# PX102

# Nadir

# OPERATION MANUAL



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# 1. FEATURES

Px102 Nadir console is designed to control scanners, moving head fixtures, dimmers and strobes. It controls 512 DMX channels allowing for operation of 32 16-channel or 64 8-channel scanners. Internal memory capacity (8 Mb) is 1536 scenes which can be used in 64 programs. Up to 7 programs may be run at the same time, each with its own rate and synchronization mode. Programs may be used to build up to 8 shows, each with up to 256 steps. The effects generator (fig. 8, circle etc.) speeds up and facilitates programming. 32 fixture / program buttons, memory bank selector, and 16 control faders give quick and easy access to programs and fixtures. Fluid action joystick gives precise control of mirror movement. Accessing controller functions is done through 48 character LCD display and a rotary encoder. An extensive onboard fixture library may be updated through the RS-232 port. Future software releases can be downloaded in the same manner. Programming and set-up functions may be password protected.





buttons controlling programming ns.	) menu function buttons.	character alphanumeric LCD.	coder wheel. Controls applicable menu ctions.	cords in controller's memory all new ograms, configurations, etc.	w playback button. Also used to record Prate.	ds blackout command to all fixtures.	outtons used to activate programs or
PROGRAM / FIXTURE	SELECTOR BANK SELECTOR (33-64)	D JOYSTICK	<b>B</b> FADERS	CONTROLING FIXTURE FUNCTIONS	Control Faders Control Faders		A MASTER
Used to select the function of the 32 PROGRAM / FIXTURE buttons.	Used to select the second bank of prog or fixtures.	Its proportional function allows for preciss setting of mirrors or moving heads. Press on the joystick activates default (center p	and titty mitrror position. 16 faders used to control 16 DMX channe!	the selected fixture. Minimum = 0, Maximum = 255	These two faders control program playbac parameters in the auto mode. The RAT	rader sets program rate (speed) i.e. durate of the scene. The X-FADE fader controls th amount of crossfade between scenes. Minimum = 0 crossfade Maximum = full crossfade	Controls the fade function of active fixtures

**3. TOP PANEL DESCRIPTION.** 

# 4. DMX ADDRESS TABLE

		MOE	DE 1		MODE 2		MODE 2 MODE 3		MODE 4		DE 4	
	Button #	DIP SW	DMX addr		DIP SW	DMX addr		DIP SW	DMX addr		DIP SW	DMX addr
[	1	10000000	1		10000000	1		10000000	1		100000000	1
	2	100010000	17		100100000	9		100100000	9		10100000	5
-	3	100001000	33		100010000	17		100010000	17		100100000	9
ŀ	4	100011000	49		100110000	25		100110000	25		100010000	13
ŀ	6	100010100	81		100101000	41		100101000	41		101010000	21
ŀ	7	100001100	97		100011000	49		100011000	49		100110000	25
	8	100011100	113		100111000	57		100111000	57		101110000	29
	9	10000010	129		100000100	65		100000100	65		100001000	33
<b>→</b>	10	100010010	145		100100100	73		100100100	73		101001000	37
·	12	100001010	161		100010100	81		100010100	80		111101000	41
	13	100000110	193		100001100	97		100001100	97		100011000	49
	14	100010110	209		100101100	105		100101100	105		101011000	53
[	15	100001110	225		100011100	113		100011100	113		100111000	57
-	16	100011110	241		100111100	121		100111100	121		101111000	61
-	17	100000001	257		100000010	129		100000010	129		100000100	65
ŀ	18	100010001	273		100100010	137		100100010	137		100100100	73
ŀ	20	100001001	305		100110010	153		100110010	153		101100100	77
ľ	21	100000101	321		100001010	161		100001010	161		100010100	81
t	22	100010101	337		100101010	169		100101010	169		101010100	85
[	23	100001101	353		100011010	177		100011010	177		100110100	89
	24	100011101	369		100111010	185		100111010	185		101110100	93
-	25	100000011	385		100000110	193		100000110	193		100001100	97
ŀ	20	100010011	401		100100110	201		100100110	201		100101100	101
ŀ	28	100011011	433		100110110	217		100110110	217		101101100	109
ľ	29	100000111	449		100001110	225		100001110	225		100011100	113
[	30	100010111	465		100101110	233		100101110	233		101011100	117
	31	100001111	481		100011110	241		100011110	241		100111100	121
ŀ	32	100011111	497		100111110	249		100111110	249		101111100	125
ŀ	34				100000001	273		100100001	265		100100010	137
ŀ	35				100001001	289		100010001	273		100010010	145
	36				100011001	305		100110001	281		100110010	153
[	37				100000101	321		100001001	289		100001010	161
	38				100010101	337		100101001	297		100101010	169
-	39				100001101	353		100011001	305		100011010	1//
-	40				100011101	385		100000101	313		100000110	193
ŀ	42				100010011	401		100100101	329		100100110	201
	43				100001011	417		100010101	337		100010110	209
	44				100011011	433		100110101	345		100110110	217
-	45				100000111	449		100001101	353		100001110	225
ŀ	40				100010111	465		100101101	360		100101110	233
ŀ	47				100001111	401		100111101	377		100111110	249
	49				100011111	107		100000011	385		100000001	257
	50							100100011	393		100010001	273
	51							100010011	401		100001001	289
	52							100110011	409		100011001	305
-	53							100001011	417		100000101	321
ł	55							100011011	433	-	100001101	353
ł	56							100111011	441		100011101	369
[	57							100000111	449		100000011	385
[	58							100100111	457		100010011	401
-	59							100010111	465		100001011	417
ł	61							100001111	4/3	-	100001011	433
ŀ	62			-				100101111	489	-	100010111	465
t	63							100011111	497		100001111	481
	64							100111111	505		100011111	497

EXAMPLE DMX Address = 145

ON - 1 - 0 9

# 5. SET-UP / CONFIGURATION

# 5.1. DMX ADDRESS MODE

#### NOTE !

#### Access to these functions may be blocked. See SERVICE MODE..

Choose appropriate DMX address mode, according to the type of fixtures (scanners) used.



#### There are 4 DMX address modes.

1 - 32 x 16 channels 2 - 32 x 8 channels + 16 x 16 channels 3 - 64 x 8 channels 4 - 32 x 4 channels + 16 x 8 channels + 16 x 16 channels



Press ENTER button after choosing the desired mode. New settings will be recorded in controller's memory.

# **5.2. ASSIGNING FIXTURES**

#### 5.2.1. FIXTURE MODELS

Select fixtures to be assigned from the fixture library. They will be assigned to fixture buttons. NOTE !

Setting DMX address on the fixtures will depend on DMX address mode previously selected. Consult DMX ADDRESS TABLE on page 4.



Press fixture button (s) to which you want to assign the fixture. Fixture LED will light up and a brand / fixture model screen will appear on the LCD display.





Press D to enable the review of assigned fixtures function.

Press B or C , or use the encoder to scroll through all assigned fixtures. The LCD will show name / model of the fixture. Below it a fixture number will appear. At the same time fixture LEDs will light up. A blinking fixture LED indicates that the fixture is assigned to the second fixture bank, i.e. 33-64.

Press E (Clr.) to remove the displayed fixture (Martin Mac 250 for ex.) from all program(s) were it was used.

#### 5.2.2. DIP SWITCH SETTINGS



# DIP SWITCH SETTING - indicates correct dip switch settings of assigned fixtures.

Press CONFIG in the programming section (see page 5). With the screen shown on the left press C or D under "Fixtures".

Press C or D.

With A or B select one of the assigned fixtures. The LCD will show proper dip switch setting for that fixture.

0 = OFF 1 = ON

#### 5.2.3. DMX DELAY

Fixtures: Models	Dip switch	DMX delay
		E F
Delay = 0 - +		back

The DMX DELAY function allows slowing down of the DMX signal to match the "receive" speed of the fixture.

The DMX DELAY settings are 0 to 7.

# 5.3. SPECIAL FUNCTIONS

Setting these functions is not essential for proper operation of the console, They offer, however, some helpful options.

FIXTURE RE-SET - Many fixtures on the market have the re-set capability, that is they can be re-set without being turned off. Often this feature can be quite cumbersome. That is why an easy to access re-set function has been incorporated in the controller.

TRIGGERING PROGRAMS WITH FADERS. - Groups of 16 programs may be triggered with faders. This function lets the user choose which group of programs will be triggered with faders as well as buttons.



# 6. SCENE PROGRAMMING.

#### NOTE !

This function may be blocked. Consult SERVICE MODE section.

Select program ...



With the following screen showing on the LCD press SCENES in the programming section. The PROGRAM / FIXTURE LED will light up. **NOTE**!

All LEDs in the fixture / program section have to be off.



There are 2 modes of scene programming : standard and special

Press A or B to select the standard mode. Press D to select the special mode (page 10)

Use the delete function ( $\dot{E}$ ) to delete previously recorded programs. Select program to be erased and confirm by pressing ENTER. (see 6.3)

# 6.1. PROGRAMMING STANDARD SCENES



The controller will call up program 1 scene 1 and set the fixtures according to scene 1 settings. With the fixture buttons select fixture(s) to be programmed. Adjust the settings with the joystick and the faders. The ENTER LED will light up indicating new settings. To cancel new settings turn the fixture LEDs off. To CONFIRM them press ENTER.



To copy a scene to another scene or to another scene in another program press E to change thje command from ED (edit) to NW (new). Then with A or B select the program number and with C or D select the number of the scene to be copied to. Programs may also be selected with the encoder. Adjust fixture settings with the faders and the joystick, and press ENTER to record the new scene.

#### NOTE!

All programs containing special scenes (see 6.2.) are denoted by "S" appearing in the bottom right hand corner.



Each program may contain up to 24 scenes. If a program has less than 24 scenes press F and then ENTER to record the last scene. An "E" will appear on the LCD above the F button.

Recorded programs may be viewed and edited. The controller should be in the edit mode - "ED" above the E button. Press E to toggle between ED and NW

To avoid conflict during playback of different programs controlling both scanners and dimmers, the PAN and TILT setting should be set at neutral (128). This is done by pressing the joystick.

## 6.2. PROGRAMMING SPECIAL SCENES

The internal effects generator contains following movements : figure 8, circle and diagonal. Special scene programming incorporates assigning one of those movements to a selected program, and defining parameters such as speed, diameter, and location of the center of the movement. NOTE !

Special scene programming may only be done in programs 49-64.



Press A or B to select the program.

Select fixture(s) to be programmed by pressing corresponding fixture buttons.

Each program may control up to 64 fixtures.

Set faders DIAMETER and RATE (speed) at 0.

Press E (Del) to delete any DMX values previously set in the selected program.

With C select following effects :

- O+ circle to the right
- O - circle to the left
- 8+ 8 to the right
- 8- 8 to the left
- /+ diagonal to the right
- \- diagonal to the left



Set diameter and rate (speed) faders. Set the center of the movement with the joystick.

Save all changes by pressing ENTER.

In programming different movements for a number of fixtures it is important to know the start of the program. Press D to activate start synchronization.

To program movement in opposite directions in the same program :

- 1. Select fixtures that are to move to the right
- 2. With the C button select O+ on LCD display.
- 3. Adjust speed and diameter.
- 4. Turn off fixture LEDs. The fixtures will continue their movement.
- 5. Select fixtures that are to move to the left.
- 6. With the C button select O- on the LCD display.
- 7. Adjust speed and diameter..
- 8. Press ENTER to record all the settings.

# 6.3. DELETING PROGRAMS



To delete a program press SCENES (In PROGRAMMING SECTION), press E (Del.), and select the program to be deleted by pressing A or B.

With the "Select program" screen

Then press D to delete the program.

Press ENTER to confirm.

# 7. MIDI PROGRAMMING



# 7.1. CANCELLING MIDI ASSIGNMENTS



## 7.2 TRIGGERING PROGRAMS WITH MIDI



Press previously assigned MIDI note to trigger selected program.

1 3		All
auto	44 12,4	Set.

The LCD will show the numbers of triggered programs.At the same time program LEDs will light up. Each program can be turned off by pressing the corresponding MIDI note again, or by pressing the program button.



# 8. PROGRAMMING A SHOW

#### NOTE ! This function may be blocked. Consult SERVICE MODE section.

A show is a sequence of programs linked together. Each show may consist of up to 256 steps. Each step may contain up to 7 programs.

With the "Select program ..." screen showing on the LCD press SHOWS in the programming section. NOTE!

All LEDs should be off in the fixture / program section.



Select program ...

New screen will appear (as shown) on the LCD. .With A or B select the show number, and with C or D the step number. With the program buttons select programs to be included in the first step of the show.

Press E to select NW (new show programming) or ED (review and editing of previously recorded show).



With the encoder set the time from the beginning of the show , when the programs included in the first step are to be triggered.

Setting next step number automatically sets the end time for the previous step, and the start time for the next step.

ENTER

CONFIC

SCENES

Press ENTER to record the step in the memory.

Start	0,0	0.0	Time:	4,13.	7
Show	1	Step	1	ED	Е

Each show may consist of up to 256 steps. If the show has less than 256 steps, press F before pressing ENTER to record the last step.

# 9. PROGRAM PLAYBACK



To confirm settings for each program press F or press E to cancel. Then with the cursor select the next program and adjust its parameters. When the parameters for all programs are set press ENTER to record the settings in the memory.

#### NOTE!

By turning the program off (program LED off) before pressing ENTER, previous setting will be retained.

# 9.1. SETTING TAP RATE

Program rate (speed) may also be set manualy with the TAP / SHOWS button. The TAP rate may be set for one or more programs, depending on program selection



With the cursor select the program and press F, to enter the rate adjust mode. To set the same tap rate for all programs set the cursor at "All".

Tap the TAP button 4  $\,$  times to set the rate. The tap button LED will start flashing .

To cancel the previous setting and set the new one press and hold the TAP button for 2 seconds and tap 4 times again.

To return to previous tap setting, press E (cancel)

Press F to go back to previous screen. Adjust other programs as needed.

Press F and then ENTER to record the new rate(s).

# 9.2. MANUAL CONTROL OF ACTIVE FIXTURES,

It is possible to manually adjust active (i.e. Fixtures which are being controlled by a program) fixtures. For example to change color or gobo, or to change mirror positioning.

1 3 9	11 33 45 63	All
auto	44 12,4	set



With the programs running ( display shown ) , press PROGRAM / FIXTURE. As long as the PROGRAM / FIXTURE LED is on, the 32 buttons control fixtures, not programs.

Activate fixtures to be manually adjusted by pressing corresponding fixture buttons. Adjust fixture settings using the joystick and the faders. Continue with other fixtures as necessary.



Pressing PROGRAM / FIXTURE button again ( LED flashing ) allows simultaneous manual control of the fixture as well as activation of other programs.



- Press PROGRAM / FIXTURE ( LED flashing ).

- Adjust selected fixture (s) with the joystick or faders.

- Activate other programs as desired ( program LEDs will NOT light up.

- To "Solo " a particular program , press and hold its button for 1 second. All other programs will be turned off. Manual control of fixtures remains active.

- To return to program select and edit functions , press and hold the PROGRAM / FIXTURE button for 1 second. ( LED off ).

### 9.3. TRIGGERING PROGRAMS WITH FADERS



NOTE ! These functions may be blocked. Consult SET-UP/CONFIGURATION Section.

Programs may be triggered with both buttons and faders. The console has to be set-up for fader triggering. See the SET-UP/CONFIGURATION section.

Raising a fader will trigger corresponding program. The program LED of the program being triggered will light up, and the LCD will show its number. The fader controls all fade functions in the program which have been enabled. The program turned on with the fader may be turned off with its button. Conversely, a program turned on with its button may be turned off with the fader.

# **10. SHOW PLAYBACK**



It is possible to synchronize your light show with music playback by using a CD player with remote start capability. Pressing E to start the show will automatically start the CD player. The synchronization accuracy is 0.1 second.

Step 1	Time	0,00.0
Show 1	- +	Start P
		EF

Press E to start or stop the show at any time. Press F to pause. That will automatically stop the CD as well.



During show playback the program LEDs light up , indicating which program is currently being played back.

# **11. SERVICE MODE**

The service mode incorporates following functions - change of password , downloading new software releases , blocking access to functions , and confirmation of payment. NOTE !

All functions of the controller are disabled when the service mode is being accessed.



With the shown screen displayed on the LCD , tap A. This is the first screen to appear upon turn on.

#### NOTE !

# Service mode can only be accessed from this screen.

The controller is equipped with a standard RS-232 port , allowing the controller to be hooked up to a PC. The port is used to download new software releases and new fixture libraries. It can also be used to offload controller's memory onto a PC. This allows the user to save and archive programming onto floppy diskette. Programming done on a PC can also be transferred into controller's memory. A program allowing communication between the controller and a PC is included with the controller.

Password set-up. The password locks out access to the service mode..

#### Payment confirmation.

The controller can be supplied from the manufacturer with a password and a time limit. Once full payment is received by the manufacturer, the user will be supplied with a password to confirm the payment. Otherwise the unit will stop functioning once the time limit has been exceeded.

System restart.

Programming lockout.

Configuration lockout.

# 11.1. PC INTERFACE AND PROGRAMMING

Connect COM 1 or COM 2 on your PC with the RS-232 port on the controller , using cable supplied with the unit.

NOTE!

Both the PC and the controller should be switched off.

Switch on the PC and open a new folder ("Nadir") in My Documents. Then copy program "nadir.exe" from the supplied diskette into the new folder.

Turn on the controller and access the service mode.

Select the screen below.



Press E or F.

In the program menu on your computer screen select "Action". You can now download new fixture libraries, new programming, as well as read and create new programs.

#### NOTE !

Blinking fixture LEDs on the controller indicate transmission of data between the controller and the PC. Once your work has been completed and the flashing stops, press F twice.



# 11.2. USER PASSWORD SET-UP



Press E or F. A new screen will appear, and you will be able to enter your password.

Enter user password : \_\_\_\_\_OK Enter the password by pressing fixture buttons. The password contains 8 characters, that is 8 buttons have to be pressed. Not entering any characters and pressing OK will erase previous password.





Password changed ! OK

Once the password has been entered , only the password holder will be able to access the service mode.

# 11.3. PAYMENT CONFIRMATION.



Press E or F. A new screen will appear , allowing the operator to enter payment confirmation code supplied by the manufacturer.

Enter the code by pressing fixture buttons."



Entering the code enables continued functioning of the controller.

# 11.4. PROGRAMMING AND CONFIGURATION LOCKOUT.

Programming lock next. prev.	Enter EF	With the shown screen on the LCD press E or F to access programming lockout function.
Program lock Change	OFF Enter	The upper line of the display shows current staus. Pressing B will toggle the lockout on & off. Press F to confirm the entry.
Configuration lock next. prev.	Enter EF	Press E or F to access configuration lockout function.
Configuration lock Change	OFF Enter	The upper line of the display shows current status. Press B to toggle lockout on & off. Press F to confirm the entry.

NOTE !

Configuration lockout disables the CONFIG button in the programming section. Programming lockout disables all buttons in the programming section.



Configuration lockout disables only the KONFIG button in this section.

# **12. CONNECTING THE FIXTURES TO THE CONTROLLER**

The controller transmits a standard DMX -512 signal. To assure proper functioning of the system, dip switches on the fixtures must be set properly. Also appropriate cabling setup must be used. Here are some practical suggestions.

1. A microphone type cable should be used, that is, two-conductor with a shield.

2 All XLR connections should be done in the following manner.

pin 1 = shield pin 2 = DMX- pin 3 = DMX+

NOTE !

Martin fixtures have pin 2 and pin 3 reversed. A "reversed" cable should be used so they may function correctly.

3. The controller and the fixtures must be connected in series, that is, the output of the controller is

connected to the input of the first fixture, the output of the first fixture is connected to the input of the second fixture is connected to the input of the third fixture etc.

4. A 100 Ohm resistor MUST be installed at the output of the last fixture , between pins 2 and 3. This is commonly called DMX TERMINATION.

5. Set dip switches on the fixtures according to the table on page 4.



# **13. BACK PANEL VIEW**



Power input. The AC adapter is supplied with the unit.





# **14. TECHNICAL SPECIFICATIONS**

- DMX channels 512 - scenes 1536 - programs 64 - shows 8 (up to 256 steps each) - memory 8 Mb - audio signal level: 0 dB - input: - audio 0 dB STEREO 1/4" JACK - MIDI 5-pin DIN - RS 232 9-pin D-SUB - audio **MINI JACK** - output: - DMX 512 3-pin XLR - MIDI 5-pin DIN - RS 232 9-pin D-SUB 12V DC or 9V AC - power - power consumption 10 VA - weight 5 kg - dimensions: - width 483mm (19") - depth 221mm (standard 5U) - hight 85mm



