

**Power Supply Units (PSU) –  
Short Reference**

Congratulations on choosing a Rainbow Colour Changers product! We thank you for your custom. Please note that this product has been designed and made with total quality to ensure excellent performance and best meet your expectations and requirements.

It is essential to know the information and comply with the instructions given in this manual in order to ensure the fitting is installed, used and serviced correctly and safely.



**Carefully read this instruction manual in its entirety and keep it safe for future reference!** Please hand this manual over if you sell or give this product to somebody else.



### General

- Rainbow Colour Changers products are intended for professional use and should only be used by qualified personnel or under their supervision.
- Follow all cautions and warnings indicated on the unit.
- After unpacking this product, please check if the device is intact. If this is not the case, please contact the support service.

**Rainbow Colour Changers**  
An der Talle 26-28  
D-33102 Paderborn, Germany  
Phone: +49 (0)52 51/14 092-28  
Fax: +49 (0)52 51/14 092-90  
info@rainbow-colour-changers.de

### Installation

- Make sure all parts for fixing the colour changer are correct.
- Make sure the fixture is stable before positioning the Colour Changer.
- Do not fix this device on or near flammable surfaces.

### Usage

- This product is designed for indoor use only. For the fitting to operate well and reliably, it should not be used in humid environments. The ambient temperature should not exceed 40°C (104°F) or fall below 0°C (32°F).
- Avoid any liquids or metallic items entering the unit.
- Ensure adequate ventilation and do not block or cover any ventilation slots in the device – they guarantee the reliable functioning of the unit and protect it against overheating.
- The scroller may only be used in its standard position, which is +/- 60° from horizontal.
- The colour changer may only be put into operation with original Rainbow Colour Changer power supply units (PSU).
- Check that the mains frequency and voltage correspond to those for which the PSU is designed as given on the surface label of the PSU. Refer to the manual about the max. amount of scrollers to be connected

### Maintenance

- All service work should be exclusively performed by qualified personnel.
- Do not dismantle the scroller or modify it yourself.
- Before starting any maintenance work or cleaning the scroller, remove the power from the PSU.
- The surface of the device may heat up due to the luminaire used. Please let the scroller cool down before touching it.

Rainbow Colour Changers GmbH disclaims all liability for damage to the fitting or to other property or persons deriving from installation, use and maintenance that have not been carried out in conformity with this instructions manual, which must always accompany the fitting.

Rainbow Colour Changers GmbH reserves the right to modify the characteristics stated in this instructions manual at any time and without prior notice.

### General:

No matter if fixed installation or touring business – complex lighting systems always require best reliability together with relatively easy operation and maintenance features. In order to be able to solve eventually occurring problems not only fast but also most efficiently, it is important to know which component of the system fulfils which purpose.

This fact has been taken into consideration during the design and development of Rainbow Colour Changers. And this is why we find the entire “intelligence” where we first expect it to be: within the Colour Changers themselves, but not in the power supply unit. Consequently the DMX-addressing, the selection of channels, etc... is done right on the Colour Changer itself.

The external power supply unit (PSU) combines the DMX signal with the internal 24 V DC of the Colour Changer. These power/control signals are available on the female XLR4 outputs.

### Different versions:

In order to meet your individual demands, we offer two different PSU-versions:

1. the MICRO PSU with 1 output is able to run up to 6 Colour Changers
2. the MAXI 4 PSU with 4 outputs can run up to 24 units

The maximum number of Colour Changers per output is restricted:

PSU	max. no. of units (altogether)	max. no. of 6", 8", 12" per output	max. no. of 15", 8-Lite per output
Micro	6	6	3
Maxi	24	12	6

### Power Supply:

The Micro PSU as well as the Maxi 4 PSU are connected with the mains via CEE22 connection. The necessary operating voltage of the Colour Changers (24 V) is guaranteed by the opto-isolated, overload-protected power supply.

The Micro PSU adjusts itself automatically to the operating voltage from 85 to 260 Volt. The Maxi 4 PSU is available as 110 V and 230 V version.

### DMX Input /Output:

The control signal (DMX) is fed through the XLR5pol. male socket. The DMX output is a “feed through” output, which means that the DMX signal will be daisy-chained and will also be available on the output in case of a power failure. Rainbow PSUs are designed to put minimum strain on the DMX signal.

### Termination:

If the Rainbow PSU is the last unit in line (of DMX cabling), the DMX signal must be terminated. Therefore you will find a termination switch on the unit.

If the termination switch is set to ON, the Micro PSU indicates this by the yellow LED and the MAXI 4 PSU by the flashing red LED.

### Output / Return sockets:

In order to protect the main DMX signal against negative influences caused by defective cabling, etc..., it is galvanically separated from the Colour Changer outputs via opto-isolated coupling inside the PSU.

The outputs to the scrollers are designed as XLR4pol. sockets, which are connected with the XLR4pol. male socket of the first Colour Changer in line via Rainbow Power/Data cables. Further scrollers are connected from the XLR4pol. female socket of the first Colour Changer in line to the second one, etc...

In order to improve current feeding and DMX transmission, we always recommend to connect a so-called return cable from the last scroller on each output back to the PSU return socket (XLR4pol. male). This way the supply voltage will be led back again to the Colour Changer – in parallel to the output. Via an internal termination resistor the loop cabling is automatically terminated when connecting the return cable.

### Protection:

Each PSU output is internally protected.

The fuse on the PCB inside the Micro PSU is able to put itself back.

Inside the Maxi 4 PSU you will find so-called "Pico Fuses", which are located within the cable from the PCB to the output sockets.

These fuses protect the PCB against damages, which might be caused by incorrectly assigned or defective scroller cables.

The mains fuse of the Micro PSU is inside the unit and has got a value of 3,15 A (slow blow).

The mains fuse of the Maxi 4 PSU is situated next to the CEE 22 input socket and has got a value of 4 A (slow blow).

### Pin assignment:

DMX 512 (1990) XLR 5pol.

Pin 1: Ground (Screen)

Pin 2: Data -

Pin 3: Data +

Colour Changer signal cable XLR4pol.

Pin 1: 0 V ; Ground

Pin 2: Data-

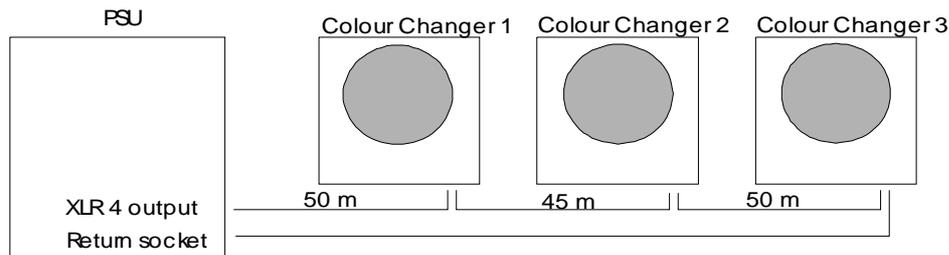
Pin 3: Data+

Pin 4: 24 V +

**Power/Data cable:**

In order to guarantee a reliable operation, we strongly recommend the use of our Rainbow Power/Data cable. This XLR4 pole cable contains two lines á 0,38 sqmm for the transmission of the DMX signals, as well as two lines á 2,08 sqmm for the supply voltage of the Colour Changers. The high cross-section of the live wired lines considerably increases the maximum cable length, which you can use within the system. In order to ensure a reliable operation, you should not use more than **300 m** total cable length (theoretical figure) per output. Please note that you have to differentiate between the theoretical cable length and the actually usable cable length.

**Example:**



1. Actually usable cable length: 145 m (see systemdrawing)
2. Theoretical cable length: 290 m (please see calculation chart below):

Colour Changer no. 1	=	50 m	=	50 m
Colour Changer no. 2	=	50 m + 45 m	=	95 m
Colour Changer no. 3	=	50 m + 45 m + 50 m	=	145 m

Total theoretical cable length in this drawing = 290 m

(You have to add the total cable length between each Colour Changer and the PSU in order to calculate the theoretical figure.)

**Control-displays:**

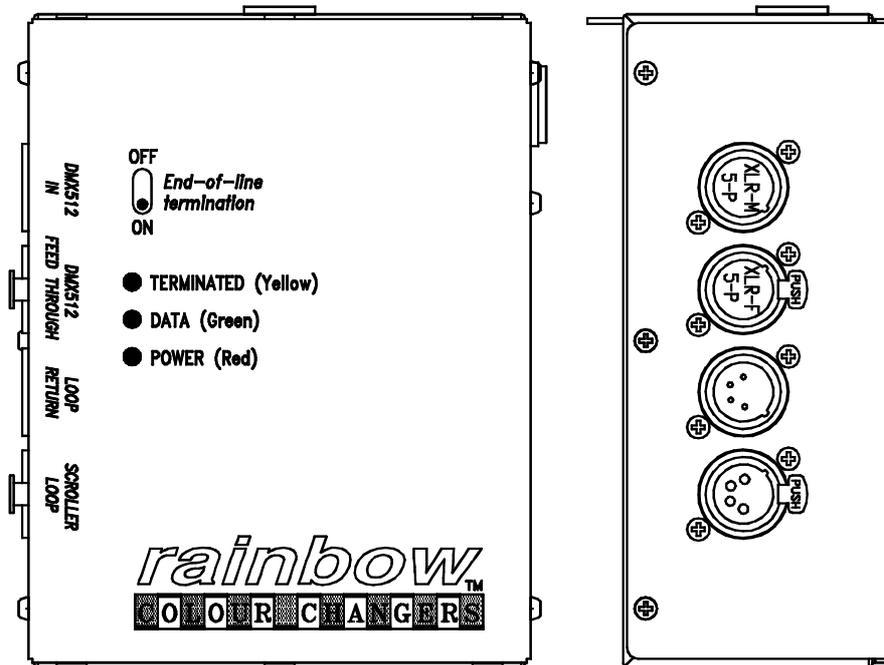
The Maxi 4 PSU has 2 control LEDs, which are situated on the same side as the sockets:

The red LED shining permanent indicates that the 24 V DC supply is OK.  
 When the "termination"-switch is activated, the red LED is flashing.  
 The green LED indicates that a DMX signal is present at the XLR5pol. input.

The Micro PSU has three LEDs:

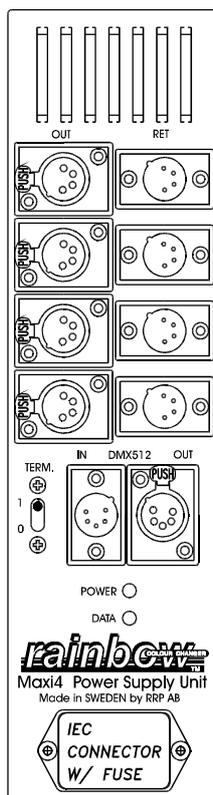
The yellow LED indicates that the "termination"-switch is activated.  
 The red LED shows, if the 24 V DC supply is OK.  
 The green LED indicates that a DMX signal is present at the XLR5pol. input.

Specification Micro PSU:



Technical data Micro PSU	RCC141
Height	178 mm / 7"
Width	143 mm / 5.6"
Depth	72 mm / 2.8"
Weight	1.37 kg / 3 lbs
Connectors – Out to scrollers	XLR - 4 pin - F
Connectors – Return from scrollers	XLR - 4 pin - M
Connector – DMX512 input	XLR - 5 pin - M
Connector – DMX512 output	XLR - 5 pin - F
Opto-isolated DMX512 input, low load	Yes
Switch for termination of the DMX512 input	Yes
Connector - Mains	IEC (CEE 22)
Mains input 85-264 volt AC	standard
Fuse, Ø5x20 mm, slow, ceramic	T3.15 amps
Max. number of units (altogether)	6 x 6", 8", 12" PRO2 or 3 x 15", 8-Lite PRO2
Max. number of scrollers per output	6 x 6", 8", 12" PRO2 or 3 x 15", 8-Lite PRO2
CE approval	EMC, LVD

**Specification Maxi 4 PSU:**



Technical data Maxi PSU	RCC125E/U
Height	293 mm / 11.5"
Width	82 mm / 3.25"
Depth	250 mm / 9.9"
Weight	3.3 kg / 7.3 lbs
Connectors – Out to scrollers	XLR - 4 pin - F
Connectors – Return from scrollers	XLR - 4 pin - M
Connector – DMX512 input	XLR - 5 pin - M
Connector – DMX512 output	XLR - 5 pin - F
Opto-isolated DMX512 input, low load	Yes
Switch for termination of the DMX512 input	Yes
Mains input	IEC (CEE 22)
Mains input:	85 - 264 volt AC
Fuse, Ø6.3x32 mm, slow, ceramic	4 amps
Max. number of units (altogether)	24 x 6", 8", 12" PRO2 or 12 x 15", 8-Lite PRO2
Max. number of scrollers per output	12 x 6", 8", 12" PRO2 or 6 x 15", 8-Lite PRO2
CE approval	EMC, LVD



**Worldwide Distribution:**  
**Premier Lighting Products International GmbH**  
An der Talle 24-28  
D-33102 Paderborn  
Germany

Tel.: +49 (0) 52 51/14 092-28  
Fax: +49 (0) 52 51/14 092-90

[www.plp-international.com](http://www.plp-international.com)  
[sales@plp-international.com](mailto:sales@plp-international.com)

©2007 Rainbow Colour Changers GmbH  
Rainbow is a registered trademark of  
Rainbow Colour Changers GmbH

This manual is valid from the 1<sup>st</sup> of July 2007. All previous manuals are herewith not valid any longer.

All technical specifications are subject to change without notification.

**German Distribution:**  
**Lightpower GmbH**  
An der Talle 24-28  
D-33102 Paderborn  
Germany

Tel.: +49 (0) 52 51/14 32-0  
Fax: +49 (0) 52 51/14 32-80

[www.lightpower.de](http://www.lightpower.de)  
[info@lightpower.de](mailto:info@lightpower.de)