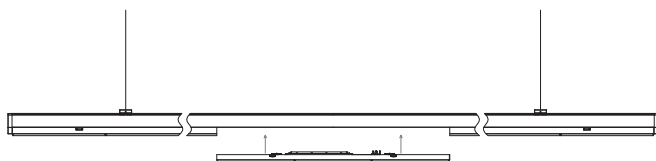


LED LINEAR TRUNKING SYSTEM



User Manual 20.0

Content

- Safety Warning Page 1

- Maximum number of interconnected module..... Page 2

- System Overview Page 3

- System introduction Page 4-15
 - Trunking Rail Page 4

 - Luminaire Module Page 5

 - T11 Female Connector Page 6

 - Sensor Module Page 7

 - Emergency Module Page 8-9

 - Accessories Page 10-15

- Installation tools Page 16

- Installation steps Page 17-32

- Annex 1: model number interpretation Page 33

Safety warning

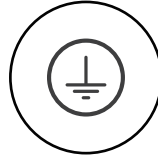


1. Make sure you understand all contents of this manual before installation.



Qualified

2. Qualified electrician is required for installation, replacement and test on light source or whole lamp.



3. Class I equipment. Must be earthed correctly.



4. Disconnect power before installation or maintenance.



5. Maximum current of main supply circuit is 16A.

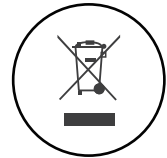


Indoor use

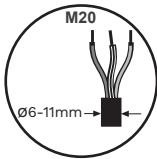
6. For indoor use only.



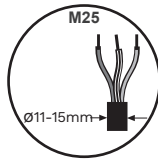
7. Caution, risk of electric shock.



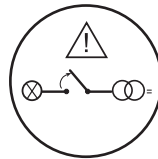
8. Do not dispose carelessly. Use separate collection facilities.



9. Cable diameter for M20 cable gland is min. 6 mm, max 11 mm



10. Cable diameter for M25 cable gland is min. 11 mm, max 15mm



11. Power should be always turned off uring installation. LED module installation under live trungring rail is forbidden!

For power cord please use H07RN-F. The diameter of power cord shall be 1.5mm² for main supply and 1.0mm² for signal at least.

By using 1.5mm² power cord for main supply, the maximum current / wattage of a circuit is 10A / 2000W. The total load in this circuit shall not over the maximum current / wattage.

By using 2.5mm² power cord for main supply, the maximum current / wattage of a circuit is 16A / 3200W. The total load in this circuit shall not over the maximum current / wattage.

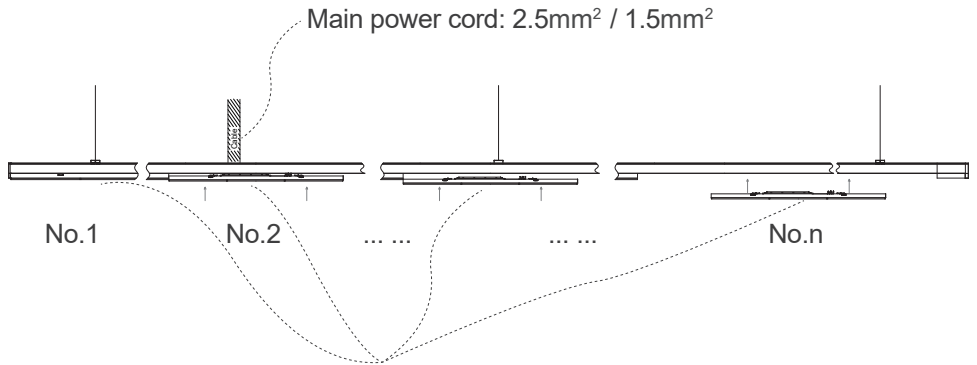
Any additionally used terminal box shall be approved according to EN 60998-2-1 or EN 60998-2-2; and shall comply with below specification:

1. the type of terminal (screw/screwless);
2. number of terminals (3 terminals for L,N,G connection at least);
3. rated voltage (>450 V);
4. rated connecting capacity (0.75-2.5mm²);
5. the wire end must be clamped by crimp terminal wire connector to prevent the free wire of conductor escaping;
6. the terminal block must be protected against of electric shock;

Maximum number of interconnected luminaires

By using 2.5mm² power cord for main supply, the maximum wattage of a single circuit is 3200W.

By using 1.5mm² power cord for main supply, the maximum wattage of a single circuit is 2000W.



Luminaire modules: 1 ... 2 ... 3 ... n.

“n” stands for maximum number of interconnected luminaire modules

Model	Wattage	n (for 2.5mm ² supply cord)	n (for 1.5mm ² supply cord)
LTS.x.LM.2V5F_40cc_dee_ffgh	40W	80pcs	50pcs
LTS.x.LM.2V5F_50cc_dee_ffgh	50W	64pcs	40pcs
LTS.x.LM.2V5F_65cc_dee_ffgh	65W	49pcs	30pcs
LTS.x.LM.2V5F_80cc_dee_ffgh	80W	40pcs	25pcs
LTS.x.LM.2V8F_80cc_dee_ffgh	80W	40pcs	25pcs
LTS.x.LM.2V8F_100cc_dee_ffgh	100W	32pcs	20pcs
LTS.x.LM.2V8F_120cc_dee_ffgh	120W	26pcs	16pcs
LTS.x.LM.2V8F_140cc_dee_ffgh	140W	22pcs	14pcs

Model	Wattage	n (for 2.5mm ² supply cord)	n (for 1.5mm ² supply cord)
LTS.x.LM.2V10F_100cc_dee_ffgh	100W	32pcs	20pcs
LTS.x.LM.2V10F_120cc_dee_ffgh	120W	26pcs	16pcs
LTS.x.LM.2V10F_140cc_dee_ffgh	140W	22pcs	14pcs
LTS.x.LM.2V10F_160cc_dee_ffgh	160W	20pcs	12pcs

“x” stands for product line: “CG1” stands for CLine@G1, “CG2” stands for CLine@G2, “EL” stands for ELine, “SL” stands for SLine.

System overview



Seamless



Cable channel



Ring end



Fixing end



Pigtail hook



Chain



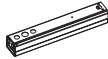
Endcap



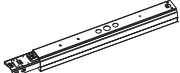
Cable gland



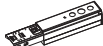
Sibox



Slifeed



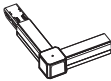
Midfeed



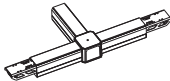
Endfeed



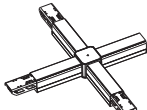
ITS



L Connector



T Connector



X Connector

Trunking Rail

Luminaire Module

Luminaire Module

Blank Cover

Track Rail Module

Spotlight Module

Daisy Module

Emergency Module A

Emergency Module B

Sensor Module

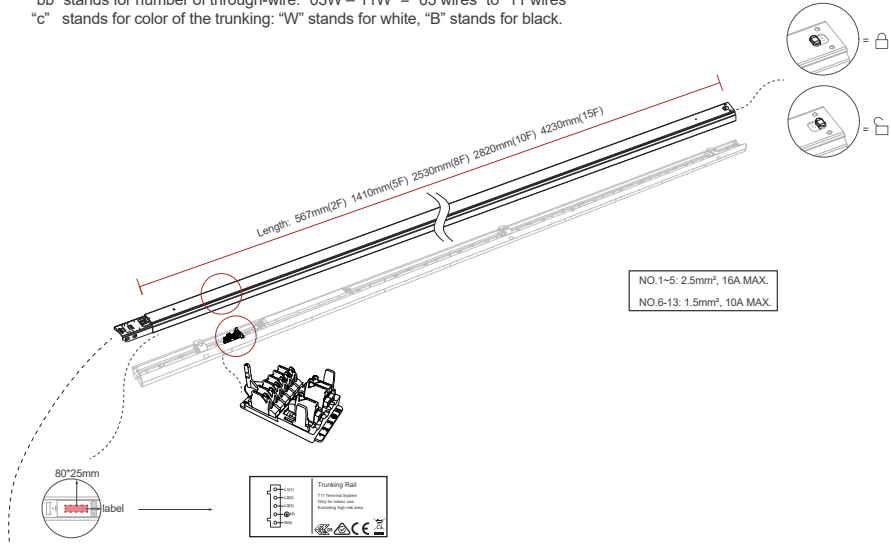
Trunking Rail

1. LTS.x.TR.aa_bbc

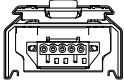
"aa" stands for the length of the trunking rail: "5F" stands for 1.5m, "10F" stands for 2.9m, "15F" stands for 4.5m;

"bb" stands for number of through-wire: "03W – 11W" = "03 wires" to "11 wires"

"c" stands for color of the trunking: "W" stands for white, "B" stands for black.

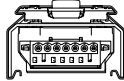


The content is only for demonstration use!



5 Wires

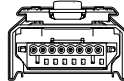
NO.1-5	Trunking Rail
NO.1-5	11 Terminal Systems
NO.1-5	Only for indoor use
NO.1-5	Including high volt. area



6 Wires
7 Wires

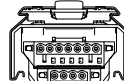
NO.1-6	Trunking Rail
NO.1-6	11 Terminal Systems
NO.1-6	Only for indoor use
NO.1-6	Including high volt. area

NO.1-7	Trunking Rail
NO.1-7	11 Terminal Systems
NO.1-7	Only for indoor use
NO.1-7	Including high volt. area



8 Wires

NO.1-8	Trunking Rail
NO.1-8	11 Terminal Systems
NO.1-8	Only for indoor use
NO.1-8	Including high volt. area



11 Wires

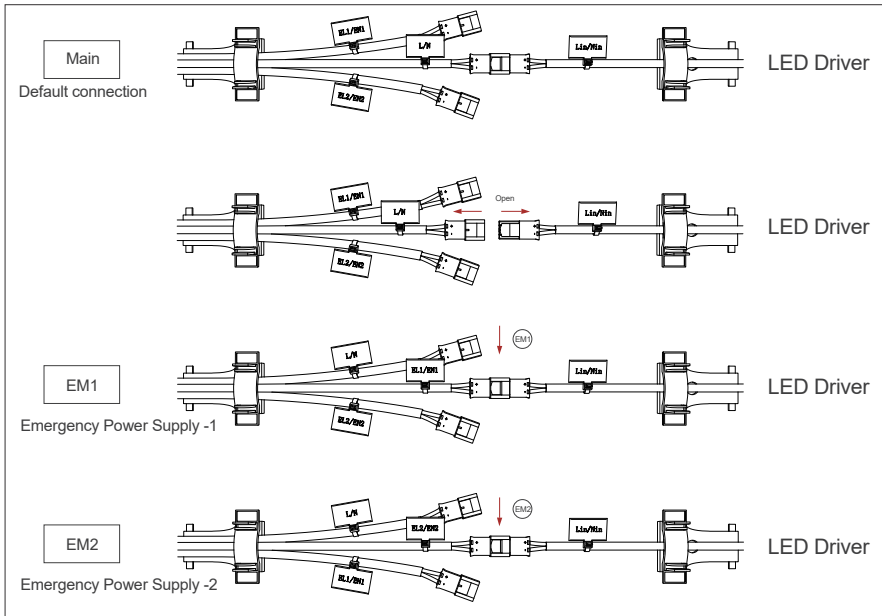
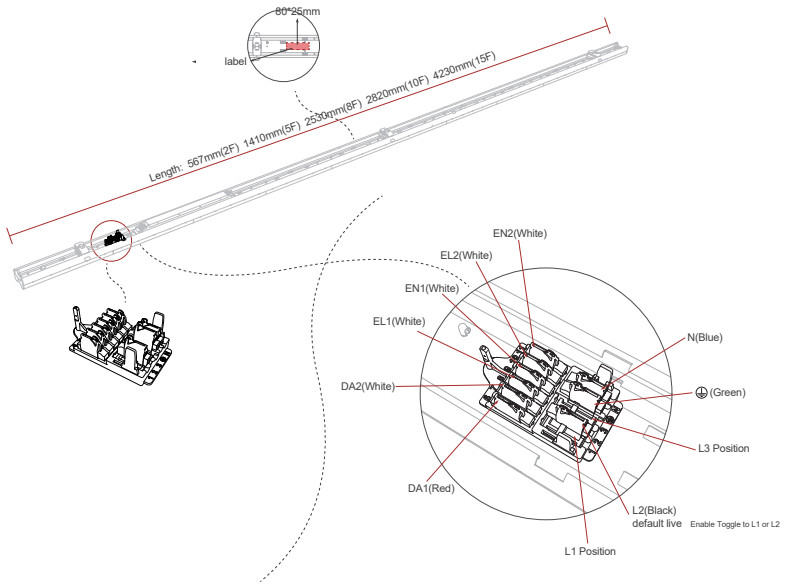
NO.1-11	Trunking Rail
NO.1-11	11 Terminal Systems
NO.1-11	Only for indoor use
NO.1-11	Including high volt. area

NO.1-11	Trunking Rail
NO.1-11	11 Terminal Systems
NO.1-11	Only for indoor use
NO.1-11	Including high volt. area


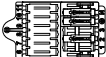



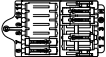



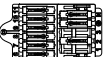

Luminaire Module

2. LTS.x.LM.2Vaa_bbcc_dee_ffgh(PMMA Lens cover)

Please see the model interpretation in Annex 1.



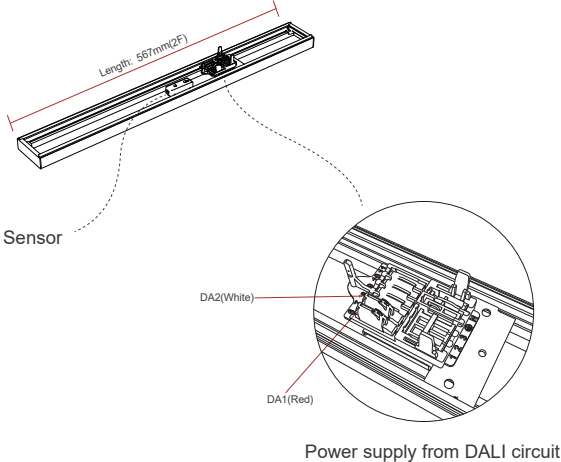
T11 Female Connector

Wires in Trunking Rail	Connector Plug in Luminaire	Usage of Wires	Function Description
 <p>5 Wires</p>	 <p>3 Pins</p>	L1,L2,L3,GND,N	Basic Lighting
 <p>6 Wires</p>	 <p>4 Pins</p>	L1,L2,L3,GND,N,LEM*	Basic Lighting+ Battery Emergency
 <p>7 Wires</p>	 <p>5 Pins</p>	L1,L2,L3,GND,N, DA1/Dim+,DA2/Dim-	Basic Lighting+ Dimming(0-10V or DALI)
 <p>8 Wires</p>	 <p>6 Pins</p>	L1,L2,L3,GND,N, DA1/Dim+,DA2/Dim-,LEM	Basic Lighting+ Dimming(0-10V or DALI) +Battery Emergency
 <p>11 Wires</p>	 <p>9 Pins</p>  <p>9+1 Pins</p>	<p>L1,L2,L3,GND,N, DA1/Dim+,DA2/Dim-, EL1,EN1,EL2,EN2</p> <p>L1,L2,LEM,GND,N, DA1/Dim+,DA2/Dim-, EL1,EN1,EL2,EN2</p>	<p>Basic Lighting+ Dimming(0-10V or DALI) +external UPS/EPS</p> <p>Basic Lighting+ Dimming(0-10V or DALI) +external UPS/EPS+ Battery Emergency</p>

LEM*: Permanent live of emergency module.

DALI Motion&Daylight Sensor

3. LTS.x.F.SN.a.2Vbb_ccdd_eff_gghi

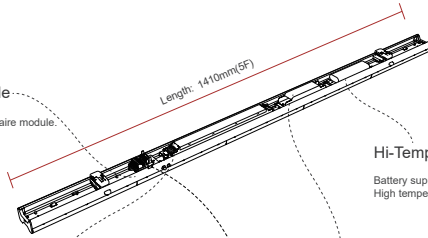


Built-in battery Emergency Module

4. LTS.x.F.EM.A.2Vbb_ccdd_eff_gghi

Based on regular luminaire module

Add battery and emergency driver in regular luminaire module.
No limitation on the wattage of luminaire module.



Hi-Temperature Battery

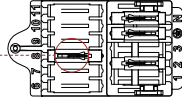
Battery supplies luminaire more than 3 hours when power fails.
High temperature resistance battery.

LED Driver

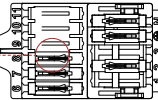
LED driver supplies power to LED luminaire as usual.

Emergency Driver

Switchable design allows user power on/off as usual with full lumen output.
When power fails, emergency driver supply 12w with full luminous efficacy

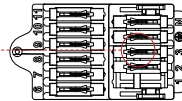


6Wires 4Pins



8Wires 6Pins

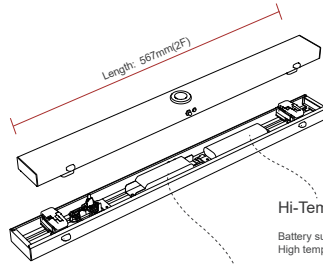
LEM: Permanent Live of Emergency
(For 6,8Wires at Pin-8 default)



11Wires 10Pins

LEM: Permanent Live of Emergency
(For 11Wires at Pin-3 default)

5. LTS.x.F.EM.B.2Vbb_ccdd_eff_gghi

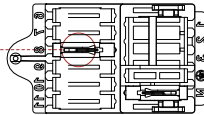


Hi-Temperature Battery

Battery supplies luminaire more than 3 hours when power fails.
High temperature resistance battery.

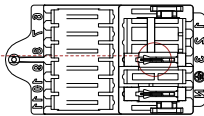
Emergency Driver

Switchable design allows user power on/off as usual with full lumen output.
When power fails, emergency driver supply 12w with full luminous efficacy



6,8Wires 2Pins

LEM: Permanent Live of Emergency
(For 6,8Wires at Pin-8 default)



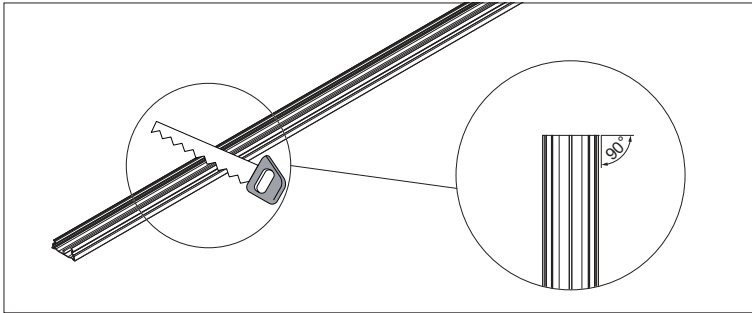
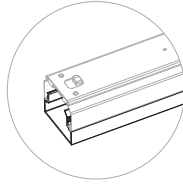
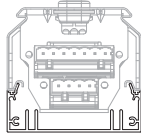
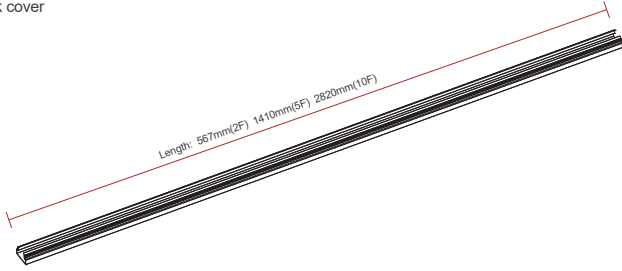
11Wires 2Pins

LEM: Permanent Live of Emergency
(For 11Wires at Pin-3 default)

Accessories

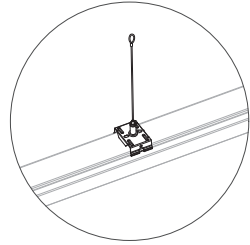
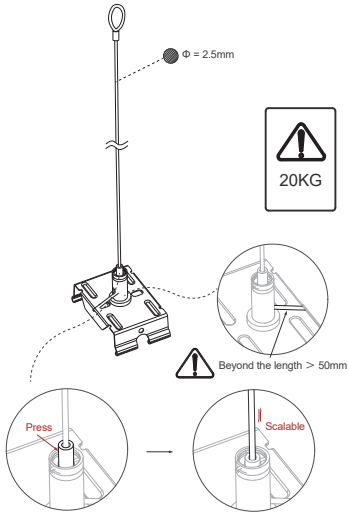
6. LTS.ACC.00aa(b)

5ft Plastic Blank cover



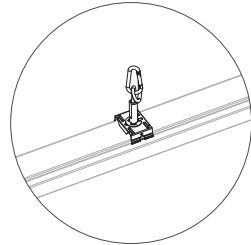
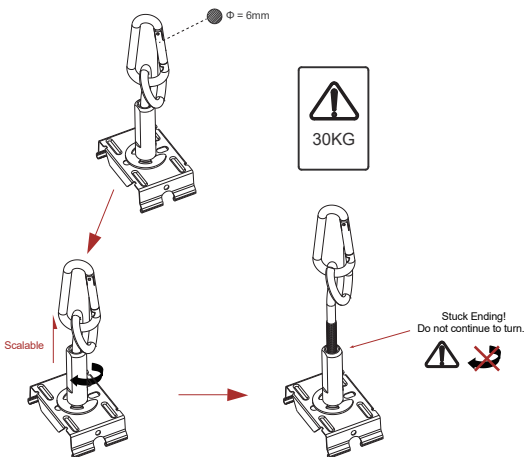
7. LTS.ACC.0003

Suspension Kit with Cord (2 meters)



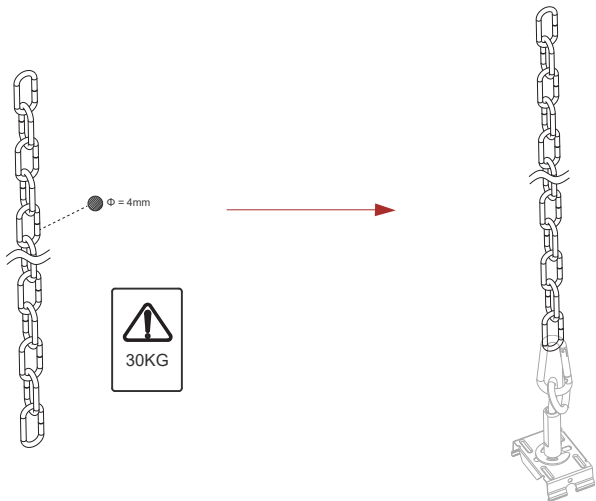
8. LTS.ACC.0005

Suspension Kit with pigtail hook



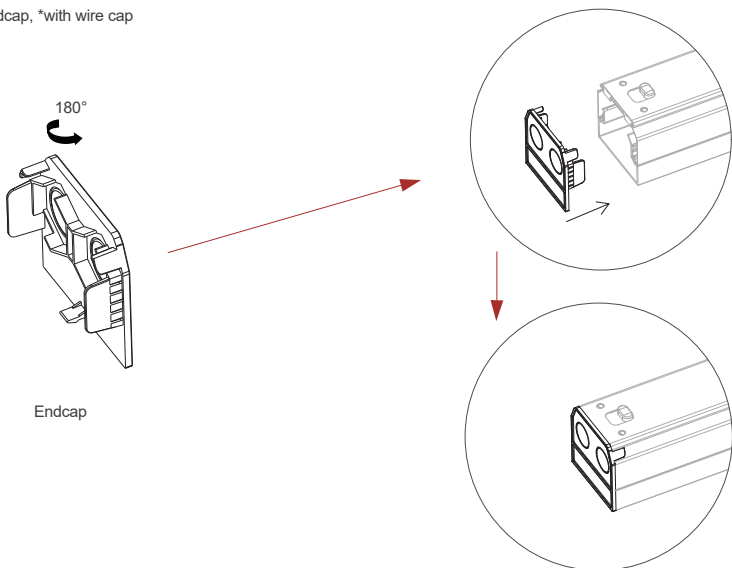
9. LTS.ACC.0006

2 meters of suspension chain



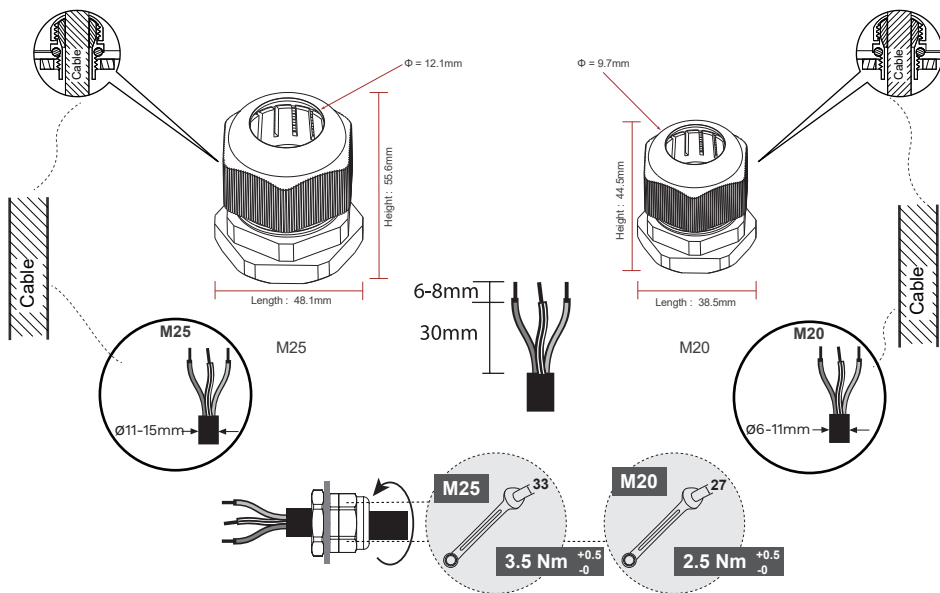
10. LTS.ACC.00aa

Endcap, *with wire cap



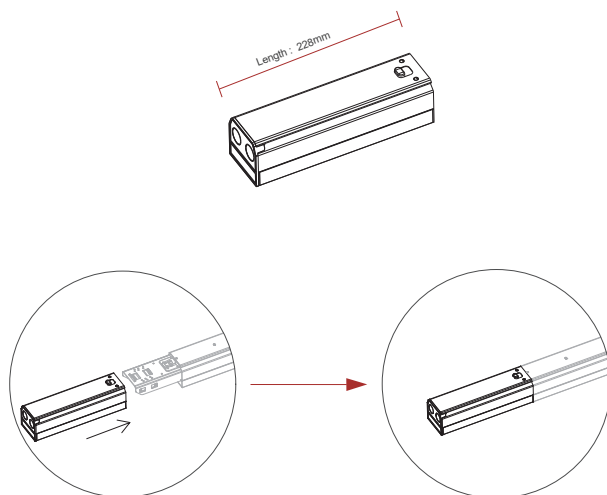
11. LTS.ACC.00aa

Cable gland (Wire protector) M25, M20



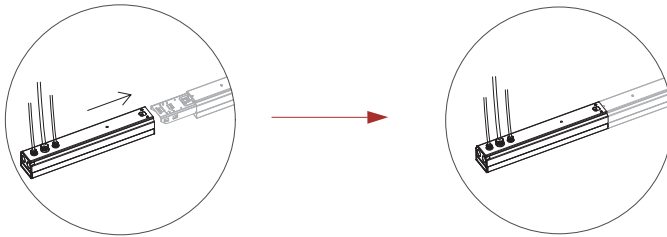
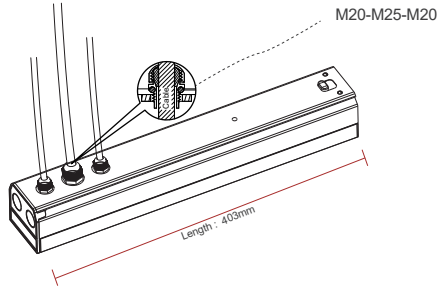
12. LTS.ACC.00aa

Start Box (no feed)



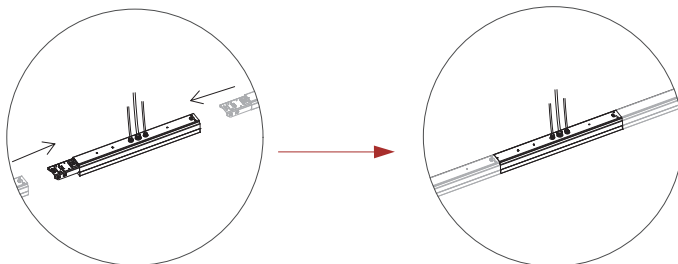
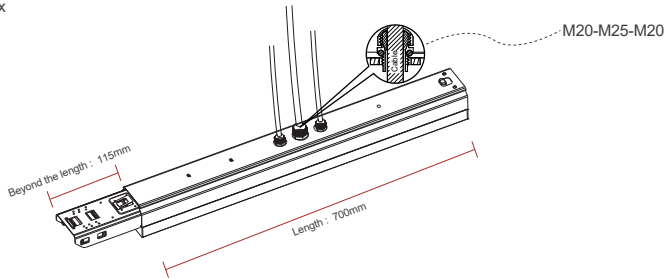
13. LTS.ACC.00aa

Start Feed Box



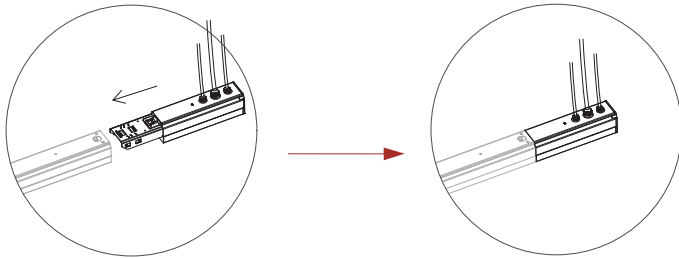
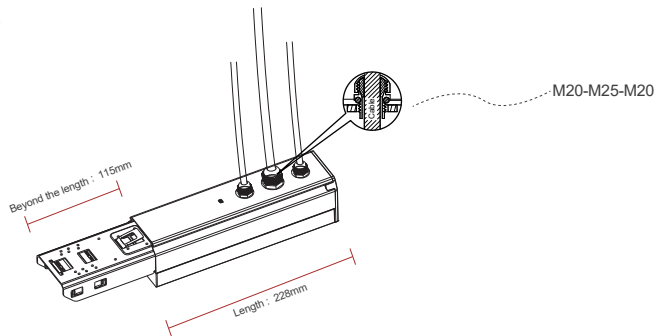
14. LTS.ACC.00aa

Middle Feed Box



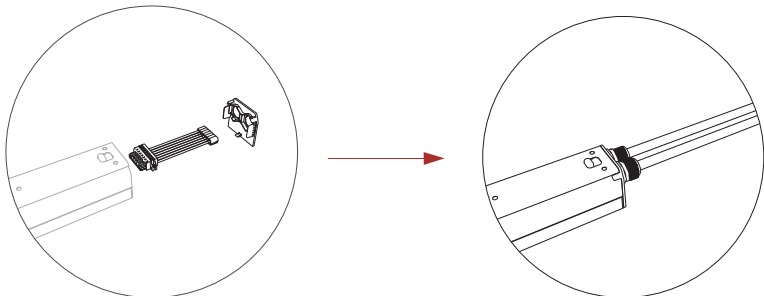
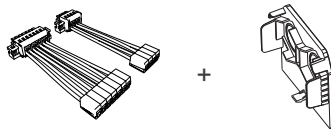
15. LTS.ACC.00aa

End Feed Box



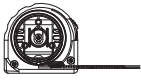
16. LTS.ACC.00aa

ITS+Endcap



Installation Tools

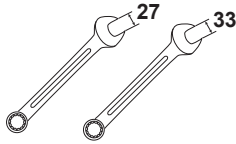
1. Essential tools



Tape-line



Screwdriver (PH2)

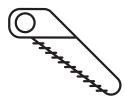


Wrench (27,33)

2. Optional tools



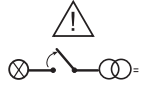
Electric drill



Saw

Installation step

Power should be always turned off during installation.
LED module installation under live trunking rail is forbidden!



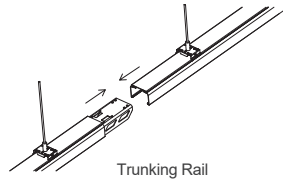
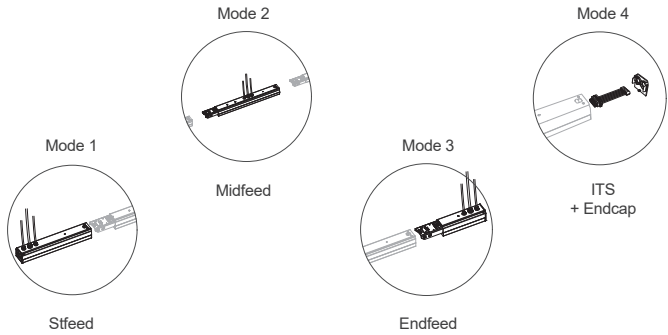
Start



1. Wiring cable of power supply

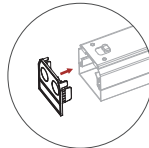


2. Connect Rails



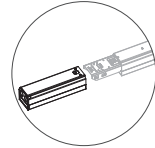
3. Close ending

Option 1: for Wiring mode 1&2



Endcap

Option 2: for wiring mode 3&4



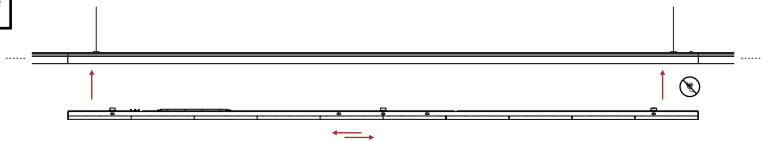
Stbox



4. Install module

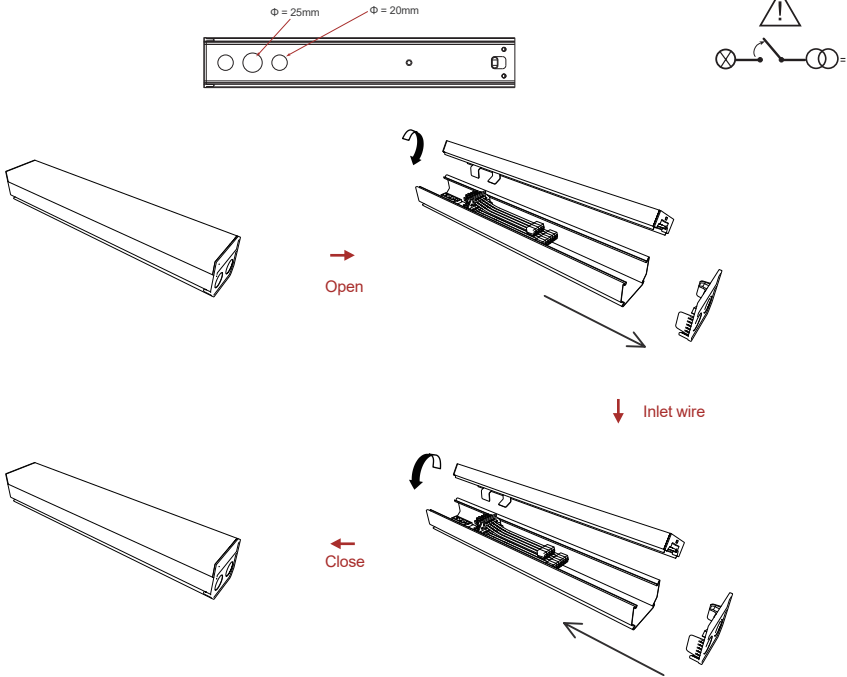


End

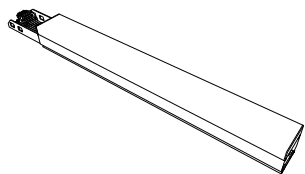


Step 1. Wiring cables into the system

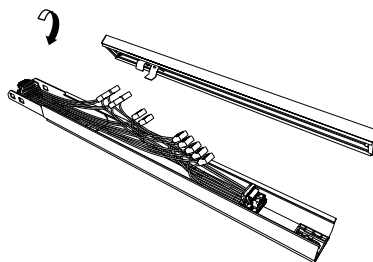
Optional mode 1. Stfeed, wiring from overlapping part.



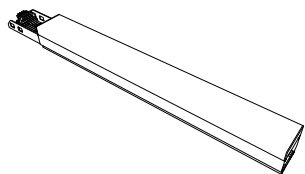
Optional mode 2. Midfeed , wiring from middle position.



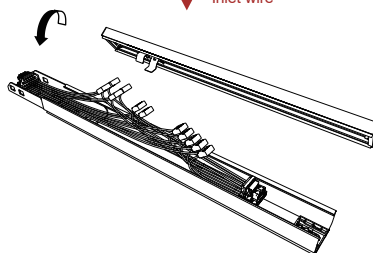
→
Open



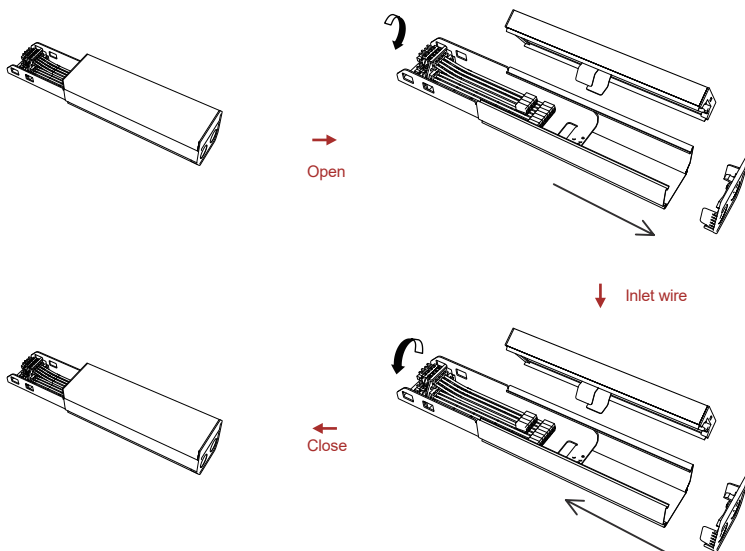
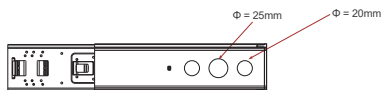
↓
Inlet wire



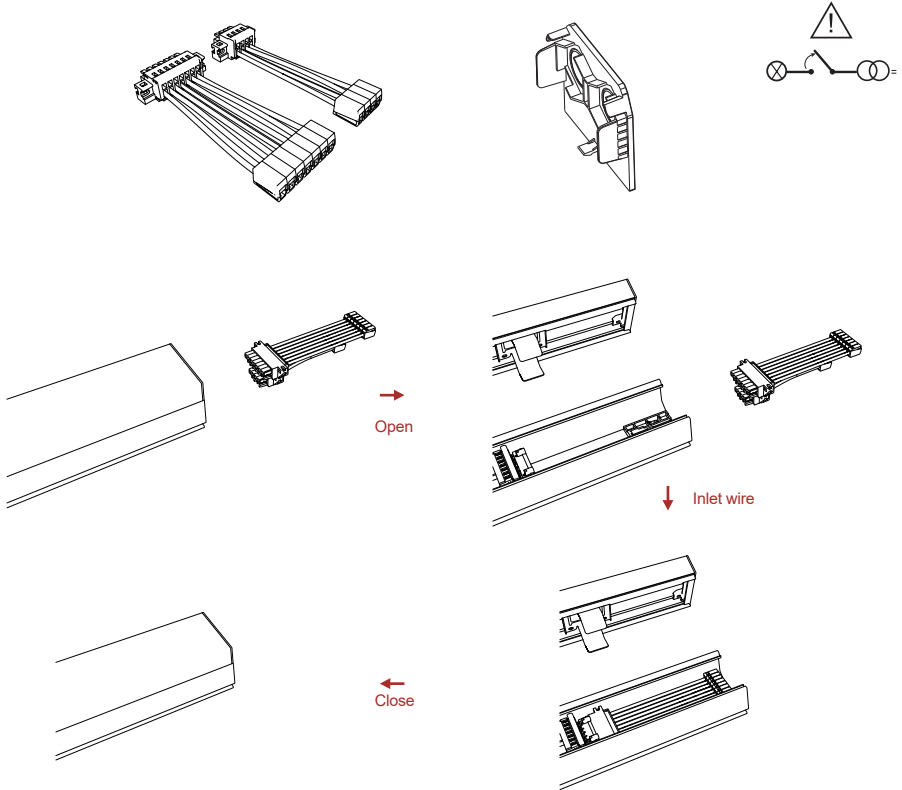
←
Close

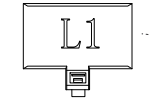


Optional mode 3. Endfeed, wiring from ending.

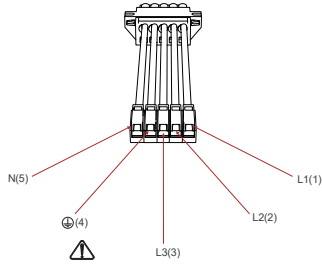


Optional mode 4. ITS+Endcap, wiring from ending.

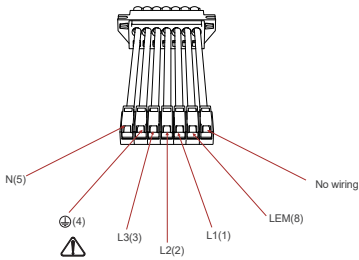




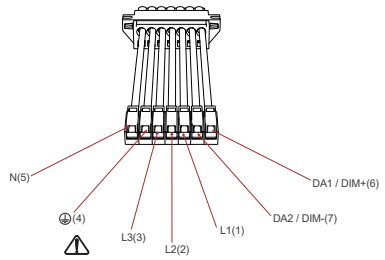
Cable tie attached to each wire



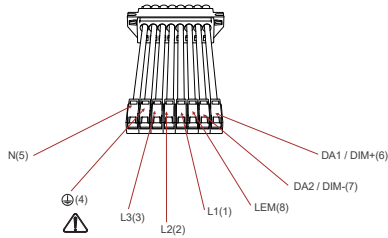
5 Wires , 3Pins



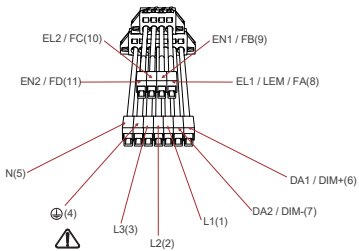
6 Wires , 4Pins



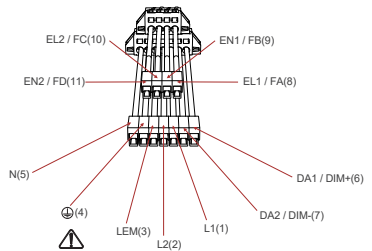
7 Wires , 5Pins



8 Wires , 6Pins



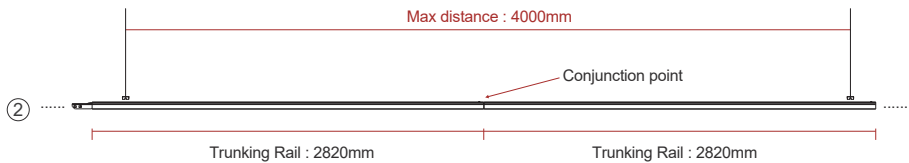
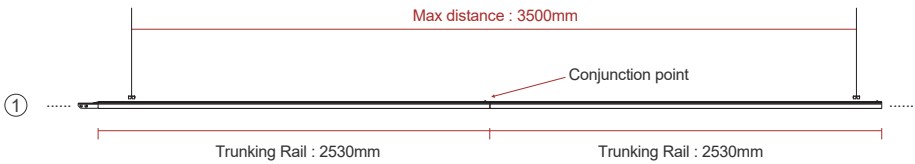
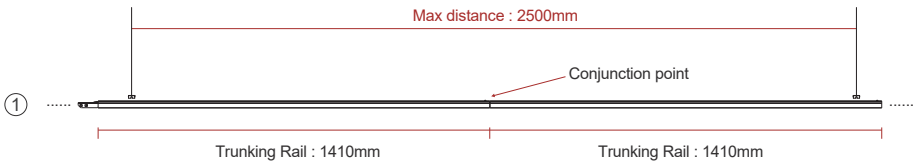
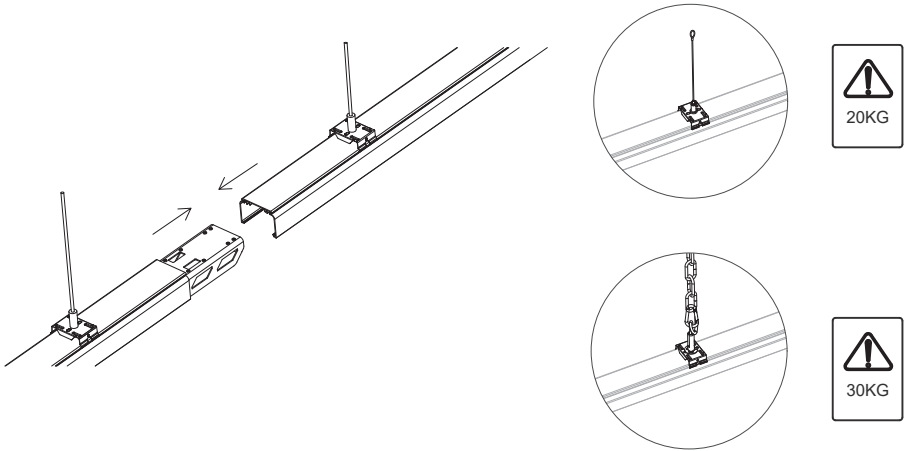
11 Wires , 9Pins



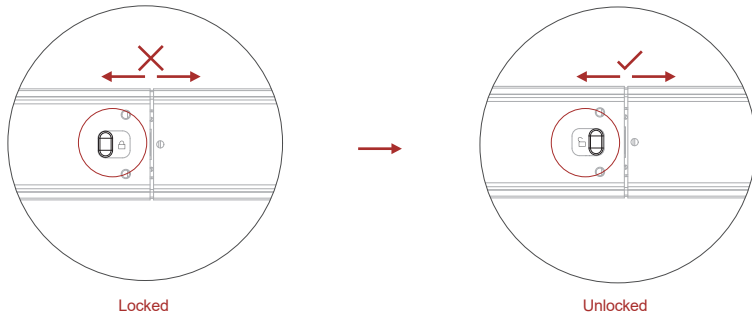
11 Wires , 10Pins

Step 2: Connect rails

Trunking rails



Disassemble



Important Remark:

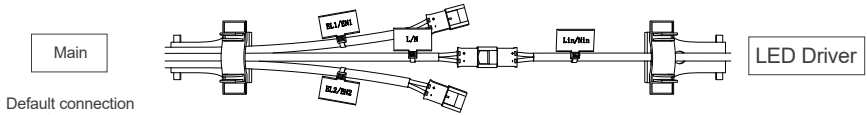
If the Mode 1 or Mode 2 was used for power supply input, to close the terminal by ITM is required.



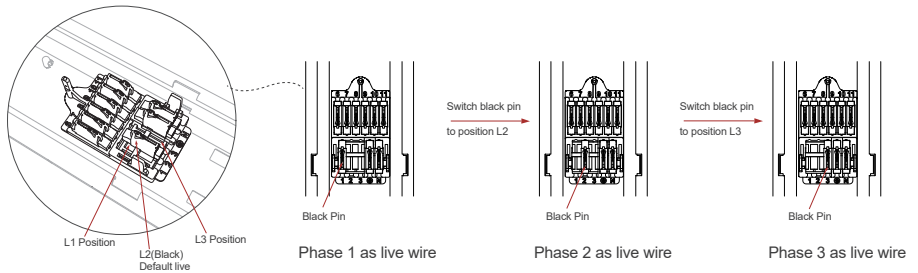
Step 3-1: Install LED module

1. Choose the power supply mode for the LED module

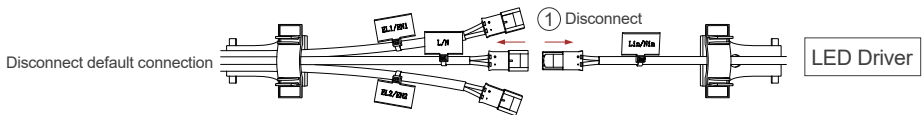
Optional Mode 1: power supply is from main supply



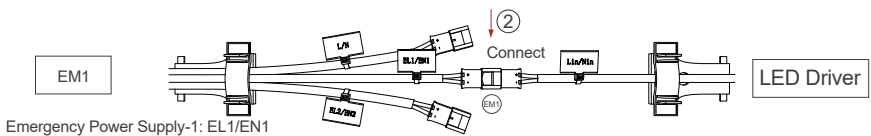
Phase selection in Mode 1



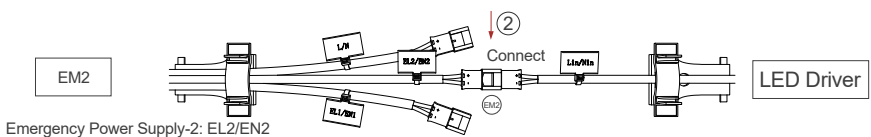
Power supply from DC emergency power system, handle module as below:



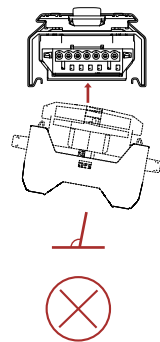
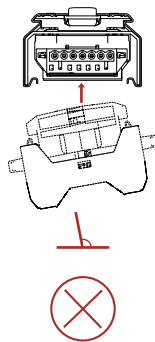
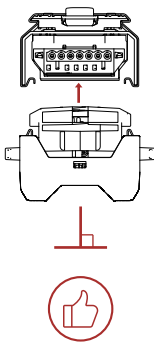
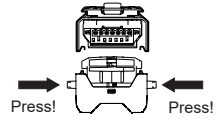
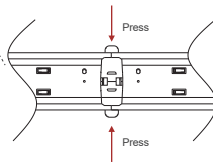
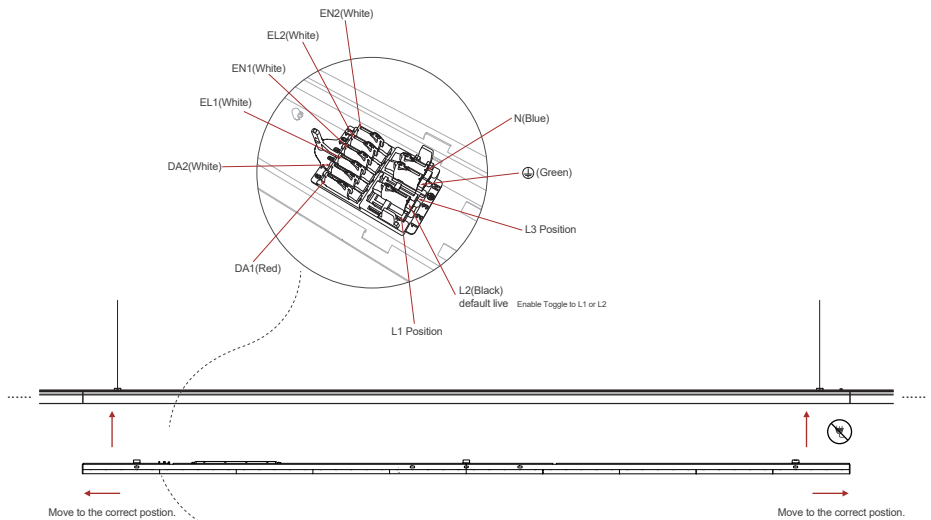
Optional Mode 2: power supply is from DC emergency power system.



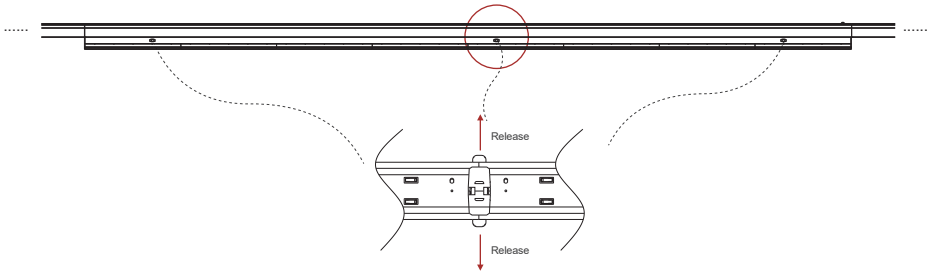
Optional Mode 3: power supply is from DC emergency power system.



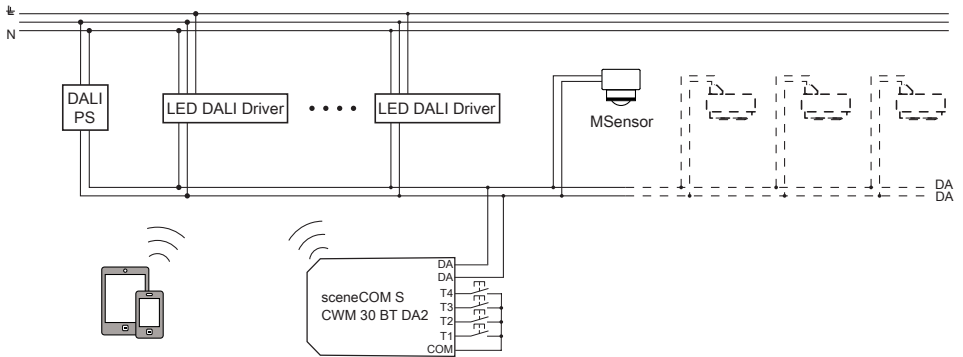
2. Confirm the correct direction by checking color label on surface and orientation.



3. Press the connector and make sure the module is attached properly. Then release!



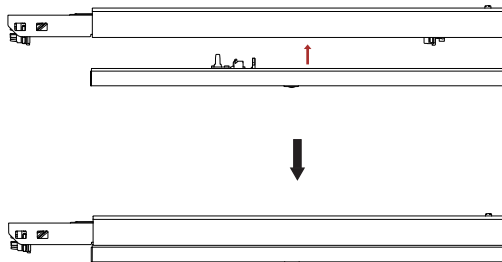
Step 3-2: Install Sensor module



Most DALI sensor and DALI master / DALI controller can be compatible to each other.

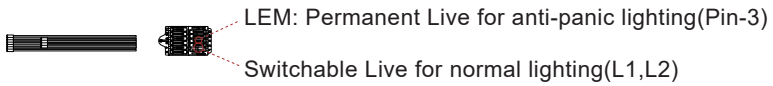
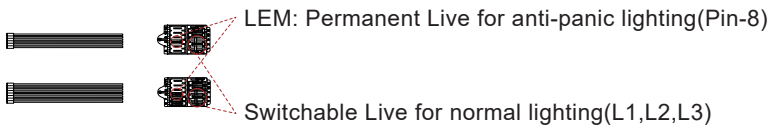
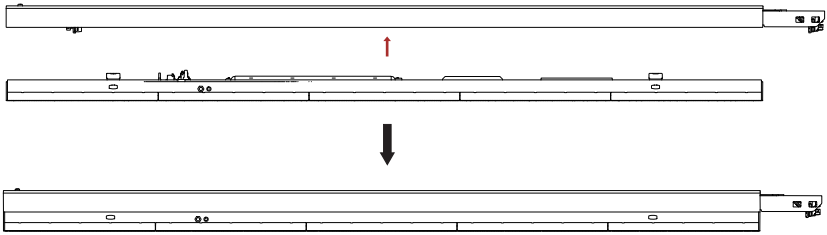
Based on our the tests from Tridonic, the controllers below are recommended:

- TRIDONIC | sceneCOM S
- ZUMTOBEL | bmLINK
- LOYTEC | L-DALI Controller
- BECKHOFF | KL6821, DALI/DALI 2 multi-master and power supply terminal
- WAGO | DALI Multi-Master 753-647, WAGO-I/O-SYSTEM 750/753
- ES SYSTEM | VERTEX – DALI CONTROL UNIT



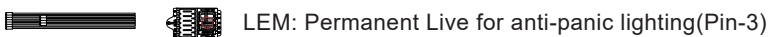
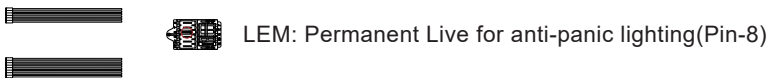
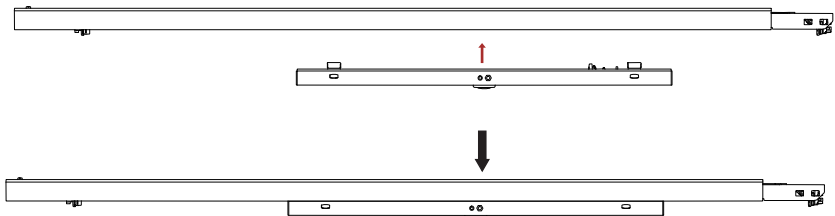
Step 3-3: Install Emergency module

1. Type A



Notice: L3 is occupied by LEM when using 10-Pin module with Emergency function.

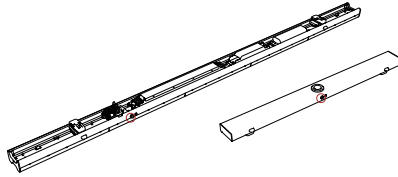
2. Type B



Notice: L3 is occupied by LEM when using 10-Pin module with Emergency function.



Green



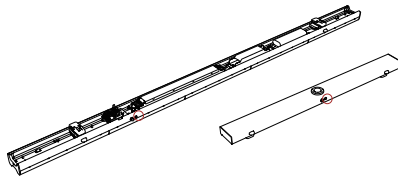
6.2 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indication	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on - 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on - 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on - 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Fast flashing red (0,1 sec on - 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)



Red



Test switch

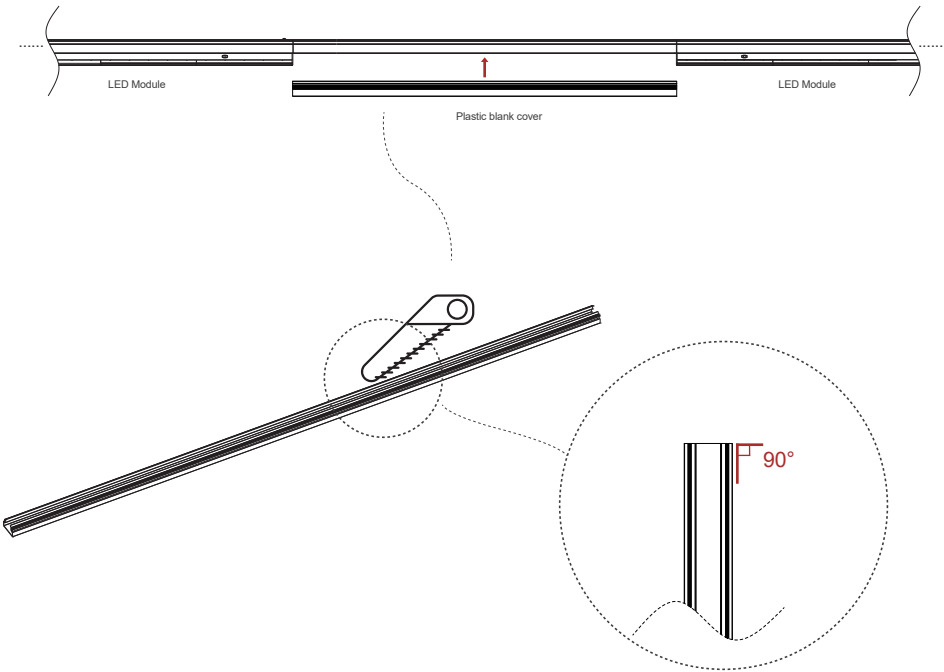
An optional test switch can be wired to each EM converterLED.

This can be used to:

- Initiate a 5 seconds function test: press 200 ms < T < 1s
- Execute function test as long as switch pressed: press > 1s
- Reset selftest timer (adjust local timing): press > 10s

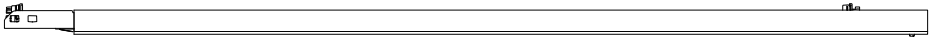
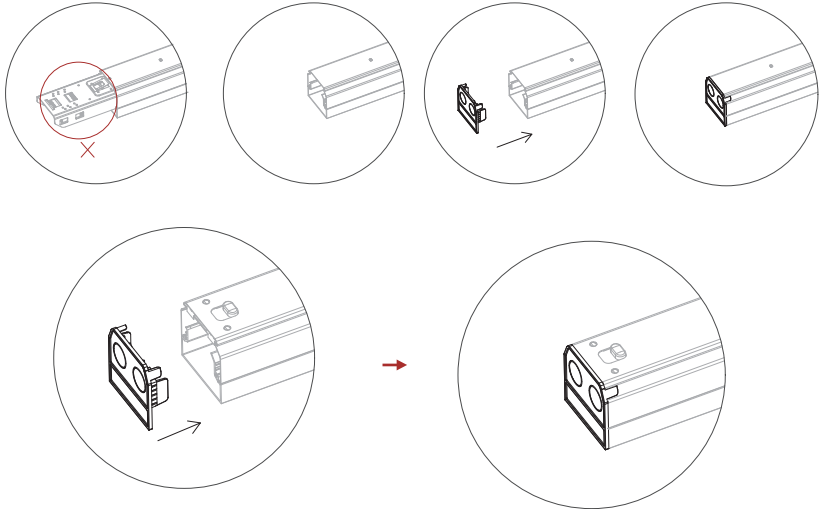
Step 3-4: Install Blank Cover

Cut and install blank cover

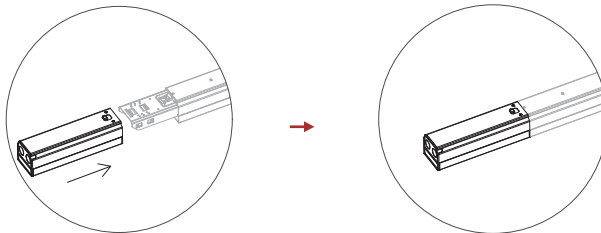


Step 4: Close the ending

Option 1: In the wiring mode 1
Endcap, close the ending by endcaps.



Option 2: In the wiring mode 2 and 3
Stbox, covering overlapping part.



Annex 1: Interpretation of model number

Model no.: LTS.x.LM.2Vaa-bbcc-dee-ffgh

“LTS.x.LM” – “Linear Trunking system.x Luminaire ”

Code	aa	bb	cc	d	ee	ff	g	h
x	Length	Power	Angles	Ra value	CCT	Pins	Dim	Colour
CLine @G1	“5F”- 5ft,1.41m	“40-160”- 40W-160W	“D25”- Double 25°	“7”- Ra>70	“30”- 3000K	“03-10”- 3pins to 10pins	“N”- no normal	“W”- White
CLine @G2	“8F”- 8ft,2.53m		“L25”- Left 25°	“8”- Ra>80	“40”- 4000K	“00”- no pin	“D”- DALI dimmer	“B”- Black
ELine	“10F”- 10ft,2.53m		“R25”- Right 25°	“9”- Ra>90	“50”- 5000K		“T”- Tunable white	“G”- Grey
SLine			“30”-30°		“57”- 5700K		“10”- 0-10V	“O”- Other
			“30A”- 30x45°		“65”- 6500K			
			“30B”- 30x90°					
			“60”-60°					
			“90”-90°					
			“130”-130°					