



**APOLLO**

DESIGN TECHNOLOGY, INC.

# **ROTO-Q**

## **Operating Manual**

**Roto-Q Single**

**Roto-Q Dual Spin**

**Roto-Q DMX**

Roto-Q's are gobo rotators designed to accept metal or glass gobos. They allow the users to create fantastic kinetic effects. The Roto-Q Single holds one gobo, while the Dual Spin and DMX accept two gobos in any combination of metal and glass.



The gobos are held firmly in place by a retaining ring secured in place by two spring clips. The gobo holder and ring are designed to hold both metal and glass patterns.

When using metal gobos the indentation in the retaining ring should be facing out. When using glass patterns the indentation should be facing in.



To remove the ring, place a small tool in the groove provided and pry the ring loose. When replacing the ring, align the small groove adjacent to one of the spring clips for easier removal.

## **Roto-Q Single & Roto-Q Dual Spin Power Supply**

The Roto-Q Single and Roto-Q Dual Spin units are powered by a 24V DC adapter supplied with the unit. It can be plugged into any 120 volt power source.

### **Mode of Operation**

Rotating Mode enables rotation of the gobo pattern at six preset speeds in a clockwise or counterclockwise direction.

The direction of rotation is determined by changing the position of the polarity switch on the power adapter. Moving from the upper position to the lower position will reverse the direction of rotation.

Speed control is achieved by selecting one of the six voltage settings on the power adapter.

Rotational speeds for the individual settings are:

1.5V – 0.6 rpm    3.0V – 1.3 rpm    4.5V – 2 rpm  
6.0V – 3 rpm    9.0V – 4 rpm    12.0V – 5 rpm



Note: It is possible to remotely control the speed by plugging the Roto-Q power adapter into certain electronic dimmers. The dimmer output must be compatible for use with transformers; please check with the dimmer manufacturer. If dimmer is not compatible, the Roto-Q adapter can overheat causing damage or destruction to the unit.

**Roto-Q Single & Roto-Q Dual Spin Specifications:**

**Fixtures:** Roto-Q units are designed and tested for use in ETC Source Four, Altman Shakespeare, and Strand SL fixtures.

**Dimensions:** 11.25” [28.57cm] h; 4.75” [12.06cm] w; 2.75” [6.98cm] d

**Gobo Sizes:** “B”; max size up to 3.55” [90.2mm] metal, 3.1” [78.74mm] glass min size; 3.1”

**Power Requirements:** 120 volt 60hz

**Power Consumption:** 0.5 amp @24vdc

**Power Cord:** 7 feet long [2.13m]

**Weight:** 2.2 lb [1 kg]

**Approvals:** Complies with EU directives: EMC 89/336/EEC Class A.

**Radiated Emissions:** Complies with FCC part 15, sub part B, Class A for unintentional radiators.

# Roto-Q DMX



The rear gobo position is the indexable position. The pattern to be indexed should be placed in this rear gobo holder, i.e. closest to the lamp. This gobo holder is on the opposite side from the control-housing box.

When the pattern(s) have been installed, connect power and control cable to unit via the 4-pin XLR male connector. For proper operation only approved scroller cable should be used from the power/DMX supply to the rotator.

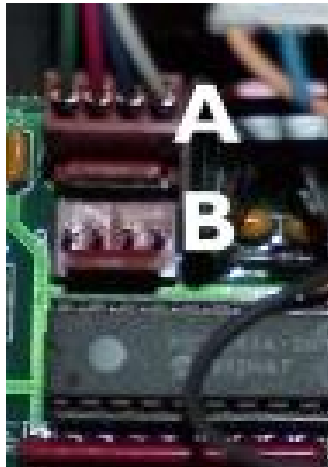
The Roto-Q DMX unit is powered by 24V DC source and DMX512 1990 protocol.

Care must be taken to determine that the power supply and the pin configuration are compatible with the unit. The unit comes configured with power on pins 1 & 4 with pin 4 @ +24V DC. Full load amp requirement is 0.5 amps.



Some scroller power supplies have +24V DC on pin #1 rather than on pin #4. The polarity of the pins should be carefully examined. Several manufacturers produce individual power units with two different configurations, so brand identification can be misleading.

The Roto-Q DMX can be reconfigured to work with power supplies that have +24V DC on pin #1. The user must change the internal wiring of the Roto-Q DMX unit. This can be done easily by removing the control box housing and transferring the brown 4 wire input power connector from terminal “A” on the printed circuit board to terminal “B”. Some external indication should be put on the unit to indicate that it has been reconfigured from the standard input power configuration.



The 4 pin XLR female connector can be used as an output for daisy-chaining of multiple units or color scrollers.

The unit should be carefully inserted in the iris slot of the lighting fixture with the control-housing box facing the front of the fixture.

### **Addressing the unit**

The Roto-Q DMX units are individually addressable by means of 3 rotary switches located on the control-housing box. Addressings from 1 to 511 are possible by the proper settings of the x1, x10, and x100 switches.

When the x100 address switch is set to 600 the Roto-Q DMX will operate with only a 24V DC power source, without any DMX signal. This allows for use in installations without a DMX source available.

### **Mode of operation**

Roto-Q DMX has three modes of operation, and requires 2 channels DMX for full mode operation.

- **Rotating Mode.** This enables rotation of the patterns at speeds from 0.25 to 25 rpm with each of the two gobo holders rotating in opposite directions. In this mode of operation, the first DMX channel is used to control speed and the second channel must be set to 0. At 1% DMX on the first channel the gobo will rotate in one direction at 25 rpm. The speed will decrease to 0.25 rpm as the DMX value is increased to 49%. By increasing the DMX value above 50%, the direction of rotation will change

with incremental speeds of 0.25 to 25 rpm as the DMX value is increased to 100%.

- **Indexing Mode.** The pattern to be indexed should be placed in the gobo holder located on the backside of the unit. The control housing box is on the front of the cover. In this mode it is possible to position the pattern in any of 200 different positions around its axis at a step of 1.8 degrees per DMX increment of 1.

Two-channel operation is required for this mode. The first channel defines the indexing positions. Zero degrees corresponds to the home position. Using 1.8 degrees of movement for every DMX increment of 1, you can approximate the DMX value of the desired position.

This mode requires the second DMX channel to be set to a value between 1 and 49%, relating to the desired indexing speed of 25 to 0.25 rpm. The first DMX channel is then used to select one of the two hundred possible positions.

- **Fixed Rotation Mode.** This is used when there is no source of DMX control signal available. This mode is selected by setting the X100 rotary switch to 600. The x10 and x1 switches are set to simulate the desired DMX percentage between 1 and 49, and to

control the speed of rotation in one direction between 25 rpm and 0.25 rpm. If the two switches are set at values between 50 and 100 the direction of rotation reverses and the speed increases from 0.25 to 25 rpm as the value increases to 100.

## **Roto-Q DMX Specifications:**

### **Fixtures**

The Roto-Q DMX has been designed and tested for use in the ETC Source Four, Altman Shakespeare, and Strand SL fixtures.

**Dimensions:** 11.25” [28.57cm] h; 4.75” [12.06cm] w; 2.75” [6.98cm] d

**Gobo Sizes:** “B”; max size up to 3.55” [90.2mm] metal, 3.1” [78.74mm] glass min size; 3.1”

**Power requirements:** 24V DC

**Power Consumption:** 0.5 amp @ 24vdc

**Protocol requirements:** USITT DMX 512 (1990)

**Circuit Connectors:** XLR 4 pin male & female

**Weight:** 3 lb.

**Approvals:** Complies with EU directives: EMC 89/336/EEC Class A.

**Radiated emissions;** complies with FCC part 15, sub part B, Class A for unintentional radiators.

**Compatible Power supplies:**

**Apollo Roto-Q DMX Power\*: Part # ROTO-Q-PS**

Color-Q: PSU02; PSU04; PSU08; PSU16 and PSU20

ColorRocket: PSU 16 & 18

Chroma Q: PS 08 & PS 18

Rainbow: Maxi PSU & Micro PSU

Wybron: Forerunner only, must be reconfigured for other units. See below.

**Other manufacturers power supplies:**

The Roto-Q can be reconfigured to suit other 4 pin power supplies by easy internal reconnection. Instructions and illustration are included in this manual.

\*Apollo Power Supplies can operate up to 4 Roto-Q DMX units.

## Trouble-shooting

Roto-Q DMX is in rotational mode but not rotating:

1. Possibly missing 24V dc power – check for power.
2. Possibly missing DMX signal – check for DMX.
3. DMX level set at 0 on both channels – increase DMX in first channel.
4. When operating in rotational mode, channel 2 is set to a value other than 0, and the unit has already reached the indexing position determined by the value of the first channel. Set DMX level on second channel to 0 to put the unit into rotational mode.

Continuous rotation in indexing mode:

1. The Roto-Q is set for fixed rotational mode by setting the x100 rotary switch @ 6 – reset the switch to the proper unit address below 511.
2. The homing sensor circuit has failed – consult manufacturer.

Gobo pattern not firmly held by retaining ring:

1. Spring clips may have been deformed during repeated removal of retaining ring - press spring clips inwards to increase holding pressure.

## **Standard Roto-Q Features:**

- Multiple speeds in either direction for additional effects
- Standard 120V operation for convenience
- Rugged design for durability
- Belt driven for quiet operation
- Fits most popular ellipsoidals for flexibility
- Heavy duty retaining ring for extended use.

## **Additional Roto-Q Features:**

- Two gobo capability for dynamic effects [Dual Spin & DMX only]
- 200 Indexable positions for unique kinetic effects [DMX only]

## **Maintenance Kits:**

- Roto-Q Single Kit contains
  - 1 Belt
  - 4 Teflon spacers
  - 1 Retaining ring
  - 2 Teflon rollers
- Roto-Q Dual Spin or Roto-Q DMX Kits contain
  - 2 Belts
  - 6 Teflon spacers
  - 1 Retaining Ring
  - 4 Teflon Rollers

## **Roto-Q Repairs**

Need assistance? Call Apollo Design Technology, Inc. at (800)288-4626 for details.

Serial Number: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

Purchased From: \_\_\_\_\_

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