

# Specification

**Model:** M931DB / MG21DB

## **Description:**

M931DB: 1pcs 3535 SMD LED, 64\*40\*22.5mm, high-pressure injection series with lens and white exterior casing, 12Vdc constant current, 1.2W LED module

MG21DB: 1pcs 3535 SMD LED, 64\*43\*24.5mm, high-pressure injection series with lens, white exterior casing and radiator, 12Vdc constant current, 2.7W LED module

# Specification

**Product Name:** LED Module

**Model:** M931DB / MG21DB

M931DB



MG21DB



## Applications

Suitable for 7~20cm [2.75~7.87in] depth single-sided light box, or 8~40cm [3.14~15.74in] depth double-sided light box, at airport, subway, bus station and shopping mall etc.

## Features

Adopt Anti-flaming engineering plastics as exterior casing guarantees high reliability;

3535 flip chip LED with super luminous efficiency;

Al substrate is integrated with Al profile makes excellent heat dissipation;

Constant current driving technology ensures homogeneity in lighting and stable performance;

UL, CE, RoHS compliant, and also equipped with report from Bureau of Quality Supervision, IP65.

## Installation

Via self-adhesive back and further fixed by screws

Can be cut between every single module

## Warranty

5 years or 22000 hours, whichever comes first.

## Optical and Electrical Parameters:

P/N	LED Color	Color Temperature(K)	Beam Angle (°)	Luminous Flux (lm/piece)	CRI	Luminous Efficacy (lm/W)	Working Voltage (V DC)	Working Current (mA/piece)	Power (W/piece)
M931DB	neutral	7000	12*47	124	≥ 70	103	12	100	1.2
MG21DB	white		12*47	254	≥ 70	94	12	225	2.7

## Others:

P/N	LED Color	Standard cascading qty (pcs)	Max. cascading qty		a single module weight		Operating Temperature		Storage Temperature		IP Grade
			Single-ended (pcs)	Double-ended (pcs)	(g)	(lb)	(°C)	(°F)	(°C)	(°F)	
M931DB	white	30	30	/	30	0.066	-25	-13	-25	-13	IP65
MG21DB		20	20	/	41	0.091	~ +60	~ +140	~ +70	~ +158	

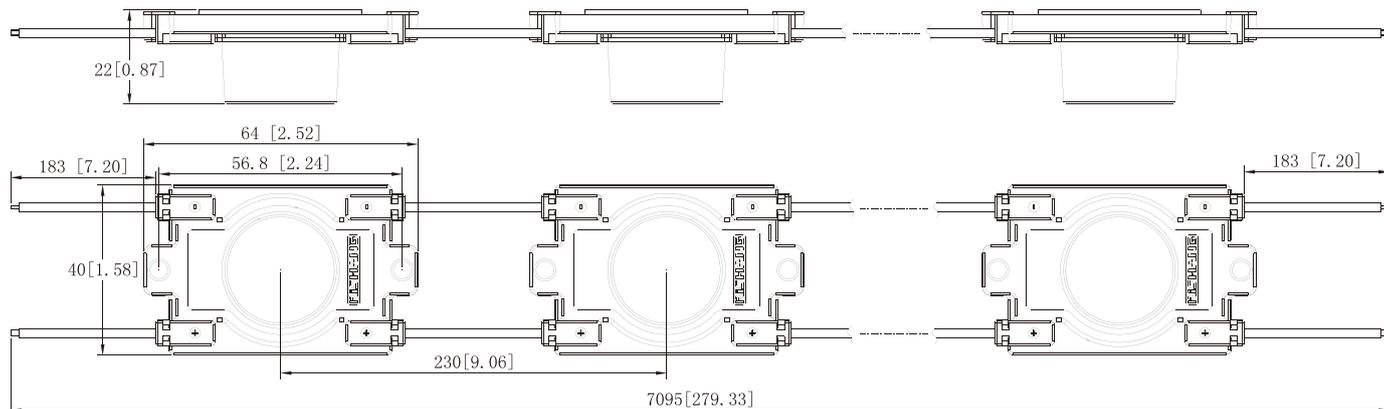
## Notes:

Testing environment temperature: 25±2°C[77±3.6°F];

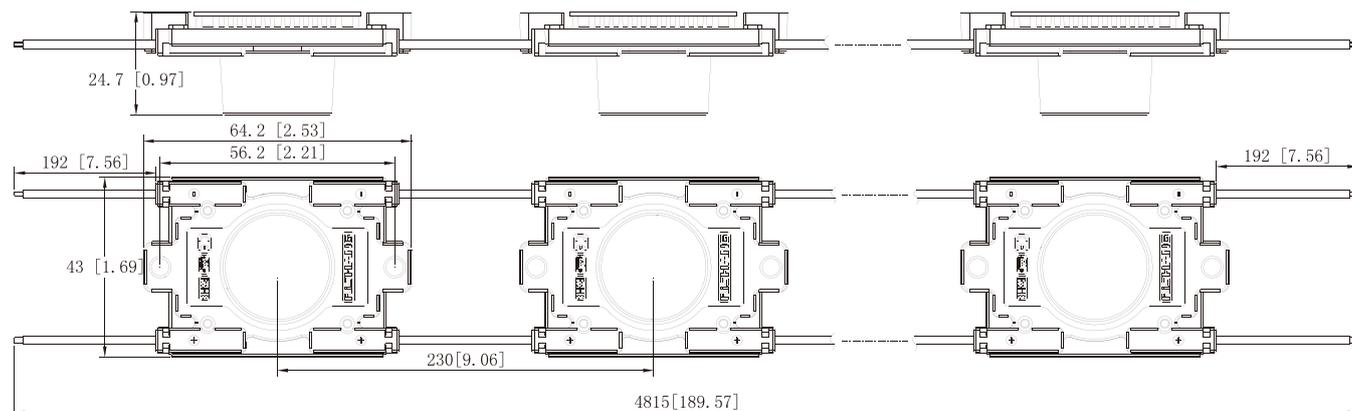
The above data are typical values; the actual data of each single product could differ from the typical values. The data subject to change without prior notice.

# Profile Drawings:

Unit: mm[in]

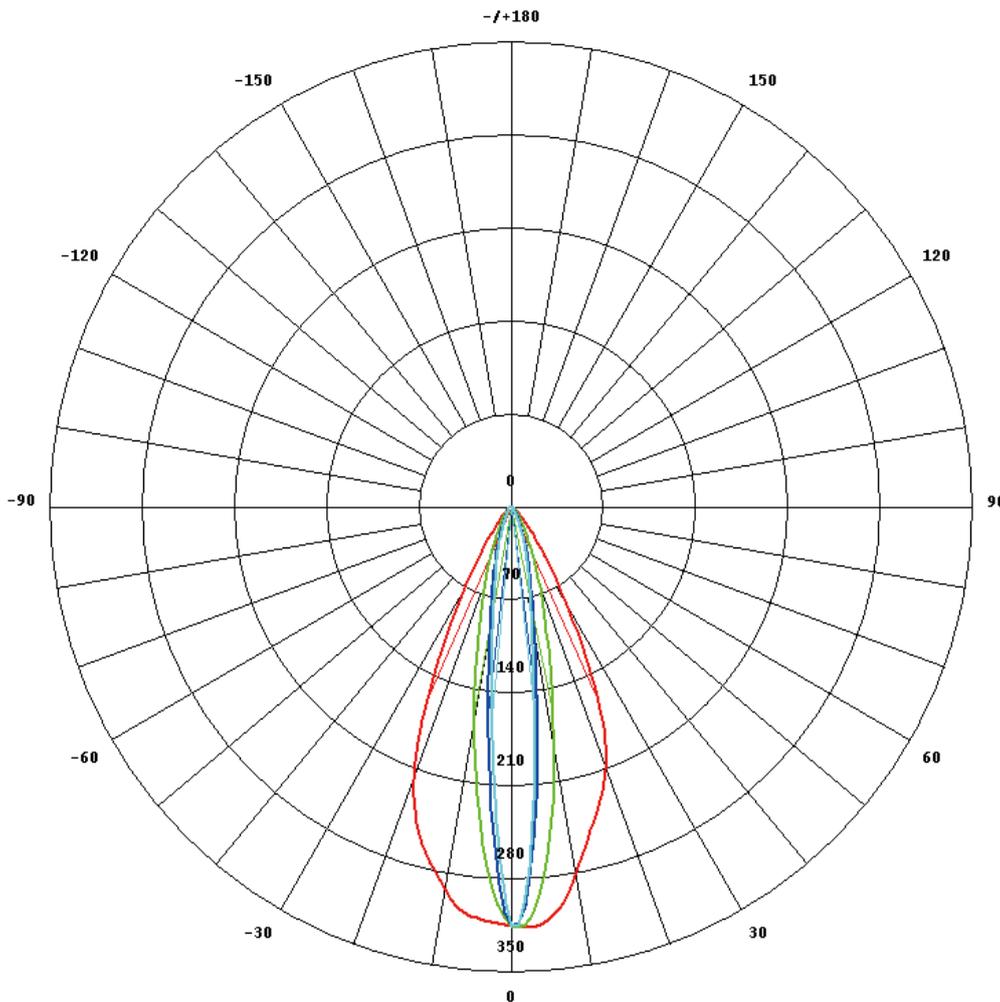


**M931DB**

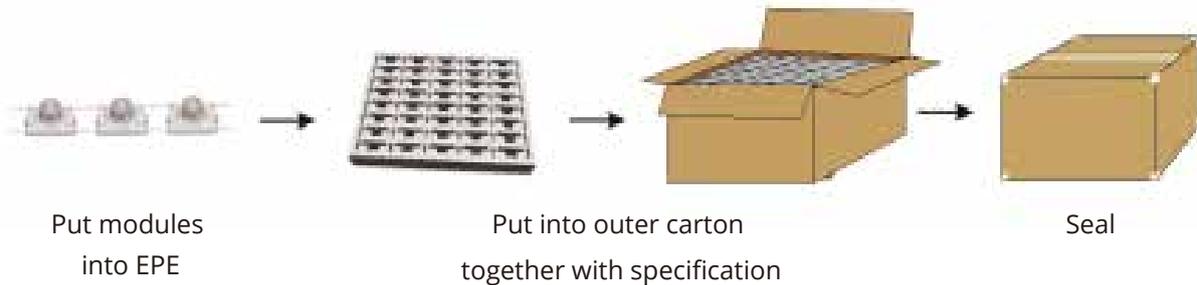


**MG21DB**

# Light Distribution:



## Packaging Diagrams (MG21DB/ M931DB):



### Packaging Information(MG21DB):

Cascading qty is 20pcs, 40pcs per EPE, 6 EPE per carton, makes 240pcs in total per outer carton;

Outer Carton: 49.5\*34.5\*34.5cm =0.058(1±10%)CBM [19.48\*13.58\*13.58in];

Net Weight(N.W): 9.7 (1±10%)kg [21.38(1±10%)lb];

Gross Weight(G.W): 10.3(1±10%)kg [22.11(1±10%)lb];

The actual packed quantity and weight may subject to change without prior notice.

### Packaging Information (M931DB):

Cascading qty is 30pcs, 60pcs per EPE, 7 EPE per carton, makes 420pcs in total per outer carton;

Outer Carton: 49.5\*49\*38cm =0.092(1±10%)CBM [19.48\*19.29\*14.96in];

Net Weight(N.W): 12.6 (1±10%)kg [27.77(1±10%)lb];

Gross Weight(G.W): 13.2(1±10%)kg [29.10(1±10%)lb];

The actual packed quantity and weight may subject to change without prior notice.

# LED Modules User Manual



M931DB



MG21DB



Please carefully read before use and keep properly. Thank you for your purchase!

V 1.0

- This product is suitable for use in dry, damp and wet locations.
- This product is only suitable for connection to a circuit from a Class 2 power source.
- This is high power module, which is not available in double-ended feed from power supply
- This product has not been evaluated for use when connected to a power source that does not comply with Class 2 voltage and energy limited supplies.
- This product is not required to be enclosed or protected from weather.

### Warranty:

Model No.	Warranty
M931DB / MG21DB	5years or 22000 hours, whichever come first!

Additional Remarks:  
Above warranty period is only for products which are used inside of light box.

### Declaration:

- If the external flexible cable of light box is damaged, please replace it by its manufacturer or service agent or qualified person to avoid a hazard.
- The given data in this manual is based on our standard product. There may be existed varies with the actual delivery products. Please refer to the measure data for the actual product.
- All illustrations in this user manual are for reference only and please refer to the received goods.
- The product is subject to change or modify without prior notice.

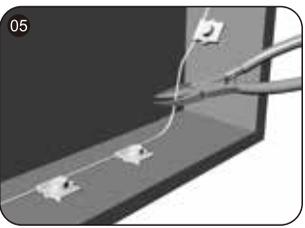
Brightness of LED is dark or not even	1. The loading of power supply is overloaded.	Use more supplies or replace it with high-power supply.
	2. The line loss of switching mode power supply is too big or the line loss among circuits is quite uneven.	Ensure input voltage to modules are within $\pm 5\%$ of rated voltage (1. Shorten the length of wires between the modules to power supply or use wires of big diameter; 2. Check and ensure the cascaded quantity of modules can't exceed the maximum cascade quantity which allowed; and the quantity for each electrical circuit are the same or the difference can't exceed 3 modules between strings.
	3. Modules cascaded too many per the strings.	Adjust module quantity of each power branch to make sure each power loop is within the maximum allowed cascade requirement.
LEDs are blinking	1. Poor contacted in the joints.	Find out the malfunction and remove it immediately.
	2. Failures in the power supply.	Replace the power supply.

### Cautions:

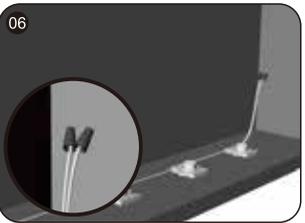
1. Cautions for Installation and Using:
  - 1.1 Please check and ensure that the anode & cathode for the module's wires are connected to power supply output's anode & cathode accordingly. Otherwise, the product can not work normally.
  - 1.2 Double-sided adhesive tape is only used for preliminary fixing. Please use the screws or the neutral silicon sealant to fasten the modules, otherwise, defects will be caused, such as product shift, fall off and so on.
  - 1.3 The maximum cascade quantity of M931DB is 30 PCS, The maximum cascade quantity of MG21DB is 20 PCS, prohibited to exceed this limitation in actual using.
  - 1.4 Please dispose the exposed wire and the joints with insulation, waterproof and anti-corrosion.
2. Cautions for other parts selected:
  - 2.1 Please ensure that the output voltage of using power supply is  $12 \pm 5\%$  VDC, and the rated power must be reserved 20% than the actual loading.
  - 2.2 The using power supply must pass safety certification which have protection function in short-circuit, over-voltage and over-current.
  - 2.3 During installing, please ask qualified person to count and select the suitable cable according to diameter and length when the connecting cable need to be extended, otherwise, low input voltage to product, fire hazard due to overheat cable will be caused.

### Warning:

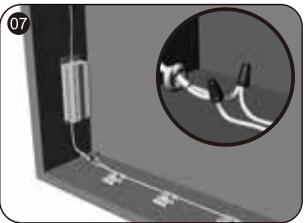
- Prohibited to disassemble, modify this product.
- Prohibited to operate the product during power on.
- Prohibited to use any organic chemical solvents to contact this product directly or indirectly.
- Installation, repair, maintain must be operated by professional persons. Prohibited to operate it by unprofessional person.
- Prohibited to use any acid or alkaline adhesive to fix this product.
- This product will generate heat during working, must choose material with good cooling performance and installation density must be taken into consideration.



- Cut off modules to the desired qty, and peel off the insulation skin of wire about 10mm.
- ⚠ Note: Please cut the wire in the middle.



- When the wires exposed in the last module, please peel off the insulation skin of wire about 10mm, then, screw in terminals respectively, and please dispose the joints with waterproof and anti-corrosion.



- When connect to external power supply, please ensure that the wire's anode & cathode in the first module are connected with the cable of power supply correctly and dispose with waterproof, short-circuit and anti-corrosion.

### Troubles Shooting:

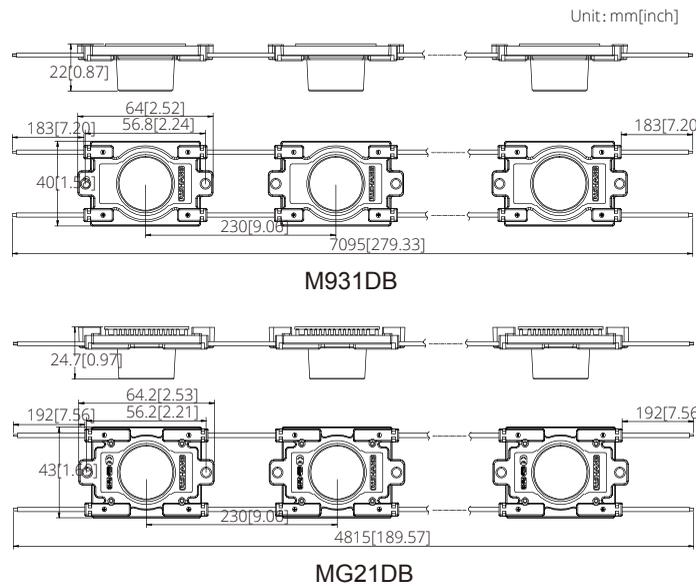
Malfunction & Solution Table		
Malfunctions	Possible Causes	Solutions
All LEDs don't work	1. The power supply didn't connect to the power grid.	Power on.
	2. The power supply is auto protected because output is short circuited.	Remove the malfunction and power on again.
	3. The input of modules to the output of power supply are connected reversely.	Check the connection and ensure the wires are connected correctly.
Part of LEDs don't work	1. Some power supplies have no output.	Check the power supply and remove malfunctions.
	2. Part of modules is wrongly connected to power supply.	
	3. Several modules are connected reversely.	Connect the wires correctly.

**Model No. & Specifications:**

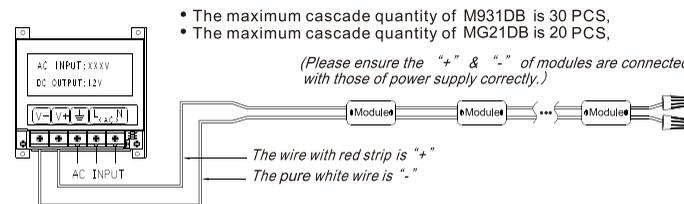
Model No.	M931DB	MG21DB
LED Color	White	
IP Code	IP65	
Rated Power(W/Piece)	1.2	2.7
Rated Working Voltage (V DC):	12	
Operating Temperature(°C[°F]):	-25~+60[-13~+140]	
Storage Temperature(°C[°F]):	-25~+70[-13~+158]	

Application range: 80~400mm [2.75~7.87in] depth double-sided light box, or 70~200mm [3.14~15.75in] depth single-sided light box

**Profile:**

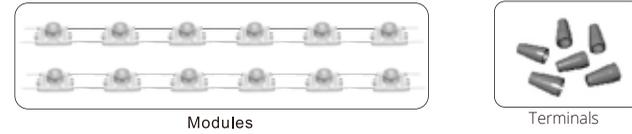


**Connecting Instruction:**



**Parts&Tools :**

**1. Product Spare Parts:**

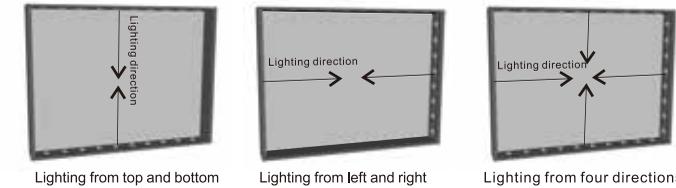


**2. Self-provided Tools & Material:**



**Installation Example:**

**Application & Installation Diagram:**



**Reference Scheme**

**Model: M931DB**

Light box thickness (mm/in)	140[5.51]	180[7.09]	220[8.66]	260[10.24]	300[11.81]	Remark
70[2.76]	503	459	415	371	335	1.5*2M[4.92*6.56ft]Double-sided light box, 1.5M[4.92ft] Kumite glow
110[4.33]	332	330	271	249	218	
150[5.91]	223	202	187	168	154	
190[7.48]	189	175	160	146	134	
230[9.06]	152	140	125	110	102	

Note:Using 3M-P2 light cloth;light transmittance 40%.

Light box thickness (mm/in)	140[5.51]	180[7.09]	220[8.66]	260[10.24]	300[11.81]	Remark
70[2.76]	397	362	317	288	263	1.5*2M[4.92*6.56ft]Double-sided light box, 2M[6.56ft] Kumite glow
110[4.33]	264	228	224	206	182	
150[5.91]	183	172	153	136	129	
190[7.48]	144	131	118	111	102	
230[9.06]	116	108	96	92	85	

Note:Using 3M-P2 light cloth;light transmittance 40%.

Light box thickness (mm/in)	140[5.51]	180[7.09]	220[8.66]	260[10.24]	300[11.81]	Remark
70[2.76]	924	808	723	663	608	1.5*2M[4.92*6.56ft]Double-sided light box, Rally around the light
110[4.33]	598	511	491	454	413	
150[5.91]	408	364	339	311	290	
190[7.48]	335	309	284	256	242	
230[9.06]	277	253	230	204	188	

Note:Using 3M-P2 light cloth;light transmittance 40%.

lighting pattern	0.6M[1.96ft]Lighting up and down	0.9M[2.95ft]About lighting	Around the polishing	Remark
70[2.76]	920	577	1481	900*600*100mm [2.95*1.96*0.32ft] light box
110[4.33]	579	411	/	
150[5.91]	/	/	/	

Note: Using milky white acrylic;light transmittance 54%.

lighting pattern	0.8M[2.62ft]Lighting up and down	1M[3.28ft]About lighting	Around the polishing	Remark
110[4.33]	950	823	1828	1000*800*80mm [3.28*2.62*0.26ft] light box
150[5.91]	/	411	1216	
190[7.48]	/	/	957	
190	/	/	/	

Note: Using milky white acrylic;light transmittance 54%.

**Model: MG21DB**

Light box thickness (mm/in)	140[5.51]	180[7.09]	220[8.66]	260[10.24]	300[11.81]	Remark
70[2.76]	1026	899	819	765	687	1.5*2M[4.92*6.56ft]Double-sided light box, 1.5M[4.92ft] Kumite glow
110[4.33]	686	605	547	509	457	
150[5.91]	442	431	391	350	325	
190[7.48]	389	342	317	290	281	
230[9.06]	299	277	258	236	209	

Note:Using 3M-P2 light cloth;light transmittance 40%.

Light box thickness (mm/in)	140[5.51]	180[7.09]	220[8.66]	260[10.24]	300[11.81]	Remark
70[2.76]	771	716	648	593	540	1.5*2M[4.92*6.56ft]Double-sided light box, 2M[6.56ft] Kumite glow
110[4.33]	537	506	458	416	395	
150[5.91]	364	329	311	292	266	
190[7.48]	322	278	253	229	214	
230[9.06]	258	230	219	211	182	

Note:Using 3M-P2 light cloth;light transmittance 40%.

Light box thickness (mm/in)	140[5.51]	180[7.09]	220[8.66]	260[10.24]	300[11.81]	Remark
70[2.76]	1814	1662	1481	1360	1226	1.5*2M[4.92*6.56ft]Double-sided light box, Rally around the light
110[4.33]	1231	1122	1031	947	866	
150[5.91]	809	775	707	649	615	
190[7.48]	712	636	578	535	497	
230[9.06]	568	513	471	450	400	

Note:Using 3M-P2 light cloth;light transmittance 40%.

lighting pattern	0.6M[1.96ft]Lighting up and down	0.9M[2.95ft]About lighting	Around the polishing	Remark
70[2.76]	1991	1117	3129	900*600*100mm [2.95*1.96*0.32ft] light box
110[4.33]	/	/	2111	
150[5.91]	/	/	1784	

Note: Using milky white acrylic;light transmittance 54%.

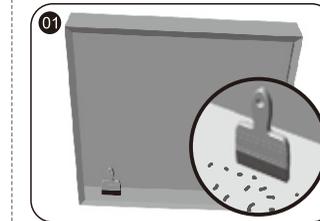
lighting pattern	0.8M[2.62ft]Lighting up and down	1M[3.28ft]About lighting	Around the polishing	Remark
70[2.76]	2124	1523	3584	1000*800*80mm [3.28*2.62*0.26ft] light box
110[4.33]	/	/	2644	
150[5.91]	/	/	/	
190[7.48]	/	/	/	

Note: Using milky white acrylic;light transmittance 54%.

**Remark:**

- Above illumination is average illumination when surface is uniform;
- All above layout data are tested from product with 6000K color temperature;
- "/" means uneven lighting;
- All above data are for reference.

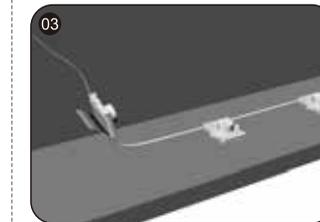
**Installation Steps**



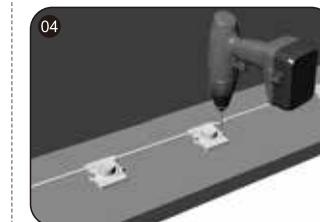
- Clean the installing surface.



- Mark the installing place for modules and determine the needed quantity, remain centered installation.



- Peel off the release paper of double-sided adhesive tape on the back of modules, then, stick modules on the installing surface for preliminary mounting.



- Adjust and press the module to the best position and then fasten by screws one by one.