DMX REFERENCE

MAC 2000 Profile II

Martin Professional

Manufacturer	Martin Professional
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1 About this manual

This document describes the MAC 2000 Profile II by Martin Professional. It was compiled from the GDTF file Martin_Professional_MAC_2000_Profile_II_11001.gdtf from the GDTF-Share library.

File revision: “Roughly working”.

The DMX modes, the channel functions and the technical data are given as the GDTF file states them. Installation, operation from the device's control panel, service and safety instructions are described in the manufacturer's original user manual, which takes precedence over this document.

This document was not issued or endorsed by Martin Professional; product names and trademarks belong to their owners.

Safety notices are marked with signal words according to the severity of the hazard: DANGER – an imminent hazard that will result in death or serious injury; WARNING – a potential hazard that could result in death or serious injury; CAUTION – a potential hazard that could result in minor injury or property damage; NOTE – additional information for correct and safe use.

> **NOTE** This product is designed for stage and effect lighting. It is not suitable for household room illumination.

2 Quick reference

Parameter	Value
Weight	38 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
16 bit	24	21	1, 25, 49, 73, ...

No light? Check these channels

- 16 bit: CH 1 Shutter at 20–49, 75, 120–127, 188–190 “Open” or 73–74, 76–79 or 230 “Lamp On”; CH 2 Dimmer above 0


Read the manual before use


Do not stare into the light


Indoor use only

3 Safety instructions


Read the manual before use


Do not stare into the light


Indoor use only

⚠ WARNING

- This device is intended for professional use. Installation, connection, setup and maintenance must be carried out only by suitably qualified persons who have read this manual.
- Use the device only for its intended purpose and as described in this manual.
- Do not open the housing and do not modify or tamper with the device. Refer all repairs to an authorized service center.
- Do not use the device if its housing, power or data cable, or a connector is damaged, if the device has been dropped, or if liquid or a foreign object has entered it. In such a case, have it checked by a service center.
- Disconnect the device from the power supply before cleaning, maintenance or any work on the connections.
- After moving the device from a cold to a warm environment, let it reach room temperature before switching it on to prevent condensation inside.
- The device is not a toy; keep it out of the reach of children.

⚠ WARNING

- This device is designed for indoor use only. Protect it from rain, splashing water, moisture and dust, and do not place containers with liquids on it.
- Do not operate the device in high humidity, near water, or where condensation can form on it.

⚠ CAUTION

- This device emits intense light. Do not look directly into the light source or the beam at close range; doing so may damage your eyes.
- Do not aim the beam at the eyes of people or animals at close range, and do not view the light source through optical instruments (binoculars, camera lenses).
- Do not aim the beam at flammable or heat-sensitive materials at close range.

⚠ CAUTION

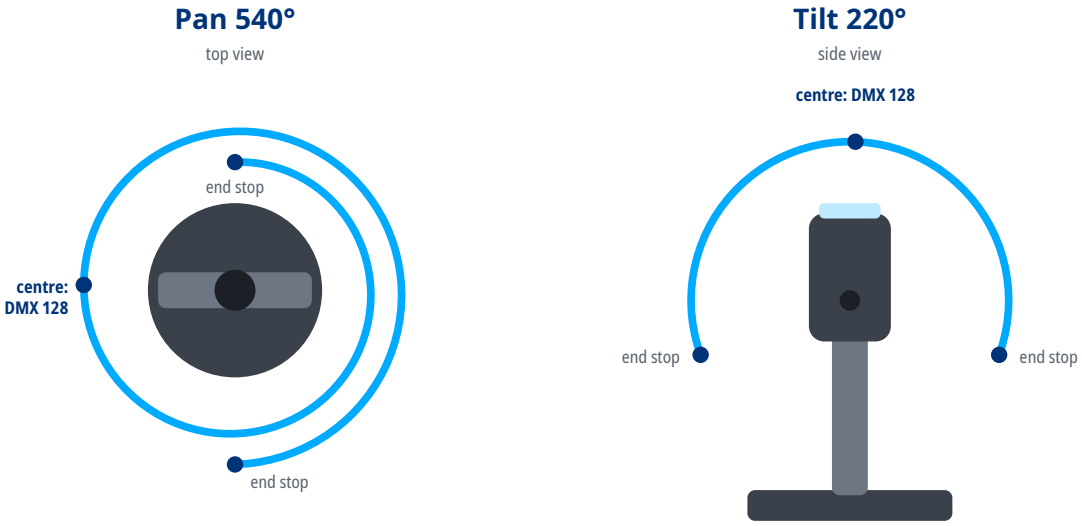
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them longer than necessary.

⚠ WARNING

- The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
- Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, move them by hand, or obstruct their movement; this can cause injury (pinching) and damage the drive.
- Do not carry the device by its moving parts. If the device has a transport lock, engage it before transport and release it before switching on.

4 Product description

Range of movement



5 Installation

⚠ WARNING

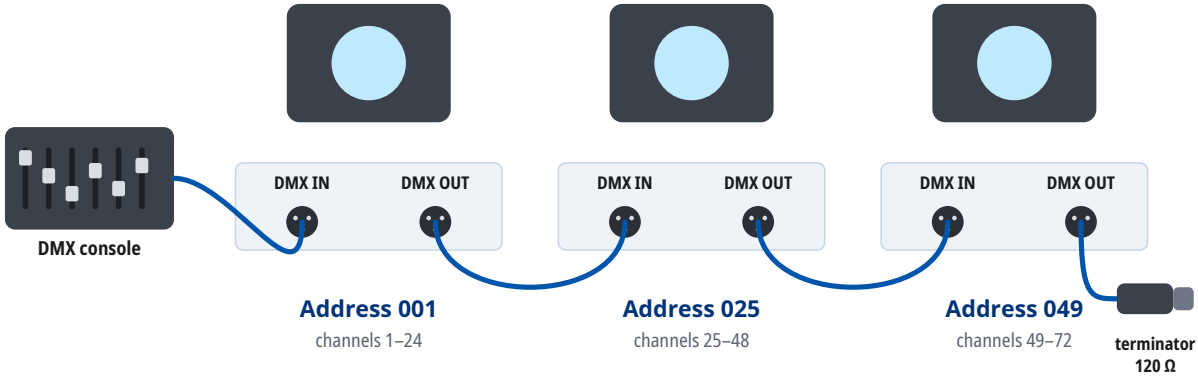
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 38 kg.
- Use suitable mounting hardware (for example truss clamps) and tighten all screw connections properly.
- Always secure the suspended device against falling with a safety cable of adequate load capacity, routed through a fixed point of the device and around the supporting structure.
- During installation and removal, keep people out of the area below the work position.
- Regularly inspect the fixings and the safety cable for damage, corrosion and loosening.

6 Connections

- Use shielded cable designed for DMX512 with an impedance of 110 Ω. Ordinary microphone cable is not suitable for DMX, especially over longer distances.

- Connect the devices in a daisy chain: connect the DMX OUT of one device to the DMX IN of the next. Do not split the line with Y-cables or wire it in a star; the line may be split only with a DMX splitter.
- Connect the shield to pin 1 only. Do not connect the shield (ground) to the metal shell of the connector; this can cause short circuits or erratic behavior.
- XLR pin assignment: pin 1 – shield (ground), pin 2 – Data- (Data Complement), pin 3 – Data+ (Data True). On 5-pin connectors, pins 4 and 5 are not connected; a 5-pin connector can be connected to a 3-pin one with a cable adapter.
- Terminate the end of the line (for impedance matching): plug an XLR connector with a 120 Ω, ¼ W resistor between pins 2 and 3 into the DMX OUT of the last device. This reduces the risk of erratic behavior.
- Connect no more than 32 devices to one DMX line. For more devices or longer runs, use a DMX splitter or booster.

DMX line



Mode 16 bit: every unit occupies 24 channels from its address. At most 32 units on one line; for more units or longer runs use a DMX splitter. A 120 Ω terminator closes the last DMX OUT.

7 Operation

Setting the DMX address

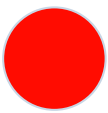
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “16 bit”: 24.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “16 bit”, you can use, for example, the start addresses 1, 25, 49, 73.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

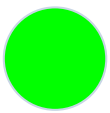
8 Functions at a glance

Functions in each DMX mode

	16 bit 24 channels
Pan / Tilt	19, 21
Dimmer	2
Shutter / strobe	1
Color mixing	3–5
Color temperature	6
Color wheel	7
Gobo wheel	8, 9, 11, 12
Gobo rotation	8, 11
Zoom	18
Focus	17
Iris	16
Effects / macros	14, 15

Gobo wheel 1

1 
Continuous Scroll: Red
DMX 0–19

2 
Continuous Scroll: Green
DMX 20–39

3 
Continuous Scroll: Blue
DMX 40–59

4 
Continuous Scroll: UV
DMX 60–79

5 
Continuous Scroll: Triple Cone
DMX 80–99

6 
Continuous Scroll: Highways
DMX 100–119

7 
Continuous Scroll: Dots
DMX 120–139

8
Open
DMX 140–160

Gobo wheel 2

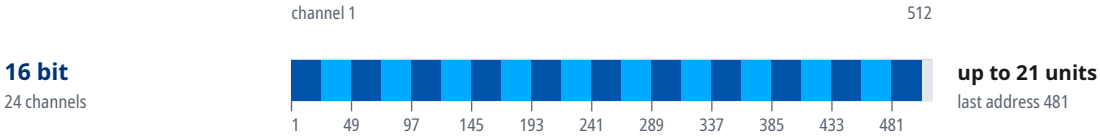
1	Gobo 1 Index: Open	DMX 0–9	3 Pipe Dreams	DMX 15–19	5 Inverted King Star	DMX 25–29
2	Jet Fan	DMX 10–14	4 Double Worms	DMX 20–24	6 Limbo	DMX 30–35

Gobo wheel 3

1 Open	3 Triangle Cones	5 Space Sun
2 Limbo Donut	4 Congo Star	6 Waves

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “16 bit”

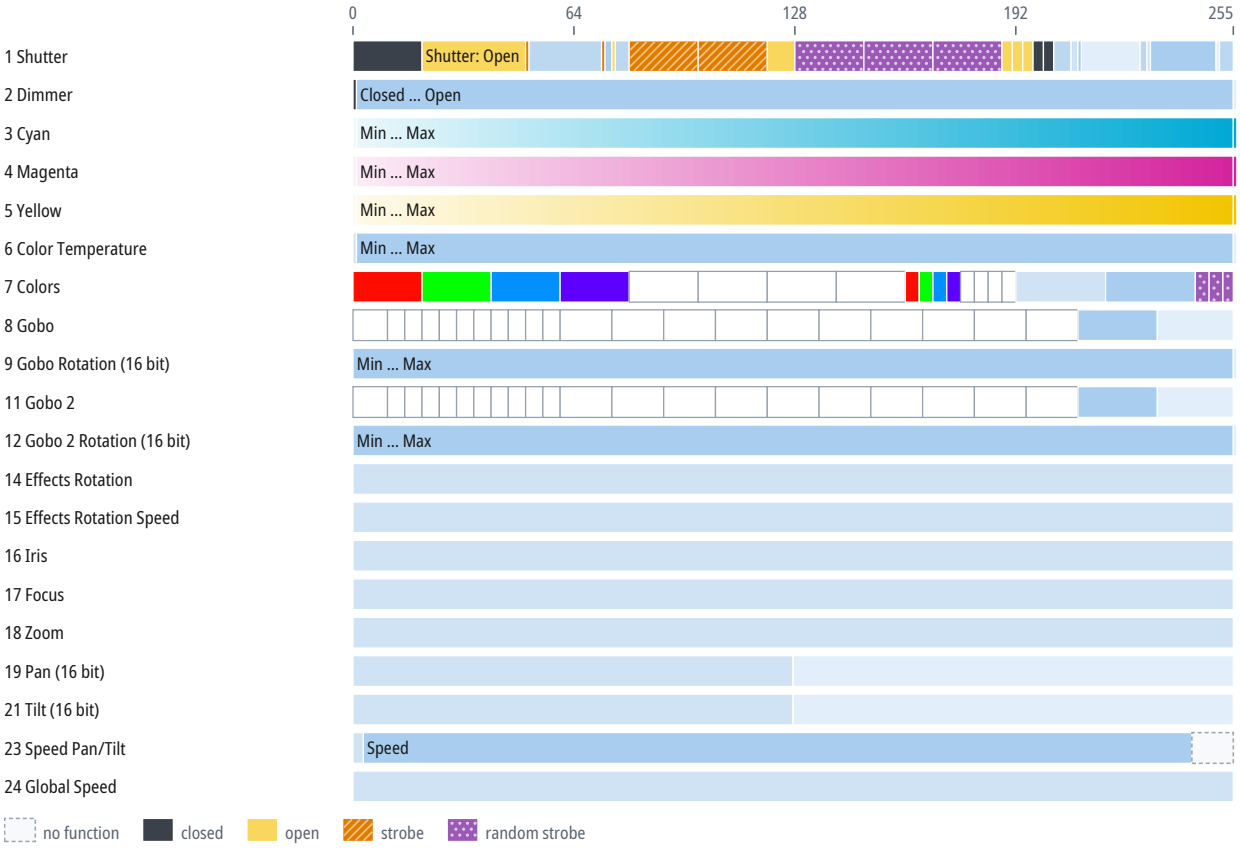
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	121	11	241	16	361
2	25	7	145	12	265	17	385
3	49	8	169	13	289	18	409
4	73	9	193	14	313	19	433
5	97	10	217	15	337	20	457

Mode 16 bit

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Shutter at 20–49, 75, 120–127, 188–190 “Open” or 73–74, 76–79 or 230 “Lamp On”; CH 2 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 2 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Shutter	0–19	Shutter: Closed
		20–49	Shutter: Open
		50	Strobe: Min
		51–71	Strobe: Min ... Max
		72	Strobe: Max
		73–74	Open Low Power
		75	Open Low Power: Open
		76–79	Open Low Power
		80–99	Opening Pulse
		100–119	Closing Pulse
		120–127	Random Strobe: Open
		128–147	Fast Strobe
		148–167	Medium Strobe
		168–187	Slow Strobe
		188–190	Random Pulse: Open
		191–193	Fast Open Pulse
		194–196	Slow Open Pulse
		197–199	Fast Close Pulse
		200–202	Slow Close Pulse
		203–207	Random Pulse
		208–209	Fixture Reset
		210	Reset
		211–227	Fixture Reset
		228–229	Lamp
		230	Lamp On
		231–249	Lamp On ... Lamp Off
		250	Lamp Off
		251–255	Lamp
2	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
3	Cyan	0	Min
		1–254	Min ... Max
		255	Max
4	Magenta	0	Min
		1–254	Min ... Max
		255	Max
5	Yellow	0	Min
		1–254	Min ... Max
		255	Max
6	Color Temperature	0	Min

CH	Function	DMX	Description
6	Color Temperature (continued)	1–254	Min ... Max
		255	Max
7	Colors	0–19	Continuous Scroll: Red
		20–39	Continuous Scroll: Green
		40–59	Continuous Scroll: Blue
		60–79	Continuous Scroll: UV
		80–99	Continuous Scroll: Triple Cone
		100–119	Continuous Scroll: Highways
		120–139	Continuous Scroll: Dots
		140–159	Continuous Scroll: Open
		160–163	Stepped Scroll: Red
		164–167	Stepped Scroll: Green
		168–171	Stepped Scroll: Blue
		172–175	Stepped Scroll: UV
		176–179	Stepped Scroll: Triple Cone
		180–183	Stepped Scroll: Highways
		184–187	Stepped Scroll: Dots
		188–191	Stepped Scroll: Open
		192–217	CW Fast->Slow
		218–243	CCW Slow->Fast
		244–247	Random CMY Color: Fast
		248–251	Medium
		252–255	Random CMY Color: Slow
8	Gobo	0–9	Gobo 1 Index: Open
		10–14	Jet Fan
		15–19	Pipe Dreams
		20–24	Double Worms
		25–29	Inverted King Star
		30–34	Limbo
		35–39	Continuous Rotate: Gobo 1
		40–44	Continuous Rotate: Gobo 2
		45–49	Continuous Rotate: Gobo 3
		50–54	Continuous Rotate: Gobo 4
		55–59	Continuous Rotate: Gobo 5
		60–74	Gobo Index Shake: Gobo 1
		75–89	Gobo Index Shake: Gobo 2
		90–104	Gobo Index Shake: Gobo 3
		105–119	Gobo Index Shake: Gobo 4
		120–134	Gobo Index Shake: Gobo 5
		135–149	Rotating Gobo Shake: Gobo 1
		150–164	Rotating Gobo Shake: Gobo 2
		165–179	Rotating Gobo Shake: Gobo 3

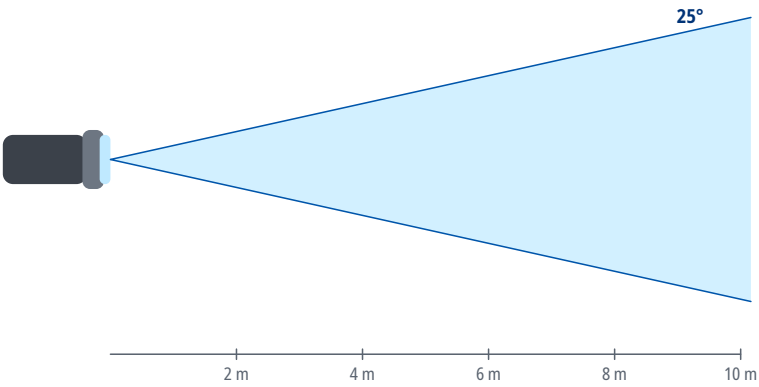
CH	Function	DMX	Description
8	Gobo (continued)	180–194	Rotating Gobo Shake: Gobo 4
		195–209	Rotating Gobo Shake: Gobo 5
		210–232	CW Slow->Fast
		233–255	CCW Fast->Slow
9	Gobo Rotation		Gobo 1 Speed
		0–255	Min ... Max
		255	Max
10	Gobo Rotation Fine	0–255	Fine adjustment of CH 9
11	Gobo 2	0–9	Gobo 1 Index: Open
		10–14	Jet Fan
		15–19	Pipe Dreams
		20–24	Double Worms
		25–29	Inverted King Star
		30–34	Limbo
		35–39	Continuous Rotate: Gobo 1
		40–44	Continuous Rotate: Gobo 2
		45–49	Continuous Rotate: Gobo 3
		50–54	Continuous Rotate: Gobo 4
		55–59	Continuous Rotate: Gobo 5
		60–74	Gobo Index Shake: Gobo 1
		75–89	Gobo Index Shake: Gobo 2
		90–104	Gobo Index Shake: Gobo 3
		105–119	Gobo Index Shake: Gobo 4
		120–134	Gobo Index Shake: Gobo 5
		135–149	Rotating Gobo Shake: Gobo 1
		150–164	Rotating Gobo Shake: Gobo 2
		165–179	Rotating Gobo Shake: Gobo 3
		180–194	Rotating Gobo Shake: Gobo 4
		195–209	Rotating Gobo Shake: Gobo 5
		210–232	CW Slow->Fast
		233–255	CCW Fast->Slow
12	Gobo 2 Rotation		Gobo 1 Speed
		0–255	Min ... Max
		255	Max
13	Gobo 2 Rotation Fine	0–255	Fine adjustment of CH 12
14	Effects Rotation	0–255	
15	Effects Rotation Speed	0–255	
16	Iris	0–255	
17	Focus	0–255	
18	Zoom	0–255	
19	Pan	0–127	Pan 1
		128	Home

CH	Function	DMX	Description
19	Pan (continued)	128–255	Pan 1
20	Pan Fine	0–255	Fine adjustment of CH 19
21	Tilt	0–127	Tilt 1
		128	Home
		128–255	Tilt 1
22	Tilt Fine	0–255	Fine adjustment of CH 21
23	Speed Pan/Tilt	0–2	Tracking
		3–242	Speed
		243–255	No function
24	Global Speed	0–255	

10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	1,000 W
Luminous flux	1,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	100
Optics	
Beam angle	25°
Movement	
Pan	540°
Tilt	220°
Dimensions and construction	
Weight	38 kg
Operating environment	
Operating temperature	0 to 40 °C

Spot diameter



Distance	Ø 25°
2 m	0.89 m
4 m	1.8 m
6 m	2.7 m
8 m	3.5 m
10 m	4.4 m
15 m	6.7 m

Spot diameter square to the beam axis, calculated from the beam angle.

11 Maintenance and cleaning

- Before cleaning and maintenance, switch the device off, disconnect it from the power supply and let it cool down.
- Clean the housing with a soft, dry or slightly damp cloth. Do not use solvents, abrasive cleaners or pressure washers, and make sure no liquid gets into the device.
- Clean optical parts (lenses, front glass), if the device has any, with a soft lint-free cloth and a cleaner intended for optics or glass.
- Regularly inspect the housing, cables, connectors and fixings. Have damaged parts replaced by a service center.
- How often to clean depends on the environment; dust, smoke and fog make the device dirty much faster.

12 Troubleshooting

Problem	Remedy
The device does not switch on	Check the supply voltage, the cables and the fuse, if the device has one.
The device does not respond to DMX	Check the start address, the selected DMX mode and whether it matches the profile in the controller, the cable connection to DMX IN, and the controller output (universe).
The device behaves erratically or flickers	Check the terminator at the end of the line, the condition and wiring of the cables (shield on pin 1 only), the number of devices on the line (32 at most), and that the line is not split without a splitter.
Only some devices on the line respond	Check the cable and connectors between the last working and the first non-working device, and make sure all devices on the line are switched on.
Devices respond to the wrong channels or affect each other	Check that the addresses do not overlap and that the DMX mode on the devices matches the patch in the controller.
The device or the connected load does not light up although it receives DMX	Check the values of the dimmer, shutter and strobe channels against the DMX channel table. For the DMX modes for which the sources state it, the chapter DMX channels gives under the mode's heading which channels must be open.
Movement is reversed	Check whether Pan/Tilt inversion is enabled in the device menu or in the controller.
Moving parts do not reach the correct position after power-on or transport	Switch the device off and on again to reset the position, and make sure the transport lock, if any, is released. If this does not help, contact a service center.
Movement is jerky	Check the value of the Pan/Tilt speed channel, if the device has one, and the stability of the DMX signal.

13 Disposal

The crossed-out wheeled bin symbol on the product, in the manual or on the packaging means that the product must not be disposed of with unsorted household waste at the end of its life.

Take the end-of-life equipment to a collection point, for example a municipal collection site or a retailer. Proper disposal enables materials to be recycled and helps prevent possible negative effects on the environment and human health.

Follow the regulations applicable in your country; in the Czech Republic, take-back is governed by Act No. 542/2020 Coll., on End-of-Life Products.

Recycle the packaging materials according to their type.