

10W APP CONTROL LASER PRODUCT MANUAL



1. Product Overview

Laser Output Power: 10 W (RGB)

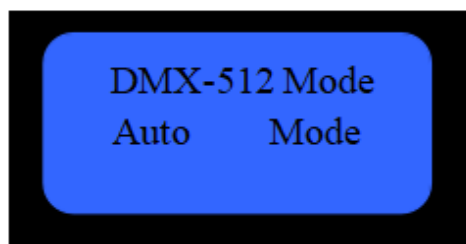
Control System: LCD + Bluetooth + DMX-512 + ILDA + Network (Netmask)


The Z1 is a professional full-color laser projector equipped with an LCD control panel, Bluetooth APP control, DMX-512 console control, ILDA computer control and network (Netmask) software control. It integrates rich built-in graphics, animations and landmark programs, and supports user text, hand-drawn graphics and custom programming via mobile APP / mini-program.


2. Control Panel & LCD Menu

2.1 LCD Display Panel

1. The front LCD control panel includes:
2. LCD Display
3. LED Indicator
4. Menu / Select Knob – rotate left/right to scroll through menus
5. OK / Return Button – short press to confirm, long press to exit / enter hidden menu (see 2.3)
6. Note 1: When the 25-pin ILDA port is connected to a computer software signal, the fixture automatically detects and switches to ILDA software control.
7. Note 2: When the fixture is connected to computer software via the network port, please manually set Mode Settings to Netmask in the LCD menu.



 LED indicator

 SelectMenu/Menu selection

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2.2 Main LCD Menu (User Menu)

Use the rotary knob to scroll; the highlighted item is the current selection.
Press OK/Return to enter or confirm.

No.	Menu Item	Range / Options	Description
1	Address Code	1-512	DMX start address setting
2	Channel Settings	16CH / 20CH	16CH = basic mode; 20CH = professional mode
3	Mode Settings	0-9 (see below)	Select operating mode
4	Playback Speed	0, 1-99	0 = Sound active; 1-99 = Auto run speed (slow → fast)
5	Pattern Size	10-100	Global pattern size
6	Pattern Phase	X+ / Y+	Pattern phase / orientation
7	Red Dimmer	0-100	Red channel dimming (analog modulation effective)
8	Green Dimmer	0-100	Green channel dimming (analog modulation effective)
9	Blue Dimmer	0-100	Blue channel dimming (analog modulation effective)
10	Modulation Mode	TTL / Analog	Select laser modulation mode
11	Language	Chinese / English	LCD language selection
12	Software Version	VER2.X	Displays installed firmware version

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Mode Settings (Menu Item 3):

Value	Mode Name	Description
0	DMX	DMX console mode
1	Netmask	Network (Netmask) software control
2	Random	All built-in programs play in random order
3	Lines	Line-based program bank
4	Animation	Animation program bank
5	Text	Text playback (content edited via mobile APP / mini-program)
6	Programming	User programming playback (programmed via mobile APP / mini-program)
7	Hand-drawn	Hand-drawn pattern playback (drawn via mobile APP / mini-program)
8	Landmarks	Outdoor landmark program bank
9	Standby	Fixture enters standby; laser output is switched off

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2.3 Hidden Menu (Advanced Settings)

Long-press the Menu key to enter the hidden menu.
After setting, long-press the Menu key again to exit.

No.	Hidden Menu Item	Range / Options	Description
1	Galvo Speed	15–30K	Galvanometer scanning speed setting. Caution: do not exceed actual galvo rating.
2	Color Setting	Monochrome / Full	Set the light source as monochrome or full color
3	Single-Point Protection	On / Off	Enable / disable single-point safety protection for the laser galvanometer
4	Sound Sensitivity	0–100	Adjust sensitivity for sound-active mode
5	Backlight Setting	Always on / Delayed off	Always on = LCD always lit; Delayed off = LCD turns off after 15 seconds idle
6	Restore Factory	OK (hold 3 s)	Long-press 3 seconds to restore factory default settings

3. DMX-512 Control

The Z1 supports DMX-512 control with two selectable channel modes:

- 16CH Mode – Basic / “Lean” channel mode
- 20CH Mode – Professional channel mode

Set the mode via LCD → Channel Settings.

Tip: Always ensure the DMX address, channel mode and controller patch match before operation.



3.1 DMX Channel Table – 16CH Mode (Basic)

3.1.1 Channels 1–4

CH	Function	DMX Value Range	Description
1	Total Dimming	0-255	Master switch / overall dimmer (analog dimming active when in Analog modulation mode)
2	Strobe	0-9	No strobe
		10-255	Strobe from slow → fast
3	Colors	0-34	Fixed colors: White / Red / Blue / Purple / Cyan / Yellow / Green
4	Color Flow Rate	35-39	Overall color change (flow rate controlled by CH4)
		40-44	Initial pattern color selection (flow speed controlled by CH4)
		45-46	Seven-color rainbow (flow speed controlled by CH4)
		47-66	2-segment color selection, step of 4 (flow speed controlled by CH4)
		67-96	3-segment color selection, step of 4 (flow speed controlled by CH4)
		97-126	4-segment color selection, step of 4 (flow speed controlled by CH4)
		127-150	8-segment color selection, step of 4 (flow speed controlled by CH4)
		151-174	16-segment color selection, step of 4 (flow speed controlled by CH4)
		175-214	32-segment color selection, step of 4 (flow speed controlled by CH4)
		215-247	Analog color mix – 32 analog color macros (analog modulation effective)
		248-255	Color gradient (speed controlled by CH4)
		Color Flow Rate	0-9
		10-127	Forward color flow, slow → fast
	128-255	Reverse color flow, slow → fast	



Channels CH5–CH8

CH	Function	DMX Value Range	Description
5	Graphic Selection	0–255	Select pattern / graphic (pattern group is selected by CH6)
		0–24	Built-in Static Graphics Group 1 (basic geometric patterns)
6	Graphics Group Selection	25–49	Built-in Static Graphics Group 2 (basic geometric patterns)
		50–74	Built-in Static Graphics Group 3 (edge highlight patterns)
		75–99	Built-in Static Graphics Group 4 (punching graphics)
		100–124	Reserved
		125–149	ILDA Animation Group 1
		150–174	ILDA Animation Group 2
		175–199	ILDA Animation Group 3 (reserved)
		200–224	ILDA Animation Group 4
		225–255	Hand-drawn graphics (edited via APP)
		7	Pattern Size (Manual)
8	Auto Scaling of Patterns	0–15	Fixed size selection
		16–55	Auto scaling from small → large (speed selection)
		56–95	Auto scaling from large → small
		96–135	Size scaling speed selection
		136–175	Two-point irregular cyclic scaling
		176–215	Three-quarter irregular cyclic scaling
		216–255	Four-point irregular cyclic scaling

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3.1.2 Channels 9–16

CH	Function	DMX Value Range	Description
9	Pattern Rotation (Center)	0–127	Static rotation angle selection
		128–191	Positive rotation, slow → fast
		192–255	Reverse rotation, slow → fast
10	Pattern Rotation (X-Axis)	0–127	Horizontal flip / tilt position
		128–255	Horizontal flip speed
11	Pattern Rotation (Y-Axis)	0–127	Vertical flip / tilt position
		128–255	Vertical flip speed
12	Horizontal Movement	0–255	Horizontal position
13	Vertical Movement	0–255	Vertical position
14	Wave in X Direction	0–1	No wave
		2–255	Wave amplitude & speed: amplitude small → large, speed slow → fast (8 gears, every 32 values)
15	Built-in Dynamic Effects	0–1	No function
		2–202	Built-in effect bank (color = CH3, CH3=0 default color; speed = CH16)
		203–214	Line effect (color = CH3, speed = CH16)
		215–224	Animation effect (color = CH3, speed = CH16)
		225–234	Outdoor landmark effect (color = CH3, speed = CH16)
	235–255	All effects play randomly (color = CH3, speed = CH16)	
16	Built-in Dynamic Effect Speed	0–1	System default speed
		2–255	Manual speed setting, slow → fast



3.2 DMX Channel Table – 20CH Mode (Professional)

3.2.1 Channels 1–8

CH	Function	DMX Value Range	Description
1	Total Dimming	0–255	Master switch / overall dimmer (analog dimming active)
2	Red Dimmer	0–255	Red linear dimming
3	Green Dimmer	0–255	Green linear dimming
4	Blue Dimmer	0–255	Blue linear dimming
5	Strobe	0–9	No strobe
		10–255	Strobe from slow → fast
6	Colors	0–34	Fixed colors: White / Red / Blue / Purple / Cyan / Yellow / Green
		35–39	Overall color change (speed controlled by CH7)
		40–44	Initial pattern color (speed controlled by CH7)
		45–46	Seven-color rainbow (speed controlled by CH7)
		47–66	2-segment color selection, step of 4 (speed controlled by CH7)
		67–96	3-segment color selection, step of 4 (speed controlled by CH7)
		97–126	4-segment color selection, step of 4 (speed controlled by CH7)
		127–150	8-segment color selection, step of 4 (speed controlled by CH7)
		151–174	16-segment color selection, step of 4 (speed controlled by CH7)
		175–214	32-segment color selection, step of 4 (speed controlled by CH7)
7	Color Flow Rate	0–9	No color flow
		10–127	Forward color flow, slow → fast
		128–255	Reverse color flow, slow → fast
8	Graphic Selection	0–255	Pattern selection (pattern group is selected by CH9)



3.2.2 Channels 9–14

CH	Function	DMX Value Range	Description
9	Graphics Group Selection	0–24	Built-in Static Graphics Group 1 (basic geometric patterns)
		25–49	Built-in Static Graphics Group 2 (basic geometric patterns)
		50–74	Built-in Static Graphics Group 3 (edge highlight patterns)
		75–99	Built-in Static Graphics Group 4 (punching graphics)
		100–124	Reserved
		125–149	ILDA Animation Group 1
		150–174	ILDA Animation Group 2
		175–199	ILDA Animation Group 3 (reserved)
		200–224	ILDA Animation Group 4
		225–255	Hand-drawn graphics (edited via APP)
10	Pattern Size (Manual)	0–255	Manual pattern size selection
11	Auto Scaling of Patterns	0–15	Fixed size selection
		16–55	Auto scaling from small → large (speed selection)
		56–95	Auto scaling from large → small
		96–135	Size scaling speed selection
		136–175	Two-point irregular cyclic scaling
		176–215	Three-quarter irregular cyclic scaling
		216–255	Four-point irregular cyclic scaling
12	Pattern Rotation (Center)	0–127	Static rotation angle
		128–191	Positive rotation, slow → fast
		192–255	Reverse rotation, slow → fast
13	Pattern Rotation (X-Axis)	0–127	Horizontal flip / tilt position
		128–255	Horizontal flip speed
14	Pattern Rotation (Y-Axis)	0–127	Vertical flip / tilt position
		128–255	Vertical flip speed

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3.2.3 Channels 15–20

CH	Function	DMX Value Range	Description
15	Horizontal Movement	0–255	Horizontal position
16	Vertical Movement	0–255	Vertical position
17	Wave in X Direction	0–1	No wave
		2–255	Wave amplitude & speed: amplitude small → large, speed slow → fast (8 gears, every 32 values)
18	Pattern Gradient Drawing	0–1	No gradient drawing
		2–63	Manual gradient 1
		64–127	Manual gradient 2
		128–153	Auto gradient (increase)
		154–179	Auto gradient (decrease)
		180–205	Auto gradient (increase → decrease, reverse)
		206–255	Auto gradient (increase & decrease, symmetric)
19	Built-in Dynamic Effects	0–1	No function
		2–202	Built-in effect bank (color = CH3, CH3=0 default color; speed = CH20)
		203–214	Line effect (color = CH3, speed = CH20)
		215–224	Animation effect (color = CH3, speed = CH20)
		225–234	Outdoor landmark effect (color = CH3, speed = CH20)
		235–255	All effects play randomly (color = CH3, speed = CH20)
20	Built-in Dynamic Effect Speed	0–1	System default speed
		2–255	Manual speed, slow → fast

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4. Operating Modes Summary

- DMX-512 Mode – Full control via lighting console, with selectable 16CH or 20CH mapping.
- Auto Mode – Fixture runs internal programs; playback speed set via Playback Speed menu.
- Sound-Active Mode – Select Playback Speed = 0; adjust Sound Sensitivity in hidden menu.
- Netmask (Network) Mode – Controlled by Netmask laser software via network port.
- ILDA Mode – Automatically activated when 25-pin ILDA input is detected.
- Text / Programming / Hand-drawn Modes – Controlled by mobile APP / mini-program via Bluetooth:
 - Text program
 - User programming
 - Hand-drawn patterns

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