



**SOL MATRIX3000 MANUAL**

## 1.Display panel

Key definition:

Menu : selecting functions

Up: parameter increment

Down: parameter decrement

Confirm: Confirm and save



## 2.Menu function

After powering on, press the menu button and the menu menu will appear in sequence; Up or down key to modify function parameters, confirm key to save the current function and Parameters (with power down memory after saving).

A001 → A512	Modify the address code (A001~A512) up or down, confirm to save, default to A001.
C003 → C336	Switch up or down the three channels C003, C011, and C336, save with the confirm button, and default to C011.
I000 → I255	Modify the effect of character 1 up or down, and display it vertically centered (while using JXXX character 2 to the left). There are a total of 127 effects. Save with the confirm button, and default to I000.
J000 → J255	Modify the character 2 effect up or down, and display it horizontally in the center (with IXXX character 1 displayed to the right). There are a total of 127 effects, saved with the confirm button, and defaults to J000.
M000 → M255	There are 127 built-in effects (M000~M255, with every 2 values being one effect). Switch the built-in effects up or down, confirm to save, and default to M000.
S000 → S255	Modify the built-in effect running speed (S000~S255) up or down, confirm to save, default to S000.
K000 → K255	Modify the running direction of the built-in effect up or down (K000~K255, values 0~127, 128~255 in both positive and negative directions), confirm to save, default to K000.
L000 → L255	Modify the color of the built-in effect up or down, with 32 values for each color. The last 32 values will automatically change to 7 colors (during dynamic mode effects), with a default of L000.
R255 → R000	Modify the brightness of the red light bead up or down (R000~R255), confirm and save, default to R255.
G255 → G000	Modify the brightness of the green light bead up or down (G000~G255), confirm to save, and default to G255.
B255 → B000	Modify the brightness of the blue light bead up or down (B000~B255), confirm to save, and default to B255.
T000	Display temperature, such as T045 indicating that the current lamp temperature is 45°C; No 10K thermistor installed, displaying T000.

## 3.Master slave control

Two or more identical lighting fixtures are connected with a three core signal wire using a DMX. All lighting fixtures are set to any address code from A001 to A512, with any one set as the host and the other lighting fixtures as the slave. All slave display screens do not flash; When using the host to adjust the gradient, pulse, jump, voice control, and self-propelled effects, all slaves synchronize the gradient, pulse, jump, voice control, and self-propelled effects.

Special attention:

1. A set of lighting fixtures can only have one host. If there are multiple hosts, all lighting fixtures will flash randomly and not synchronously.
2. All lighting fixtures must be functional when the DMX512 console is turned off.

## 4.Factory settings

When entering any address code from A001 to A512, press the menu button for 5 seconds to enter the factory settings. The factory settings mainly include the output power of each lamp, fan setting mode, temperature protection point setting, and parameter sending functions. Press the menu button for 5 seconds to exit any mode set by the factory.

R255 → R032	Modify the red light bead current (R032-R255) up or down, confirm to save, and default to R220.
G255 → G032	Modify the green light bead current (G032-G255) up or down, confirm to save, default to G220.
B255 → B032	Modify the blue light bead current (B032-B255) up or down, confirm to save, default to B220.
FA-0 → FA-1	Fan setting: FAN0 light bead is on to start the fan, FAN1 reaches the set temperature protection point to start the fan, and the confirmation key is saved.
T040 → T070	Set the temperature protection point, modify the parameters up or down (40°C~70°C), and press the confirm button to save.
Send → Send	Send the factory setting parameters of the machine up or down to all other three core signal wires connected in parallel with the lighting fixtures (the display screen that is connected in 5 seconds flashes once to indicate successful transmission); Confirm sending parameters by pressing the menu button for 5 seconds Exit, deny parameters, press the confirm button to cancel sending.

## 5.DMX512 Console

After powering on, set the address codes of all lighting fixtures, and then connect all lighting fixtures in parallel with a three core signal wire to the DMX512 console. The address codes will stop flashing, indicating that the DMX512 console signal has been sent to the lighting fixtures. According to the channel instructions, use the DMX512 console to control the relevant functions.

C003	1	000-255	Red bead linear dimming
	2	000-255	Green bead linear dimming
	3	000-255	Blue bead linear dimming
C011	1	000-255	Total dimming
	2	000-255	Strobe
	3	000-255	Character 1, consisting of 127 numbers, letters, and symbols, displayed vertically centered (displayed to the left when using 4-channel character 1).
	4	000-255	Character 2, consisting of 127 numbers, letters, and symbols, displayed horizontally in the center (displayed to the right when using 3 channel character 2).
	5	000-255	Mode, with high priority over characters 1 and 2 (see: VI. Mode Effect)
	6	000-255	speed
	7	000-255	Direction bar, mode effect running direction (values 0~127, 128~255 in both positive and negative directions)
	8	000-255	Color bar, the color of the mode effect, with 32 numerical values for each color. The last 32 numerical values are automatically changed to 7 colors (effective during dynamic mode effects).
	9	000-255	Red Beads Linear Dimming
	10	000-255	Green Beads Linear Dimming
	11	000-255	Blue Beads Linear Dimming

C336	1	000-255	1st segment red bead linear dimming
	2	000-255	1st segment green bead linear dimming
	3	000-255	1st segment blue bead linear dimming
	...	...	...
	334	000-255	112th segment red bead linear dimming
	335	000-255	112th segment green bead linear dimming
	336	000-255	112th segment blue bead linear dimming

## 6.Mode effect

channel value	Mode code	Effect
0-1	0	No effect
2-3	1	Display numbers 0-9 vertically in the center. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.
4-5	2	Display the capital letters A~Z vertically in the center. You can push the direction bar or color bar to change the direction and color, and you can push RGB to change the background color.
6-7	3	Display the numbers 0-9 and capital letters A-Z horizontally in the center. You can push the direction bar or color bar to change the direction and color, and you can push RGB to change the background color.
8-9	4	Color selection, can be selected by pushing the color bar
10-11	5	Gradient
12-13	6	Pulse transformation
14-15	7	Jump
16-17	8	A single color column runs from left to right. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.
18-19	9	A single color column refreshes from left to right. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.
20-21	10	A single color column is stacked from left to right. You can push the direction bar or color bar to change the direction and color, and you can push RGB to change the background color.
22-23	11	The monochrome starts from the top left and fills in a serpentine shape around the center. You can push the direction bar or color bar to change the direction and color, and you can push RGB to change the background color.
24-25	12	Two monochrome V-shaped shapes can be moved up, down, left, and right. The direction and color can be changed by pushing the direction bar or color bar, and the background color can be changed by pushing RGB.
26-27	13	Two monochrome diamonds can be moved left and right, and the direction and color can be changed by pushing the direction bar or color bar. RGB can be pushed to change the background color.
28-29	14	A monochrome key pattern runs from left to right, and a monochrome heart-shaped pattern runs from right to left. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.
30-31	15	Some monochrome Chinese fonts are displayed from left to right, while the other monochrome Chinese fonts are displayed from right to left, forming the character "China". The direction and color can be changed by pushing the direction bar or color bar, and the background color can be changed by pushing RGB.
32-33	16	A single color bar moves from top to bottom, while the other red bar moves from right to left. You can push the direction bar or color bar to change the direction and color, and you can push RGB to change the background color.
34-35	17	The bilateral monochrome track moves from left to right. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.

36-37	18	The bilateral monochrome runway moves from left to right, and the direction and color can be changed by pushing the direction bar or color bar, and the background color can be changed by pushing RGB.
38-39	19	The monochrome arrow moves from left to right, and you can push the direction bar or color bar to change direction and color. You can also push RGB to change the background color.
40-41	20	The monochromatic pulse wave moves from left to right, and the direction and color can be changed by pushing the direction bar or color bar, and the background color can be changed by pushing the RGB.
42-43	21	A monochromatic tail starts from the top left and moves around in a serpentine shape towards the center. It can be changed by pushing a directional or color bar to change direction and color, and by pushing RGB to change the background color.
44-45	22	Four colors and four sine waves move from left to right. You can push the directional bar to change direction, and you can push RGB to change the background color.
46-47	23	From top left to bottom right, one color refreshes another color, and the direction can be changed by pushing the directional lever.
48-49	24	A single color column moves back and forth, causing deformation during movement. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.
50-51	25	The multi color gradient strip flows from left to right, and the direction can be changed by pushing the directional bar, and the background color can be changed by pushing RGB.
52-53	26	The multi color gradient strip flows from bottom to top, and the direction can be changed by pushing the directional bar, and the background color can be changed by pushing RGB.
54-55	27	Multi color gradient seven color flowing water, can be changed by pushing the directional lever.
56-57	28	Multi color gradient with flowing water from the bottom left corner to the top right corner. You can push the directional lever to change the direction.
58-59	29	Multi color gradient shrinks towards the middle, and RGB can be pushed to change the background color.
60-61	30	Multi color gradient spreads to the right
62-63	31	Multi color gradient bars are paved from top to bottom, and RGB can be pushed to change the background color.
64-65	32	The colorful sine wave moves from right to left, and the direction can be changed by pushing the directional bar, while the background color can be changed by pushing RGB.
66-67	33	The monochromatic sine wave moves from right to left, and can be changed by pushing the direction bar or color bar to change direction and color. RGB can also be pushed to change the background color.
68-69	34	Seven color sine up and down, can be pushed to change the direction of the directional bar, can be pushed to change the background color RGB,
70-71	35	Seven colors are sinusoidal, and the direction can be changed by pushing the directional bar, and the background color can be changed by pushing RGB.
72-73	36	Colorful gradient tail swing, can push the direction bar to change direction, can push RGB to change the background color
74-75	37	Multi color gradient with two ellipses extending outward, which can push RGB to change the background color,
76-77	38	Multi color gradient with a single elliptical extension, which can push RGB to change the background color.
78-79	39	Multi color gradient with individual ellipses retracted, RGB can be pushed to change the background color.
80-81	40	Multi color gradient with two circles extending outwards on the left and right, and RGB can be used to change the background color.
82-83	41	Multi color full color gradient square outer explosion.
84-85	42	The multi color gradient diamond circle expands outward.
86-87	43	Multi color gradient blocks can be expanded outward, and RGB can be pushed to change the background color.

88-89	44	Multi color gradient flashing up and down in the same direction and opposite to the center. The direction can be changed by pushing the directional bar, and the background color can be changed by pushing RGB.
90-91	45	Multi color gradient with a touch of light and shadow, you can push the directional bar to change direction, and you can push RGB to change the background color
92-93	46	Multi color gradient explosion, can push RGB to change the background color.
94-95	47	Multi color gradient, three color rotation, and square indentation.
96-97	48	Gradient multi-color rotating in both positive and negative directions, you can push the directional bar to change direction, and you can push RGB to change the background color.
98-99	49	Multi color gradient opens left and closes right. You can push the directional bar to change direction, and you can push RGB to change the background color.
100-101	50	Multi color gradient: Multiple blocks spread on both sides, and RGB can be pushed to change the background color.
102-103	51	Multi color gradient is scaled up and down, and RGB can be pushed to change the background color.
104-105	52	Multi color gradient with three ellipses extending outward.
106-107	53	The monochromatic gradient diamond wave moves outward, and the color bar can be pushed to change the color, while RGB can be pushed to change the background color.
108-109	54	The two color gradient diamond wave moves inward and can push RGB to change the background color.
110-111	55	The two color gradient diamond wave moves outward and can push RGB to change the background color.
112-113	56	Multi color gradient diamond inward shrink.
114-115	57	Multi color gradient diamond shaped explosion.
116-117	58	Multi color gradient with three blocks spreading, can push RGB to change the background color.
118-119	59	Single color gradient square with inward scaling, color bar can be pushed to change color, and RGB can be pushed to change background color.
120-121	60	Single color gradient square outer explosion, can push the color bar to change the color, can push RGB to change the background color.
122-123	61	The three color gradient square shrinks inward, and RGB can be pushed to change the background color.
124-125	62	Three color gradient square explodes outward, and RGB can be pushed to change the background color.
126-127	63	The three color gradient square is scaled inward, and RGB can be pushed to change the background color.
128-129	64	The three color gradient square explodes outward, and the RGB can be pushed to change the background color.
130-131	65	The three color gradient box shrinks inward, and RGB can be pushed to change the background color.
132-133	66	The three color gradient box is exploded, and RGB can be pushed to change the background color.
134-135	67	Multi color gradient square outer explosion, can push RGB to change the background color.
136-137	68	Multi color gradient square with indentation, can push RGB to change the background color.
138-139	69	Multi color gradient rectangles are indented, and RGB can be pushed to change the background color.
140-141	70	Multi color gradient rectangular outer explosion, can push RGB to change the background color.
142-143	71	Multi color gradient rectangular external expansion, can push RGB to change the background color.
144-145	72	Multi color full color gradient square with inner shrink.

146-147	73	Multi color full color gradient shrinks from top left.
148-149	74	Multi color full color gradient explodes from top left.
150-151	75	A single color bounces off a square. You can push the direction bar or color bar to change direction and color, and you can push RGB to change the background color.
152-153	76	A single color with a cross shaped bounce can be pushed to change direction and color, and RGB can be pushed to change the background color.
154-155	77	Two cross shapes collide with a single color, and the color bar can be pushed to change the color, while RGB can be pushed to change the background color.
156-157	78	Two monochrome squares collide, you can push the color bar to change the color, and you can push RGB to change the background color.
158-159	79	Two colors and two diamond shaped rebounds. You can push the directional bar to change direction and RGB to change the background color.
160-161	80	Two colors and two cross shaped bounces, you can push the directional bar to change direction, and you can push RGB to change the background color.
162-163	81	Two colors and two squares bounce back, you can push the directional bar to change direction, and you can push RGB to change the background color.
164-165	82	Three colors and three diamond shaped rebounds. You can push the directional bar to change direction and RGB to change the background color.
166-167	83	Three colors and three cross shaped bounces, you can push the directional bar to change direction, and you can push RGB to change the background color.
168-169	84	Three colors and three squares bounce back, you can push the directional bar to change direction, and you can push RGB to change the background color.
170-171	85	A monochromatic flame can be changed by pushing a directional or color bar to change direction and color, and RGB can be pushed to change the background color.
172-173	86	Multi color gradient flame one, can be pushed to change the direction of the directional bar, and can be pushed to change the background color with RGB.
174-175	87	Multi color gradient flame 2, can push the direction bar to change direction, and can push RGB to change the background color.
176-177	88	Business is booming, you can push the directional bar to change direction, and you can push RGB to change the background color.
178-179	89	Single color gradient with two leaves rotating counterclockwise, you can push the color bar to change the color, and you can push RGB to change the background color.
180-181	90	The two leaves of a monochrome gradient rotate clockwise, and the color bar can be pushed to change the color, while RGB can be pushed to change the background color
182-183	91	Single color gradient four leaf counterclockwise rotation, can push the color bar to change the color, can push RGB to change the background color.
184-185	92	Single color gradient four leaves rotate clockwise, can push the color bar to change the color, can push RGB to change the background color.
186-187	93	Two color gradient four leaf counterclockwise rotation, can push RGB to change the background color.
188-189	94	Two color gradient four leaves rotate clockwise, and RGB can be pushed to change the background color.
190-191	95	The three color gradient diamond block shrinks inward, and RGB can be pushed to change the background color.
192-193	96	The three color gradient diamond block explodes outward and can be pushed to change the background color using RGB.
194-195	97	The three color gradient diamond shrinks inward, and RGB can be pushed to change the background color.
196-197	98	Three color gradient diamond shape explodes outward, and RGB can be pushed to change the background color.
198-199	99	Multi color gradient oval shaped outer explosion, can push RGB to change the background color.

200-201	100	Multi color gradient oval inward shrink, can push RGB to change the background color.
202-203	101	Multi color gradient semi diamond shape expands outward, and RGB can be pushed to change the background color.
204-205	102	Multi color gradient semi diamond shape shrinks inward, and RGB can be pushed to change the background color.
206-207	103	Multi color gradient: A single diamond expands outward, and RGB can be pushed to change the background color.
208-209	104	Multi color gradient with a single diamond shape shrinking inward, can push RGB to change the background color.
210-211	105	Multi color gradient half sided diamond collides with two heads, and RGB can be pushed to change the background color.
212-213	106	Single color scattered filling, can be changed by pushing the direction bar or color bar to change direction and color, and RGB can be pushed to change the background color.
214-215	107	Seven colors scattered filling, can be pushed to change direction with the directional bar, and can be pushed to change the background color with RGB.
216-217	108	Colorful gradient stars flicker, and RGB can be pushed to change the background color.
218-219	109	Colorful gradient scattered, can be pushed to change the direction of the directional bar, can be pushed to change the background color RGB.
220-221	110	Monochrome scattering, can be changed by pushing the direction or color bar to change direction and color, and RGB can be pushed to change the background color.
222-223	111	The gradient six colors are filled from top left to bottom right, while filling from top right to bottom left. The direction can be changed by pushing the directional bar.
224-225	112	The gradient six colors are filled from bottom left to top right, while filling from bottom right to top left. The direction can be changed by pushing the directional bar.
226-227	113	Gradient three colors fill from top left to bottom right, while filling from top right to bottom left. You can push the directional bar to change the direction.
228-229	114	Gradient three colors fill from bottom left to top right, while filling from bottom right to top left. You can push the directional bar to change the direction.
230-231	115	Multi color gradient flight,
232-233	116	Multi color gradient flight dive,
234-235	117	Multi color gradient arrows spread from bottom to top and outward,
236-237	118	The three color gradient spiral rotates counterclockwise inward and can change the background color by pushing RGB.
238-239	119	The three color gradient spiral rotates inward in a clockwise manner, and RGB can be pushed to change the background color.
240-241	120	Gradiently rotate the three color spiral waveform outward in a clockwise manner. You can push the directional bar to change direction, and you can push RGB to change the background color.
242-243	121	Multi color gradient spirals inward, and RGB can be pushed to change the background color.
244-245	122	Two color gradient with two spirals on the left and right. You can push the directional bar to change direction and RGB to change the background color.
246-247	123	Music spectrum one, can push the directional bar to change direction, can push RGB to change background color.
248-249	124	Music Spectrum 2, can push the directional bar to change direction, and can push RGB to change the background color.
250-251	125	Multi color gradient multi effect collection.
252-253	126	Voice control mode,
254-255	127	Mode codes 5-125 cycle.

## 7. Technical Parameter

Voltage: AC100~240V 50/60HZ

Power: 400W

Lamp beads: 1008 5050 three color LED lamp beads

Control mode: DMX512, self-propelled, master-slave, voice control, with RDM function.

Channels: C003, C011, C336

Dimming: 32bit 0-100% linear dimming

Features: 112 segments of horse racing+dyeing+explosive flashing

Working temperature: -30 °C~50 °C

Strobe frequency: 1-30Hz

Appearance: Metal, black

Connection method: DMX512 input/output/power input/output.

IP level: IP65

## 8. Routine maintenance

Attention! Excessive dust, smoke flow, and damage caused by abnormal use are not covered by the warranty. Warning! Turn off the power before opening any covers.

### ● Clean

Optical components should be lightly rubbed, and the coating surface is very brittle and easy to scratch. Do not use destructive solvents, otherwise it will damage the plastic or coating surface.  
Note: Reset the channel value to its active range for 5 seconds before executing the action.

### ● Cleaning optical components

1. After cutting off the power, cool thoroughly and open the cover;
2. Use a vacuum cleaner or pressure blower to gently blow away dust and floating objects;
3. Use odorless cotton paper or a cotton cloth soaked in clean water or distilled water to wipe off particles, do not wipe the surface, and use pressure gas to blow away floating objects
4. Use cotton cloth or odorless cotton paper soaked in propanol to remove smoke and residue, or use a glass cleaner, But the residue must be removed with distilled water, wiped in circles from the center to both sides, and then wiped dry with a soft cotton cloth

### ● Clean the fan and air holes

Use a soft brush, cotton paper, air cleaner, or pressure blower to remove dust from the fan and air holes.

## 9. Fault handling

The lamp contains professional components such as microcomputer circuit boards and high-voltage power supplies. For your safety and product lifespan, Non professionals are not allowed to dismantle lamps and related accessories without authorization.

### ● The beam appears dim

Possible cause: The bulb has been used for a long time or the light path is not clean, and the following measures should be taken:

Check if the bulb has reached its service life and replace it with a new one;  
Check whether the optical components or bulbs are clean, and whether there is dust accumulation on the optical components such as bulbs. Regular cleaning and maintenance of the bulbs and various components inside the lamp should be carried out.

### ● Intermittent operation of lighting fixtures

Possible reason: The internal circuit has entered a protected state, and the handling is as follows:  
Check if the fan is operating **normally** or getting dirty, causing an increase in internal temperature of the lamp;  
Check if the internal temperature control switch is in a closed state;  
Check if the bulb has reached its service life and replace it with a new one.

### ● After the lamp is reset normally, it does not accept control from the console

Possible cause: Signal line malfunction or abnormal lamp parameter settings, the following measures should be taken:  
Check the starting address code and the connection of the DMA signal cable  
(whether the signal cable is intact and whether the connector is loose);  
Add a signal amplifier and a 120 ohm terminal resistor;

### ● Lamp cannot be activated

Possible cause: Poor power circuit, treatment as follows:  
Check if the fuse on the power input socket is blown and replace the fuse;  
Poor contact of lighting fixtures due to vibration during long-distance transportation  
Check the input power supply, computer board, and other plug-in devices.

## 10.Security information

The products are packaged in good condition when leaving the factory.  
Please follow the user manual for operation, as it may be caused by human factors  
The machine malfunction is not covered by the warranty.

▲ The light source inside this lamp should be replaced by the manufacturer or its service agent or someone with similar qualifications. If the exterior of this lamp If the flexible cable or cord is damaged, it should be replaced by a qualified person from the manufacturer or its service agent to avoid danger

▲ After receiving the lamp, please unpack and check for any damage caused by transportation. If there is any damage, do not use this lamp,  
And quickly contact suppliers or manufacturers.

▲ This product is suitable for indoor use, with a protection level of IP20.

Luminaires should be kept clean to avoid exposure to moisture or excessive dust  
When used in an environment, maintenance should be carried out every three months.

▲ Qualified professionals are only allowed to install, operate, and maintain lighting fixtures, and ensure strict adherence to the procedures described in this manual.

▲ The lighting fixtures should be installed in a well ventilated area, at least 50CM away from the wall, and the ventilation holes should be checked for smoothness.

Do not look directly at the light source to avoid damage to the eyes.

▲ Please do not turn on the lamp for self repair.

▲ The electrical connections must be operated by qualified installation personnel.

▲ Each lamp should be securely grounded and electrically installed in accordance with relevant standards.

▲ Do not use power cords with damaged insulation layer, and do not place the power cord on other wires. When the lamp is not in use or clean, please unplug the power cord and do not forcefully plug or drag the power cord directly.

▲ If the back cover of the lamp is equipped with a safety buckle or connection hole, for safety reasons, please use a safety rope to penetrate the connection hole for auxiliary lifting.

▲ There are no user repairable components inside this lamp. Before starting to operate the lamp, please check whether all parts are properly connected and whether the screws are reliable and secure.

▲ If you have any further questions, please contact the supplier or manufacturer in a timely manner and return the product with the original packaging stating the reason for the defect

## 11.Lamp connection

Power connection (power and fuse configurations are shown in the table below)

power supply	fuse
100V-240V~	T5A, 250V

Do not connect too many lighting fixtures or overload a single power cord.  
Do not use power cords with damaged insulation, and do not lay the power cord on other wires.  
When the lamp is not in use or cleaned, please unplug the power cord.  
Do not forcefully unplug or drag the power cord directly.

### Signal Connection



### DMX512 Connect

In order to reduce signal errors and avoid signal attenuation and interference during transmission, it is recommended to use the add a 120 ohm 1/4W resistor between the 2-core and 3-core outputs of the DMX.

Connect the lamp with an XLR signal cable, with one end connected to the output port of the lamp and the other end connected to the input port of the next lamp.

Signal wires can only be used in series and cannot be connected in parallel.  
Because the DMX512 signal transmission speed is very fast, when the signal line is damaged and the welding joint is not secure, Poor contact, etc., can affect signal transmission and cause the system to shut down.

When the machine power supply of a certain unit is disconnected, the connection between the output and input of the DMXs is bypassed to maintain the connection of the DMXs line

Each lamp must have an address code that can receive messages from the control console.  
The terminal of the DMX512 system needs to be equipped with a terminal to reduce signal transmission errors.

## 12.Dimension

