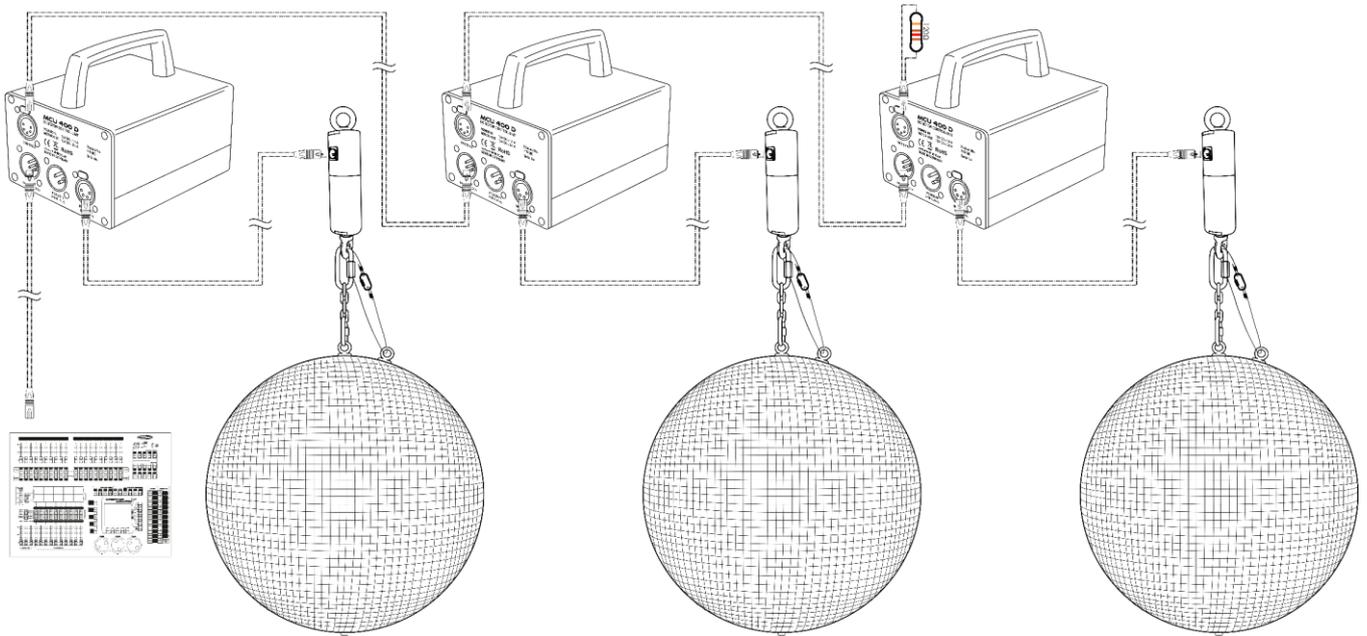


Fig. 04

Note : Link all cables before connecting electric power

Fixture Linking

You will need a serial data link to run light shows of one or more fixtures using a DMX-512 controller or to run synchronized shows of two or more fixtures set to a master/slave operating mode. The combined number of channels required by all the fixtures on a serial data link determines the number of fixtures the data link can support.

Important: Fixtures on a serial data link must be daisy-chained in a single line. To comply with the EIA-485 standard, no more than 30 devices should be connected on one data link. Connecting more than 30 fixtures on one serial data link without the use of a DMX optically isolated splitter may result in deterioration of the digital DMX signal.
 Maximum recommended DMX data link distance: 100 meters
 Maximum recommended number of devices on a DMX data link: 30



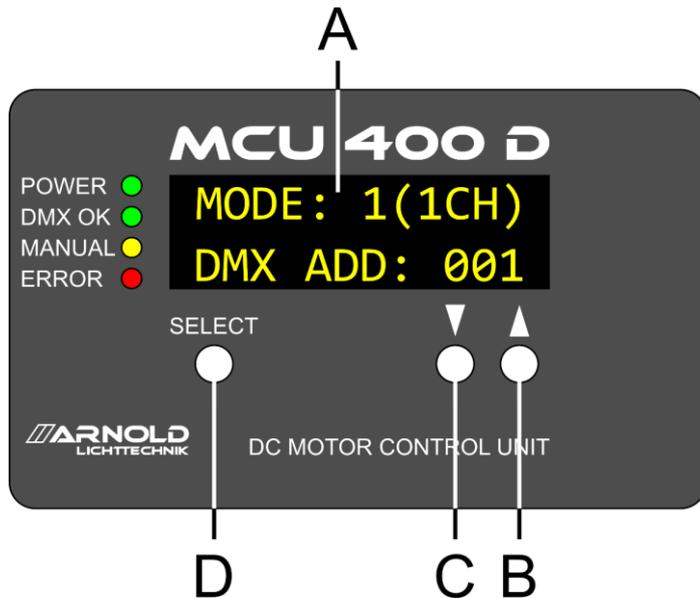
Data Cabling

To link fixtures together you must obtain data cables. You can purchase DAP Audio certified DMX cables directly from a dealer/distributor or construct your own cable. If you choose to create your own cable please use data-grade cables that can carry a high quality signal and are less prone to electromagnetic interference.

DAP Audio DMX Data Cables

- DAP Audio Basic microphone cable for allround use. bal. XLR/M 3-pin > XLR/F 3-pin. **Ordercode** FL01150 (1,5 m), FL013 (3 m), FL016 (6 m), FL0110 (10 m), FL0115 (15 m), FL0120 (20 m).
- DAP Audio X-type data cable XLR/M 3-pin > XLR/F 3-pin. **Ordercode** FLX0175 (0,75 m), FLX01150 (1,5 m), FLX013 (3 m), FLX016 (6 m), FLX0110 (10 m).
- DAP Audio cable for the demanding user with exceptional audio-qualities and connector made by Neutrik®. **Ordercode** FL71150 (1,5 m), FL713 (3 m), FL716 (6 m), FL7110 (10 m).
- DAP Audio cable for the demanding user with exceptional audio-qualities and connector made by Neutrik®. **Ordercode** FL7275 (0,75 m), FL72150 (1,5 m), FL723 (3 m), FL726 (6 m), FL7210 (10 m).
- DAP Audio 110 Ohm cable with digital signal transmission. **Ordercode** FL0975 (0,75 m), FL09150 (1,5 m), FL093 (3 m), FL096 (6 m), FL0910 (10 m), FL0915 (15 m), FL0920 (20 m).
- DAP Audio data cable FL08 DMX/AES-EBU, XLR/M 5-pin > XLR/F 5-pin. **Ordercode** FL08150 (1,5 m), FL083 (3 m), FL086 (6 m), FL0810 (10 m), FL0820 (20 m).
- DAP Audio DMX adapter: 5-pin/3-pin. **Ordercode** FLA29.
- DAP Audio DMX adapter: 3-pin/5-pin. **Ordercode** FLA30.
- DAP Audio DMX Terminator 3-pin. **Ordercode** FLA42.
- DAP Audio DMX Terminator 5-pin. **Ordercode** FLA43.

Control Panel



- A) OLED display
- B) UP button
- C) DOWN button
- D) SELECT button

Fig. 05

DMX Control Mode

The devices are individually addressed on a data-link and connected to the controller. The devices respond to the DMX signal from the controller. (When you select the DMX address and save it, the controller will display the saved DMX address the next time.)

DMX Addressing

The control panel on the front of the device allows you to assign the DMX fixture address, which is the first channel from which the device will respond to the controller.

Please note when you use the controller, the device has **2** channels.

When using multiple Mirrorball Controllers make sure you set the DMX addresses right.

Therefore, the DMX address of the first Mirrorball Controller should be **1(001)**; the DMX address of the second Mirrorball Controller should be **1+2=3 (003)**; the DMX address of the third Mirrorball Controller should be **3+2=5 (005)**, etc. Please, be sure that you do not have any overlapping channels in order to control each Mirrorball Controller correctly. If two or more Mirrorball Controllers are addressed similarly, they will work similarly.

Controlling:

After having addressed all Mirrorball Controllers, you may now start operating these via your lighting controller.

Note: After switching on, the Mirrorball Controller will automatically detect whether DMX 512 data is received or not. The problem may be:

- The XLR cable from the controller is not connected with the input of the Mirrorball Controller.
- The controller is switched off or defective, the cable or connector is defective, or the signal wires are swapped in the input connector.

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

Menu Overview



Main Menu Options

01) Upon start-up, the display will show the current software version.

MCU 400D DMX
Rev. 1.02

02) After 3 seconds, the display will show the main menu.

MODE: 1(1CH)
DMX ADD: 001

03) Press the **SELECT** button to activate the selection arrow:

MODE:>1(1CH)
DMX ADD: 001

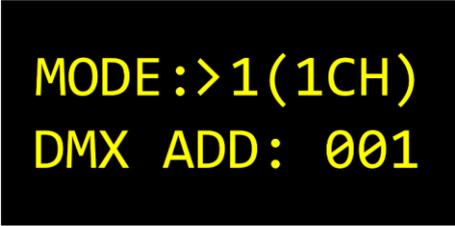
04) Press the **UP/DOWN** buttons to select one of the 3 operation modes:

- 1-channel mode
- 2-channel mode
- Manual mode

1. 1-channel Mode

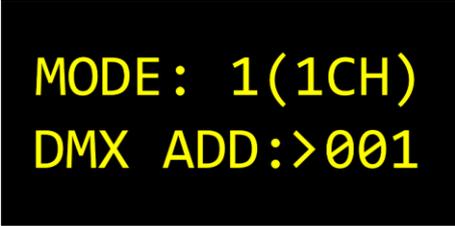
In this mode you can set the DMX starting address and operate the device with a DMX controller.

- 01) In the main menu, press the **SELECT** button until the selection arrow appears in the upper line.
- 02) Press the **UP/DOWN** buttons until the display shows 1CH:



MODE:>1(1CH)
DMX ADD: 001

- 03) Press the **SELECT** button to move the selection arrow to the lower line.



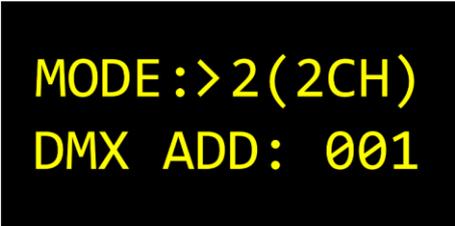
MODE: 1(1CH)
DMX ADD:>001

- 04) Press the **UP/DOWN** buttons to set the DMX starting address. The adjustment range is 001–512.

2. 2-channel Mode

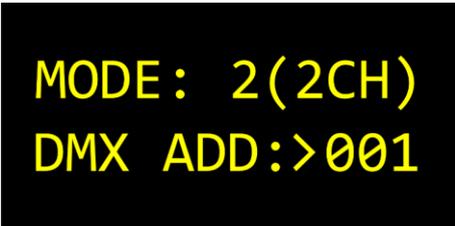
In this mode you can set the DMX starting address and operate the device with a DMX controller.

- 01) In the main menu, press the **SELECT** button until the selection arrow appears in the upper line.
- 02) Press the **UP/DOWN** buttons until the display shows 2CH:



MODE:>2(2CH)
DMX ADD: 001

- 03) Press the **SELECT** button to move the selection arrow to the lower line.



MODE: 2(2CH)
DMX ADD:>001

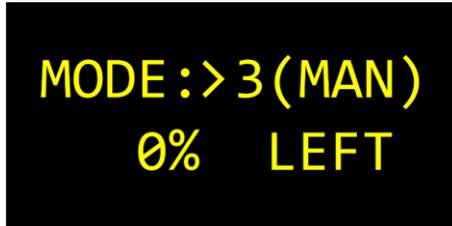
- 04) Press the **UP/DOWN** buttons to set the DMX starting address. The adjustment range is 001–512.

3. Manual Mode

In this menu you can operate the device manually and set the motor rotation's speed and direction.

01) In the main menu, press the **SELECT** button until the selection arrow appears in the upper line.

02) Press the **UP/DOWN** buttons until the display shows MAN:

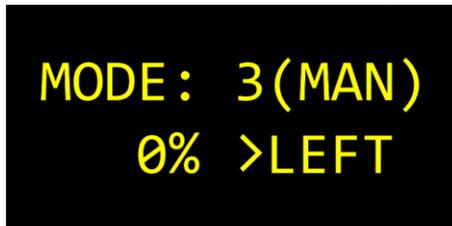


03) Press the **SELECT** button to move the selection arrow to the lower line.



04) Press the **UP/DOWN** buttons to set rotation speed. The adjustment range is 0–100 %, from slow to fast.

05) Press the **SELECT** button to move the selection arrow to the right.



06) Press the **UP/DOWN** buttons to set rotation direction (LEFT or RIGHT).

DMX Channels

1 Channel

Channel 1 – Motor rotation

0–119	Counterclockwise rotation, from fast to slow
120–135	Stop
136–255	Clockwise rotation, from slow to fast

2 Channels

Channel 1 – Motor rotation

0–119	Counterclockwise rotation, from fast to slow
120–135	Stop
136–255	Clockwise rotation, from slow to fast

Channel 2 – Rotation speed

0–255	Motor rotation speed, from slow to fast
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Maintenance

The operator has to make sure that safety-related and machine-technical installations are to be inspected by an expert after every year in the course of an acceptance test.

The operator has to make sure that safety-related and machine-technical installations are to be inspected by a skilled person once a year.

The following points have to be considered during the inspection:

- 01) All screws used for installing the device or parts of the device have to be tightly connected and must not be corroded.
- 02) There may not be any deformations on housings, fixations and installation spots.
- 03) Mechanically moving parts like axles, eyes and others may not show any traces of wearing.
- 04) The electric power supply cables must not show any damages or material fatigue.

The Mirrorball Motorcontroller requires almost no maintenance. However, you should keep the device clean.

Please clean internal components once a year with a light brush and vacuum cleaner.

Keep connections clean. Disconnect electric power, and then wipe the connections with a damp cloth. Make sure connections are thoroughly dry before linking equipment or supplying electric power.

Troubleshooting

This troubleshooting guide is meant to help solve simple problems.

If a problem occurs, carry out the steps below in sequence until a solution is found. Once the device operates properly, do not carry out following steps.

If the mirror ball control system does not operate properly, refer servicing to a technician.

Suspect two potential problem areas as: the power supply and the motor.

- 01) Power supply. Check if the device is plugged into an appropriate power supply.
- 02) The motor. Return the device to your Arnold Lichttechnik dealer.
- 03) If all appears to be O.K., plug the device in again.
- 04) If you are unable to determine the cause of the problem, do not open the Mirrorball Motorcontroller, as this may damage the device and the warranty will become void.
- 05) Return the device to your Arnold Lichttechnik dealer.

Product Specifications

Model:	Mirrorball Motorcontroller
Input voltage:	Power adapter 12 V to 240 V AC, 50 Hz
Power consumption:	10 W
DMX linking:	30 pcs
Dimensions:	129 x 105 x 105 mm (LxWxH)
Weight:	0,8 kg
Operating and Programming:	
Signal pin OUT:	Pin 1 (earth), pin 2 (-), pin 3 (+), pin 4 (N/C), pin 5 (N/C)
DMX Mode:	1, 2 channels
Signal input:	5-pin XLR IN
Signal output:	5-pin XLR THRU
Electro-mechanical effects:	
Onboard:	OLED display for easy setup
Rotation speed:	0,5 RPM
Maximum load:	500 kg
DMX control:	via standard DMX-controller
Control:	DMX-512
Housing:	Metal & flame retardant plastic
Connections:	3-pin power IN & 4-pin motor OUT
IP rating:	IP20
Max. ambient temperature t_a :	40 °C
Max. housing temperature t_B :	80 °C
Minimum distance:	
Minimum distance from flammable surfaces:	0,5 m

Design and product specifications are subject to change without prior notice.



Website: www.Showtec.info
 Email: service@highlite.com

Dimensions

