

# RoboColor Pro 400

users guide



INTRODUCTION . . . . . 3

SAFETY . . . . . 4

INSTALLATION . . . . . 6

STAND-ALONE OPERATION . . . . . 7

CONTROLLER OPERATION . . . . . 8

DMX PROTOCOL . . . . . 11

SERVICE . . . . . 13

SPECIFICATIONS . . . . . 15

© 1998, 2000 Martin Professional A/S, Denmark.

All rights reserved. No part of this manual may be reproduced, in any form or by any means, without permission in writing from Martin Professional A/S, Denmark.

Printed in Denmark.

P/N 35000062, Rev. B

# INTRODUCTION

Congratulations on your choice of the RoboColor Pro 400, a professional high performance, intelligent lighting projector that features:

- 200 Watt MSD lamp
- 32 different colors + white (including 'cold' and 'hot' filter)
- 0 to 100% smooth dimming
- High speed shutter for 'instant' blackout and very fast strobe
- 3 field angle gobos plus wash-effect
- Lamp can be remotely switched on and off in order to prolong lamp life
- Multi-coated precision optics with adjustable focus
- Can be controlled via DMX 512 Desk or Martin Controller
- Stand alone chase with or without music trig
- Power Factor Correction to allow low current consumption
- Efficient fan cooling and over-heat protection

This user's guide describes the features in firmware version 6.5. The latest information about the RoboColor Pro 400 is available from the Martin web site at <http://www.martin.dk>.

**Warning!** *This product is for professional use only. It is not for household use.*

This product presents risks of lethal or severe injury due to fire and heat, electric shock, ultraviolet radiation, lamp explosion, and falls. **Read this manual** before powering or installing the fixture, follow the safety precautions listed below and observe all warnings in this manual and printed on the fixture. If you have questions about how to operate the fixture safely, please contact your Martin dealer or call the Martin 24-hour service hotline at +45 70 200 201.

## To protect yourself and others from electric shock

- Disconnect the fixture from AC power before removing or installing the lamp, fuses, or any part, and when not in use.
- Always ground (earth) the fixture electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault protection.
- Do not expose the fixture to rain or moisture.
- Refer any service operation not described in this manual to a qualified technician.

## To protect yourself and others from UV radiation and lamp explosion

- Never operate the fixture with missing or damaged lenses and/or covers.
- When replacing the lamp, allow the fixture to cool for at least 5 minutes before opening the fixture or removing the lamp. Protect your hands and eyes with gloves and safety glasses.
- Do not stare directly into the light. Never look at an exposed lamp while it is lit.
- Replace the lamp if it becomes defective or worn out, or before usage exceeds the maximum service life.

## **To protect yourself and others from burns and fire**

- Never attempt to bypass the thermostatic switch or fuses. Always replace defective fuses with ones of the specified type and rating.
- Keep all combustible materials (for example fabric, wood, paper) at least 0.1 meters (4 inches) away from the fixture. Keep flammable materials well away from the fixture.
- Do not illuminate surfaces within 0.3 meters (12 inches) of the fixture.
- Provide a minimum clearance of 0.1 meters (4 inches) around fans and air vents.
- Never place filters or other materials over the lens.
- The exterior of the fixture can reach temperatures up to 65° C (150° F). Allow the fixture to cool for at least 5 minutes before handling.
- Do not modify the fixture or install other than genuine Martin parts.
- Do not operate the fixture if the ambient temperature ( $T_a$ ) exceeds 40° C (104° F).

## **To protect yourself and others from injury due to falls**

- When suspending the fixture above ground level, verify that the structure can hold at least 10 times the weight of all installed devices.
- Verify that all external covers and rigging hardware are securely fastened and use an approved means of secondary attachment such as a safety cable.
- Block access below the work area whenever installing or removing the fixture.

# INSTALLATION

The RoboColor Pro 400 package includes mounting bracket and fittings, 3-pin XLR data cable, mains cable, and this users guide. The fixture is adjusted at the factory so that only a few basic procedures are necessary before the fixture is ready for use.

**Warning!** *Disconnect the unit from AC power before proceeding.*

**Important!** *Verify that the voltage and frequency settings match your power supply before connecting to power.*

## INSTALL LAMP

---

*The Philips MSD 200 is the only lamp approved for use in the RoboColor Pro 400.*

- 1 Remove the 3 thumbscrews that secure the access plate of the lamp socket assembly at the rear of the RoboColor and withdraw the lamp socket assembly.
- 2 Hold the Philips MSD 200 lamp (not included) in a clean cloth to avoid contaminating the glass bulb and carefully insert it into the socket. Clean the lamp with the alcohol wipe packaged with the lamp.
- 3 Replace the lamp socket assembly and tighten the thumbscrews.

See also the lamp alignment procedure on page 13.

## INSTALL MOUNTING BRACKET

---

The bracket allows you to turn or tilt the RoboColor to the desired position.

- 1 On each side of the RoboColor is a stud for the mounting bracket. Fit a plastic washer, a star washer, and then the mounting bracket onto these studs.
- 2 Lock the mounting bracket using the two lever handles.

## CONNECT TO POWER

---

If there is no plug on the mains cable, you must install one that fits your mains outlet before connecting the fixture to power.

- Connect the brown wire to the LIVE pin, connect the blue wire to the NEUTRAL pin and connect the yellow/green wire to the EARTH pin (ground).

# STAND-ALONE OPERATION

The RoboColor Pro 400 may be operated in stand-alone mode without a controller. Music-trigger uses a built in microphone for sound-activated control and auto-trigger runs at a preset speed using an internal trig source.

- 1 Use the DIP-switch on the rear panel to select a trigger type. To select music-trigger, set DIP-switch pins 1, 2, and 10 to ON. To select auto-trigger, set DIP-switch pins 2 and 10 to ON. Set all other pins to OFF.**
- 2 Switch on the unit to perform the chosen program.**

Note: Some programs shown below are for service use only. Do not use them for light shows.

<b>Program</b>	<b>Pin(s) switched ON</b>
Protocol auto-detect (DMX 512 / Martin RS-485)	All pins switched ON
Stand Alone Auto-trig	2, 10
Stand Alone Music-trig	1, 2, 10
Lamp ON (for lamp adjustment)	8, 10
Mechanical stop (for service use only)	5, 10
Adjustment (for service use only)	1, 5, 10
L.E.D. Chase Auto-trig (for service use only)	4, 10
L.E.D. Chase Music-Trig (for service use only)	1, 4, 10

**Table 1: Stand-alone program settings**

# CONTROLLER OPERATION

The RoboColor Pro 400 accepts two control protocols: Martin RS-485 and DMX 512.

## CONNECTING THE SERIAL DATA LINK

The RoboColor Pro 400's XLR connections are configured for Martin protocol controllers, that is, the data sockets are wired with pin 2 to hot (+) and pin 3 to cold (-). *When connecting a RoboColor Pro 400 to a DMX device (pin 2 cold and pin 3 hot), you must swap pins 2 and 3 with a phase-reversing cable.*

- 1 **Connect the controller's data output to the RoboColor Pro 400's input. If using a Martin-standard controller, use a direct 3-pin to 3-pin cable such as the one provided. If using a DMX controller, use a phase-reversing cable that fits the controller output. See cables below.**
- 2 **Continue the link: connect the output of the fixture closest to the controller to the input of the next fixture. Use a direct cable when connecting same-standard fixtures. Use a phase-reversing cable only when connecting a DMX device to a Martin-standard device. Up to 32 fixtures may be connected on a serial link.**
- 3 **Insert a male 120  $\Omega$  XLR termination plug in the output of the last fixture on the link. The termination plug is simply a 3-pin male XLR plug with a 120  $\Omega$  resistor soldered between pins 2 and 3. *The termination plug is required for error-free communication.***

3-pin to 3-pin Phase Reversing Cable	
Connections	
Male	Female
1	1
2	3
3	2
P/N 11820006	

5-pin to 3-pin Phase Reversing Cable	
Connections	
Male	Female
1	1
2	3
3	2
4	
5	
P/N 11820003	

3-pin to 5-pin Phase Reversing Cable	
Connections	
Male	Female
1	1
2	3
3	2
	4
	5
P/N 11820002	

## ADDRESS SETTING

---

The DIP-switch on the rear panel is used to select the control address on which the RoboColor Pro 400 responds to the controller. The control address, also known as the start channel, is the first channel used to receive instructions from the controller. For independent control, each fixture must have a unique control address and non-overlapping control channels.

The total number of channels required depends on the operation mode. The RoboColor Pro 400 requires 1 channel (from 1 to 32) when operated via a Martin lighting controller. It requires 7 channels when using DMX mode 2 (DMX vector control) and 5 channels in DMX modes 1 and 3.

The control address is selected by switching ON one or more DIP-switch pins. Each pin that you switch ON adds the value listed in the following table. Pins that you switch OFF add no value. The control address is determined by adding the values of pins 1 to 9. Pin 10 is always switched OFF.

Example 1: Pin 1, 2 and 5 ON =  $1 + 2 + 0 + 0 + 16 + 0 + 0 + 0 + 0 = \text{ch. } 19$ .

Example 2: Pin 2, 3, 7 and 8 ON =  $0 + 2 + 4 + 0 + 0 + 0 + 64 + 128 + 0 = \text{ch. } 198$ .

Pin No	Value	Pin No	Value
1	1	6	32
2	2	7	64
3	4	8	128
4	8	9	256
5	16	10	Always OFF for address setting

**Table 2: DIP-switch values**

## OPERATION

---

The fixture detects whether the data is from a DMX or a Martin controller and responds accordingly. It is possible to re-activate the auto detect function by switching on all ten DIP-switches and then re-selecting the address.

- 1 Use the DIP-switch to select the desired control address for each fixture. Ensure that none of the RoboColors are set to stand-alone mode.**
- 2 Switch on and configure the controller.**
- 3 Apply power to the RoboColors. After a short start-up routine, the RoboColors are ready to respond to commands from the controller.**

## ABOUT FAN CONTROL

---

Beginning with CPU firmware version 6.5, fan control is completely automatic. The fan operates as follows:

- Fan speed is automatically reduced to 50% after protocol detection and the fan stops 1 minute later if the lamp is still off.
- When the lamp is on, the fan runs at the full speed.
- Fan speed reduces to 50% when the lamp is turned off and the fan stops completely 1 minute later.

# 6

## DMX PROTOCOL

DMX Mode	PL11 Jumper Location	Channels
Mode 1: Tracking ( <b>DEFAULT</b> )	No jumper	5
Mode 2: Vector	Pin 4 and 5	7
Mode 3: Tracking + Lamp Off via DMX	Pin 5 and 6	5

Channel	DMX Value	Percent	Effect
1	0-3	0-1	<b>Strobe /Stand-Alone/Reset fixture/Lamp On</b>
	4-7	2-3	Strobe Off
	8-199	3-78	Strobe Off / Fan Low*
	200-218	78-85	Strobe on (Fast -> Slow)
	219-238	86-93	Remote music trig
	239-248	94-97	Remote auto trig
	249-252	98-99	Reset fixture
	253-255	99-100	Lamp ON
2			Lamp OFF (only in DMX mode 3)
			<b>Intensity</b>
	0 - 10	0 - 4	Light Off
	11 - 237	4 - 93	0 -> 100%
			Light On
	238 - 255	93 - 100	

3	0	0	<b>Color 1</b>
	26	10	<b>Scrolling Colors</b>
	52	20	White
	78	31	Yellow
	104	41	Fern Green
	130	51	Flame Red
	156	61	Cyan Blue
			Turquoise
			Purple
			<b>Fixed Colors</b>
	157-171	62 - 67	Purple
	172-185	67 - 73	Turquoise
	186-199	73 - 78	Cyan Blue
	200-214	78 - 84	Flame Red
215-227	84 - 89	Fern Green	
228-241	89 - 95	Yellow	
242-255	95 - 100	White	
4	0	0	<b>Color 2</b>
	26	10	<b>Scrolling Colors</b>
	52	20	White
	78	31	Pink
	104	41	Light Green
	130	51	Magenta
	156	61	Dark Lavender
			CC 5500-3400
			CC 3500-5600
			<b>Fixed Colors</b>
	157-171	62 - 67	CC 3500-5600
	172-185	67 - 73	CC 5500-3400
	186-199	73 - 78	Dark Lavender
	200-214	78 - 84	Magenta
215-227	84 - 89	Light Green	
228-241	89 - 95	Pink	
242-255	95 - 100	White	
5	0-50	0 - 20	<b>Gobo</b>
	51-101	20 - 40	Wash
	102-152	40 - 60	Wide beam
	153-203	60 - 80	Medium beam
	204-255	80 - 100	Narrow beam
		Black Out	
6 (vector mode)	0-255	0 - 100	<b>Color Speed</b>
			Fast -> Slow
7 (vector mode)	0-255	0 - 100	<b>Dimmer Speed</b>
			Fast -> Slow

\*DMX fan control is not available with CPU firmware version 6.5.

# SERVICE

This section describes how to adjust the lamp for best performance and how to change the default DMX mode setting. Refer all other service to a Martin technician.

**Warning!** *Disconnect the fixture from power before removing any cover.*

## LAMP ADJUSTMENT

---

Fine adjustment of the lamp position may improve performance. The lamp access plate is held in place with 3 thumbscrews. The 3 Phillips screws on the access plate are used to adjust the lamp. Turning these clockwise pulls the lamp towards the rear of the lamp and vice versa.

- 1 Disconnect the fixture from power and allow it to cool.**
- 2 Make a rough adjustment by positioning the lamp holder so that there is a distance of 35 mm between the outside of the lamp socket plate and the inside of the lamp access plate.**
- 3 Set DIP-switch pins 8 and 10 on, set all others off, and turn on the fixture for white light and open gobo. Allow the lamp to reach full brightness.**
- 4 Center the hot-spot by turning one or more of the adjustment screws.**
- 5 Make the distribution of light as even as possible by turning all of the screws 1/4 turn clockwise, making sure that the hot-spot remains centered. If the result is better then repeat the procedure until there is no more improvement. If the result is worse, then turn the screws 1/4 turn counter-clockwise a few times and observe the result.**

Note: It is important that the lamp is firmly in place in the lamp-holder at all times. Make sure that this is the case, especially after you have made an adjustment because the inner-rim of the parabolic reflector can dislodge the lamp, especially if you use an excessive numbers of turns of the adjusting screws.

Note: The lamp is not a hot-restrike type, so you must wait approximately 10 minutes after having turned off the lamp before you can turn it back on again.

## **DMX MODE SETUP**

---

The DMX mode is selected with a jumper on the main circuit board inside the fixture. The factory default is DMX mode 1.

- 1 Disconnect the fixture from power.**
- 2 Release the 4 bolts that secure the top cover to the fixture and remove the cover.**
- 3 Locate the PCB at the left side of the fixture. Locate 6-pin connector PL11 - please see the label inside the top cover. Place the jumper according to the table on page 11 to enable the desired mode.**
- 4 Reassemble the unit before connecting to the mains.**

# SPECIFICATIONS

Length incl./excl. bracket .....	306 mm (12.0") / 306 mm (12.0")
Width incl./excl. bracket.....	337 mm (13.3") / 225 mm (8.9")
Height incl./excl. bracket.....	282 mm (11.1") / 198 mm (7.8")
Weight incl. bracket.....	11.0 kg (24 lb)
Power and current consumption .....	250 W, 290 VA, 1.3 A at 230 V
AC voltage and frequency (EU model) .....	230V/50Hz, 240V/50Hz, 250V/50Hz
AC voltage and frequency (US model).....	210V/60Hz, 225V/60Hz, 225V/50Hz
Mains fuse .....	T 3.15 A
Lamp type.....	Philips MSD 200
Beam angle with standard lens .....	21°
Beam angle with optional wide angle lens .....	33°
Beam angle with optional narrow angle lens.....	15°