

# 280 Rotator

## User Manual



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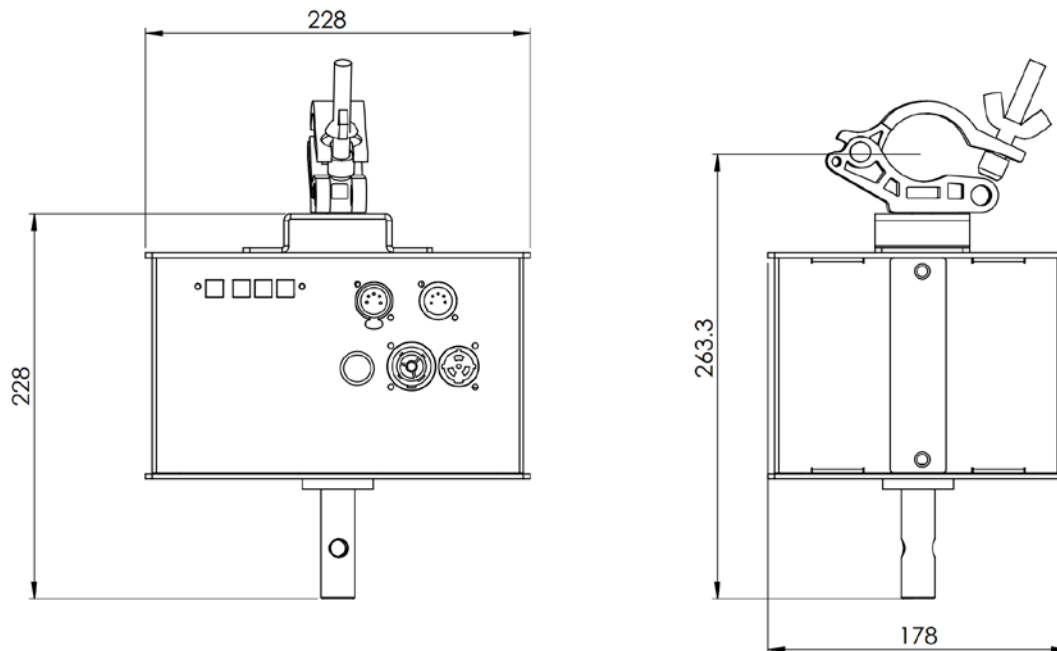
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**Technical specifications:**

Item No	: 280
Dimensions	: 228 x 228 x 178 mm (9 x 9 x 7 in)
Power supply	: 230V AC 50-60Hz
Power consumption	: Max 80Watt
Power plug	: PowerCON TRUE 1
DMX control signal	: DMX 512 1990 + DMX 512A / 6 Channels used
DMX Connections	: 5 pole XLR, In & Link
Max load	: 50kg (110 lbs)
Max speed	: 13.6 rpm
Minimum speed	: 0.85 rpm
Noise emission	: ~50dB
Weight	: 7.6 kg (16.8 lbs)
Motor	: Slow motor 24 V DC, 28.9 W, IP30, 62rpm



## Product Content

- 1 Rotator
- 1 User manual
- 1 powerCON TRUE1 plug

## Description

The Rotator is a DMX controlled motor for rotating object on stage or similar. The Rotator can rotate a 50kg object at up to 13.6rpm. It can be used for both continuously rotating in one direction as well as moving to a certain angle. It can be brought to a stop in a desired angle from a continuous rotation without changing direction regardless of the position when the command to stop was given. It can also be used where an operation area is given to the rotator and then the positions are within that area. The Rotator uses a PID control for positioning that ensures smooth stops and the desired position. The Rotator stops when it loses its DMX signal or power.

Manual control is only supposed to be used for testing and mounting.

## Area of use

The Rotator is intended for indoor use. It is designed moving objects at the weight and speed stated in "Technical specification". Any other use of the Rotator may result in a risk of injury of persons or equipment damage.

Exceeding the load rating may cause failure of the equipment.

Use only approved rigging connectors to secure the load to the Rotator.

Do not modify the Rotator. Any modification you might need should be done by Wahlberg.

It is the customers' responsibility that any local restrictions concerning the use of the Rotator are complied with.

**Caution:** "To reduce the risk of electric shock or injury: Use Indoors Only."

**Caution:** "To reduce the risk of electric shock, do not expose to rain: Store indoors."

## Connections

### DMX

There are 2 5 pole XLR plugs on the Rotator, a male and a female.



### Power

There is a yellow powerCON TRUE1 connector on the Rotator. The Rotator uses 230V AC 50-60Hz.



### Modes

MODE 0, 4, 5, 6, 9	No functions, the motor stops
MODE 1	DMX controlled. Slow speed change (factory default)
MODE 2	DMX controlled. Normal speed change
MODE 3	DMX controlled. Fast speed change
MODE 7	Manual CW (clockwise) when seeing into the shaft. No DMX needed (speed set with DMX switch 10 and 1)
MODE 8	Manual CCW (counter clockwise) when seeing into the shaft. No DMX needed (speed set with DMX switch 10 and 1)

Mode 1, 2 and 3 are used for normal operation.

Mode 7 and 8 are for testing purposes and movement during setup if needed.

## **DMX control**

### **DMX channels used for the Rotator**

#### **DMX channel 1 – Position (16bit DMX channel)**

This channel together with channel 2 makes a 16 bit channel for controlling the position. Channel 1 gives the MSB for the position.

#### **DMX channel 2 – Position fine (16bit DMX channel)**

This channel together with channel 2 makes a 16 bit channel for controlling the position. Channel 1 gives the LSB for the position.

Channel 2 is used to fine tune the position.

#### **DMX channel 3 – Speed**

Channel 3 controls the maximum speed of the Rotator.

If channel 3 is set to 0% the Rotator will not move.

If it is at 50% the Rotator rotates at 50% speed.

#### **DMX channel 4 – Manuel CW / Set CW end position**

Rotates the Rotator clockwise, channel value determines the speed. If channel 6 is between 51-54% the end positions for position mode are saved.

#### **DMX channel 5 – Manuel CCW / Set CCW end position**

Rotates the Rotator counter clockwise, channel value determines the speed.

#### **DMX channel 6 – Mode Control**

0 – 79% Position mode

51 – 54% Position mode and enable position save

80 – 100% Angular mode

*Note: It is possible to change between constant CW or CCW rotation and angular mode while the rotator is running. During change from constant CW or CCW rotation the rotator will always continue in the same direction until the wanted angle is found.*

*When the rotator is in angular mode it will select the rotation direction that will give the shortest direction.*

### **Mounting load**

The load must be mounted on the 55mm long 20mm axel sticking out from the Rotator.

There is M10 thread in the end of the axel for mounting.

The load on the Rotator should not exceed 50kg.

## Rotator - Cheat Sheet

MODE functions:	
MODE 0, 4, 5, 6, 9	No functions, the motor stops
MODE 1	DMX controlled. Slow speed change (factory default)
MODE 2	DMX controlled. Normal speed change
MODE 3	DMX controlled. Fast speed change
MODE 7	Manual CW (clockwise) when seeing into the shaft. No DMX needed (speed set with DMX switch 10 and 1)
MODE 8	Manual CCW (counter clockwise) when seeing into the shaft. No DMX needed (speed set with DMX switch 10 and 1)
DMX channels:	
DMX channel 1	Position rough. (Hi of a 16 bit DMX channel).
DMX channel 2	Position fine. (Lo of a 16 bit DMX channel).
DMX channel 3	Max speed.
DMX channel 4	Manual CW / Set CW end position (Position = 100%)
DMX channel 5	Manual CCW / Set CCW end position (Position = 0%)
DMX channel 6	Mode Control 0 – 79% Position mode 51 – 54% Position mode and enable position save 80 – 100% Angular mode
LED States:	
DMX	Flashing: No DMX present
DMX	Solid on: DMX present.
MODE	ON: Rotator has found the wanted position
MODE	OFF: Speed is set to 0% or mode switch set to unused mode
MODE	Fast flashing: Rotator moving to a new position
MODE	Medium flashing (0.25sec ON - ON): Manual running. Position save enabled
MODE	Slow flashing (1sec ON – ON): Manual running. Position save not enabled
MODE	Short ON long OFF. Error motor overloaded



### **How to get started.**

- 1: Mount the rotator to a truss.
- 2: Set the wanted DMX start address on the 100, 10, 1 switches.
- 3: Attach a light desk with all channel set to 0%
- 4: Set mode switch to 1 (DMX mode with slow speed change).
- 5: Apply power to the Rotator.

***DMX lamp should be flashing if no DMX is attached and be solid if DMX is attached.***

### **Position mode.**

- 1: Set channel 6 to 52% (Position mode and enable position save)
- 2: Set channel 4 to 30% (Set CW end position). The rotator will now turn slowly clock wise (CW)
- 3: When the wanted CW end position is found set channel 4 to 0%
- 4: Set channel 5 to 30% (Set CCW end position). The rotator will now turn slowly counter clock wise (CCW)
- 5: When the wanted CCW end position is found set channel 5 to 0%. Note max 18 rotation
- 6: Set channel 3 to 50% (Max speed)
- 7: Set channel 1 to 25% (Position). The rotator will now run CW to 25% of the distance between  
CCW end and CW end position (where CCW end position = 0% and CW end position = 100%. The speed will be 50%

### **Angle mode.**

- 1: Set all channels to 0%
- 2: Set channel 6 to 100% (Angular mode)
- 3: Set channel 3 to 50% (Max speed)
- 4: Set channel 4 to 30% (Manual CW). Let the rotator run minimum one rotation (must be done once after power on to let the rotator find its absolute angular position)
- 5: Set channel 4 to 0%
- 6: Set channel 1 to 25% (Position). The rotator will now move until it reaches 90 degrees with 50% speed
- 7: Set channel 1 to 75%. The rotator will now move CW until it reaches 270 degrees with 50% speed

Note: It is possible to change between constant CW or CCW rotation and angular mode while the rotator is running. During change from constant CW CCW rotation the rotator will always continue in the same direction until the wanted angle is found. When the rotator is in angular mode it will select the rotation direction that will give the shortest direction.