LRO

MEGALOS Koiwa
Location: Japan
Lighting design: DAIKO ELECTRIC CO.,LTD.
Photo: Nomura Real Estate Life & Sports Co.,Ltd.

Mia Saigon, Luxury Collection Hotel
Location: Vietnam
Lighting design: LUMINO DESIGN

Outdoor

Rigid light

LRO

EFRO IP65

Power LEDs Line IP65

LEDs Bar IP65

LEDs Line IP67

Luci EFRO IP65

Double waterproof and moisture-proof structure,
suitable for shower rooms and landscapes.
Round shape with high efficiency with adjustable clip for cove light and
aluminum channel for surface wall mount

Specifications

Dimensions

Cross section   W 25 x H 36 mm including clip
Standard length   5 types of fixed length

1142	862

582	302	162

Color temperature

4000K	3500K	3000K	2700K	2400K

Ra > 90
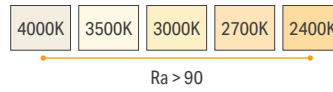
Electrical & Output

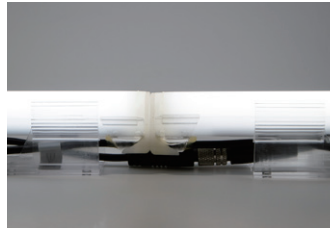| Power Consumption (W/1142mm)	7.3
Luminous flux @ 3000K (lm/1142mm)	686

Features

- Gasket between the end cap and tube
- Fuse on circuit board against unexpected over current
- Sealed by special glue at the end cap and tube
- IP67 screw fixing connector
- Coated circuit board for prevention against humidity

Accesories

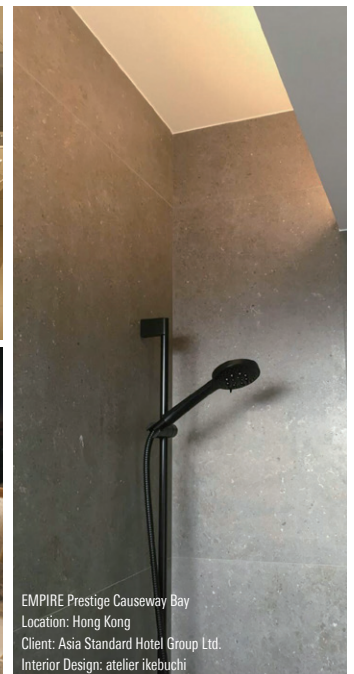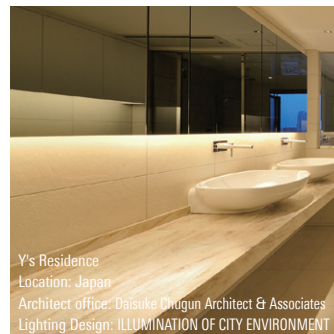**Mounting crip for EFRO**

Connectors can be put under LED fixture

Adjustable angle for cove light

Aluminium mounting rail for EFRO

Optional aluminum channel for surface wall mounting

Project reference

Y's Residence
Location: Japan
Architect office: Daisuke Chugun Architect & Associates
Lighting Design: ILLUMINATION OF CITY ENVIRONMENT

CLIO Komazawakouen show room
Location: JAPAN
Owner: MEIWA ESTATE CO., LTD.
Interior design: KAN DESIGNING OFFICE LTD.
Lighting design office: WORKTECHT CORPORATION
Construction: ONE DESIGNS Co.,Ltd.

EMPIRE Prestige Causeway Bay
Location: Hong Kong
Client: Asia Standard Hotel Group Ltd.
Interior Design: atelier ikebuchi

Luci EFRO IP65

LRO

- Steam-proof which passed Japanese humidity test
- For bathroom or Spa usage
- Aluminium mounting rail for surface mount

Model No.

LRO	-	□□□□	-	□	-	DF	-	IW

Product Name	-	Length	-	Light source color	-	Cover type	-	Environment
LRO		0162 0302 0582 0862 1142		W : White WW : Warm white 3500K L30 : Warm white 3000K L27 : Warm white 2700K L24 : Warm white 2400K		DF : Diffuser		IW : IP65 (Indoor / Semi-outdoor)

Light Intensity   Refer to P.220

LRO-1142-L27-DF-IW

1/2 illuminance angle
69°
65°
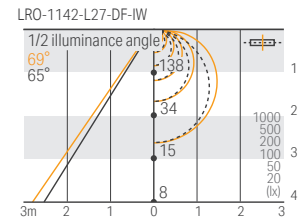
Specification

Length	0162	0302	0582	0862	1142
Model No.	LRO-0162-□-DF-IW	LRO-0302-□-DF-IW	LRO-0582-□-DF-IW	LRO-0862-□-DF-IW	LRO-1142-□-DF-IW
Power consumption	0.9W	1.8W	3.6W	5.4W	7.3W
Fitting length(L)	162mm	302mm	582mm	862mm	1142mm
Weight	62g	100g	172g	234g	310g
Luminaire efficacy(2700K)	90.3 lm/W	90.3 lm/W	90.3 lm/W	90.3 lm/W	90.3 lm/W

Light source color   ○ = Device inventory   * = Equivalent

			0162	0302	0582	0862	1142
D	7100K		-	-	-	-	-
N	5000K		-	-	-	-	-
W	4000K	Ra 94	○ 91 lm	○ 182 lm	○ 364 lm	○ 546 lm	○ 738 lm
WW	3500K	Ra 94	○ 88 lm	○ 176 lm	○ 351 lm	○ 527 lm	○ 712 lm
L30	3000K	Ra 93	○ 85 lm	○ 169 lm	○ 338 lm	○ 507 lm	○ 686 lm
L27	2700K	Ra 93	○ 81 lm	○ 163 lm	○ 325 lm	○ 488 lm	○ 659 lm
L24	2400K	Ra 93	○ 75 lm	○ 150 lm	○ 299 lm	○ 449 lm	○ 606 lm
L21	2100K		-	-	-	-	-

Spec may be subject to change without announcement.
The optical data provided on the each product pages are for reference only; the data values are not guaranteed. Please use as reference materials for your planning.

General Specification

Input voltage	DC24V
Environment	Bathroom, semi-outdoor, Moistureproof (IP65)[*1]
Max. length per circuit	4.5m
Material (body)	Polycarbonate, PVC cable, IP65 connector
Material (cover, clip)	Polycarbonate
Material (mounting rail)	Aluminum
Attachments	❶ Mounting clip 2pcs for 582mm or shorter 3pcs for 862mm or longer
Accessories	❶ Mounting clip ❷ Mounting rail ❸ Power supply cable
Certification	CE, Complied with JIS0920, IP65
Operating temperature	0°C 〜 +35°C (No Condensation)
Dimmable	Yes (0-10V/1-10V, DMX, DALI, PWM)
Power Supplies	Required

*1 Installing in a sauna, bathroom/shower room operated 24 hours a day is not allowed.

Max. connectable length per power supply

Length of LED fixture (70% loading factor) *: split into multiple circuits	Power supply
〜5.5m	50W power supply
〜11.0m*	100W power supply
〜16.6m*	150W power supply

External dimensions

top view

side view
side view

24.6   φ20.0
28.3
18.3

10.0   100.0   41.0   38.2   100.0

L ±1
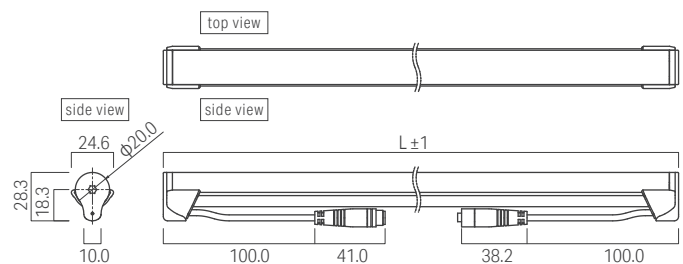
Prohibited installation places:

45°

300 mm or more
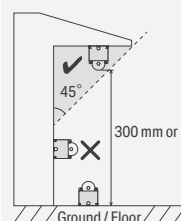
Ground / Floor

When using EFRO in semi-outdoor, it must be installed with the aluminum rail for EFRO. Please installed the LED fixture and the cable within the range of 45° eaves of the roof and 300 mm or more away from the ground or the floor. Please do not install the LED fixture and cables in the follow place:
- direct expose to water or pooling of water
- direct sunlight
- liquids including chroline or chemicals
- high temperature and high humidity such as saunas and public bath
- coastal areas which are affected by sea spray

Caution
Do not cut the LED fixture and the lead wire of outdoor product at a job site. Please do appropriate treatment for the lead wire and connector of the terminal of outdoor LED fixture.

Luci EFRO IP65

Outdoor

Rigid light

LRO

EFRO IP65

Power LEDs Line IP65

LEDs Bar IP65

LEDs Line IP67

Cross sectional view

36

25

34

2

3 Attachment for **2**

1

25
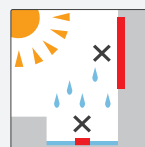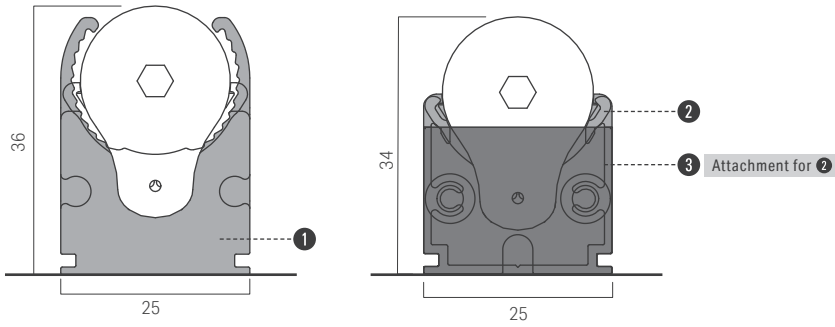
Option parts

1 Mounting clip for EFRO [Attachments]

Model No : LRO-PT-A

Attached with LED fixture
2 pcs for 582 mm or shorter
3 pcs for 862 mm or longer
5 pcs for 983mm to 1463mm

- Holding LED fixture at both ends
- Angle adjustable
- Connectors can be put
  under the LED fixture
- Material: Clear polycarbonate

For extra order, 3 pcs / bag

Cable holding

Holding fixture when vertical installation

Top view
4.3
6
11
13 35

Front view Side view
30
21.6 34
25 55

Cautions: Use accurate number of Mounting parts
Install 3pcs of Mounting clips at the middle and both
edge sides of LED fixture if the LED fixture is longer
than 862mm. Otherwise, the LED fixture will bow by
its weight and may defect.

- Number of Mounting clips (LRO-PT-A)
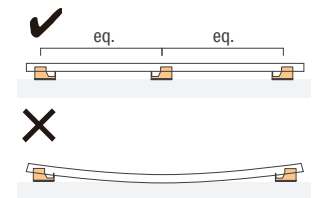 2 pcs for 582 mm or shorter
  3 pcs for 862 mm or longer

✔ eq. eq.

✗

2 Aluminum mounting rail for EFRO ****

Model No : LRO-RL****-AL

****: Length (0164/0304/0584/0864/1144)

3 End cap for aluminum rail (2 pcs/bag) is included.

- For easy and quick installation: unnecessary to pre-align the clips
- Connectors can be put under LED fixture
- Material
  Rail: Aluminum, End cap: Semi-clear polycarbonate
- Delivered with the same length as the product
  (Length variation: 164mm, 304mm, 584mm, 864mm, 1144mm)

3 End cap for aluminum rail [Attachment for **2**]

Model No : LRO-RL-EC

Screws (4 pcs of Flat head, M3L8) are included

25
19.5
ϕ3.5
5.2
4
2 1.5

Top view
A A
25
6
4.3

Front view Side view
24
L±0.5
23.5 23.5
19.5
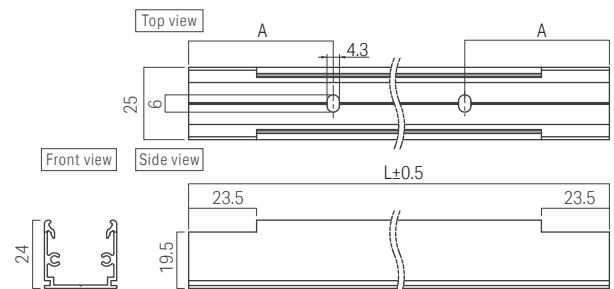
Length	0164	0304	0584,0864,1144
A(mm)	30	50	100

4 Power supply cable 5M for AH1 connector OD3.5 [Required]

Model No : CAD-VA5000-FJNN-O

5 Connector cover for AH1 connector (1 pc/bag) is included

- Required for each circuit of LED fixture
- One side connector, one side bare wire
- 1 pcs of connector end cap (CC-MJ-O) is attached
  * to avoid water intrusion from the terminal connector of LED fixture

5 End cap for power supply cable [Attachments for **4**]

Model No : CC-MJ-O

43
ϕ11
Regin filled No electrode

5041±10
70 41
5
White : -
Black : + DC24V
ϕ11
ϕ 3.5±0.2

PSU

Power supply cable 5M for AH1 connector OD3.5

Connector cover for AH1 connector
(Attachment of power supply cable)
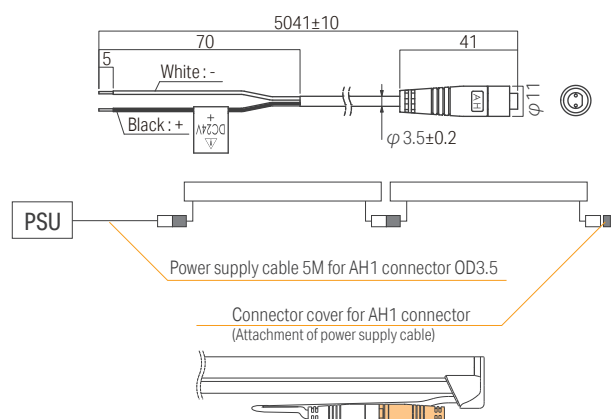
Cautions: Waterproofing process for terminal connector
The unenclosed connector at the terminal of LED fixture must be sealed with connector cover for
AH1 connector which is attached with power supply cable (CAD-VA5000-FJNN-O). Make sure to
rotate the fastening part until no longer can rotate.

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Installing the product

Straight installation

Installation with Mounting Clip

Attach Mounting clip for EFRO (LRO-PT-A) at below position with screws supplied by installer (Pan head screws M4 recommended), and insert the LED fixture with considering the direction of the connector of power supply cable side. See below picture for holding the cable and connector underneath the LED fixture. Downwards installation is available as well.

1 Mounting clip for EFRO
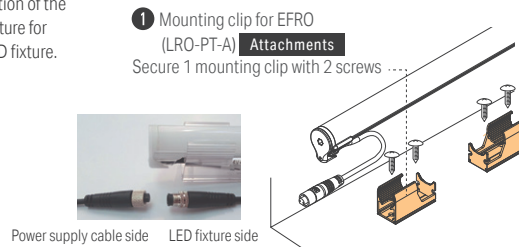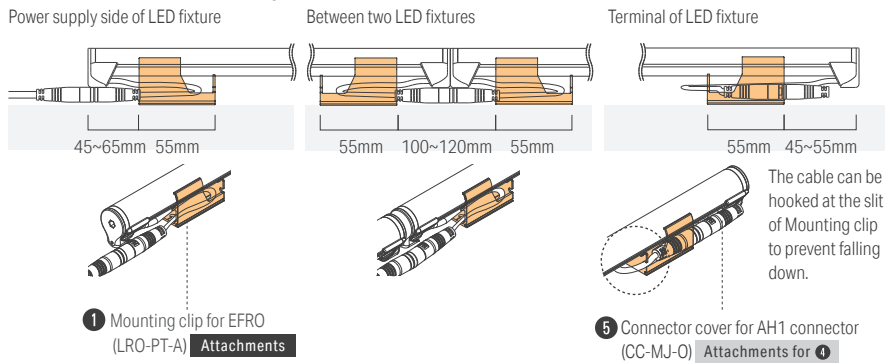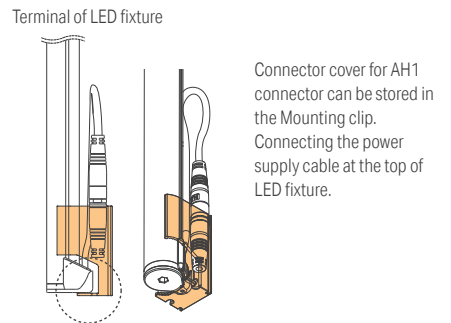(LRO-PT-A) `Attachments`
Secure 1 mounting clip with 2 screws

Power supply cable side   LED fixture side

Vertical installation

Make sure the bottom of LED fixture hook on the edge of the Mounting clip in accordance with the diagram.
Caution: If the weight of the LED fixture is not supported by the edge of the Mounting clip, it may slide down and fall.
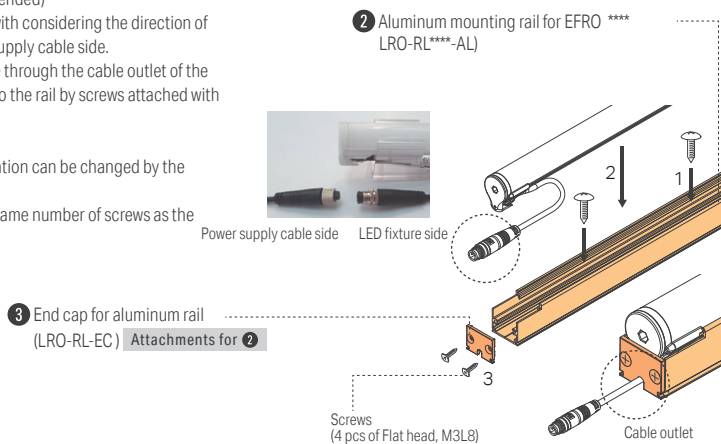
Recommended position of Monting clips

Power supply side of LED fixture | Between two LED fixtures | Terminal of LED fixture

45~65mm 55mm | 55mm 100~120mm 55mm | 55mm 45~55mm

The cable can be hooked at the slit of Mounting clip to prevent falling down.

1 Mounting clip for EFRO
(LRO-PT-A) `Attachments`

5 Connector cover for AH1 connector
(CC-MJ-O) `Attachments for` **4**

Terminal of LED fixture

Connector cover for AH1 connector can be stored in the Mounting clip. Connecting the power supply cable at the top of LED fixture.

Installation with Mounting Rail

1. Attach Aluminum mounting rail for EFRO (LRO-RL****-AL) at below position with screws supplied by installer (Pan head screws M4 recommended)
2. Insert the LED fixture with considering the direction of the connector of power supply cable side.
3. After passing the cable through the cable outlet of the end cap, fix the end cap to the rail by screws attached with the products.

Note: The order of installation can be changed by the situation of the site.
Note: Please fix with the same number of screws as the number of screw holes.

2 Aluminum mounting rail for EFRO   ****
LRO-RL****-AL)

Power supply cable side   LED fixture side

3 End cap for aluminum rail
(LRO-RL-EC) `Attachments for` **2**

Screws
(4 pcs of Flat head, M3L8)

Cable outlet

Make sure the bottom of LED fixture hook on the edge of the end cap for aluminum rail in accordance with the diagram.
Caution: If the weight of the LED fixture is not supported by the end cap for aluminum mounting rail, it may slide down and fall.

Position of connector

Power supply side of LED fixture
Below LED fixture

Between two LED fixture

Terminal of LED fixture
Below LED fixture

Outside of mounting rail

To reduce the gap of two LED fixtures, end caps are not necessary to use.

5 Connector cover for AH1 connector
(CC-MJ-O) `Attachments for` **4**

Terminal of LED fixture

Connector cover for AH1 connector can be stored in the Mounting rail. Connecting the power supply cable at the top of LED fixture.

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Outdoor

Rigid light

LRO

EFRO IP65

Power LEDs Line IP65

LEDs Bar IP65

LEDs Line IP67

System configuration diagram
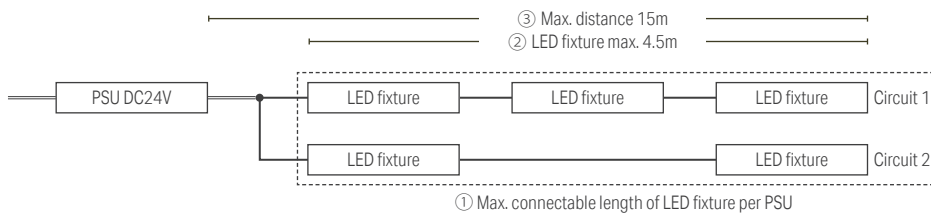
③ Max. distance 15m

② LED fixture max. 4.5m

| PSU DC24V | | LED fixture | LED fixture | LED fixture | Circuit 1 |
| | | LED fixture | | LED fixture | Circuit 2 |

① Max. connectable length of LED fixture per PSU

① Max. connectable total length of LED fixture per power supply depends on capacity of power supply. Recommended loading factor: 70% (without dimming) or 60% (with dimming)

② If connectable length of LED fixture per circuit exceeds the maximum, please split into multiple circuit.

③ To avoid voltage drop, please consider the max. distance from power supply to the end of LED fixture. (i.e. total cable length plus LED fixture length)

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ERO
EFRO IP65

Color temparature
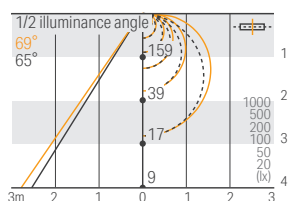
4000K 3500K 3000K 2700K 2400K

Direct horizontal surface light intensity distribution chart

Distance from wall
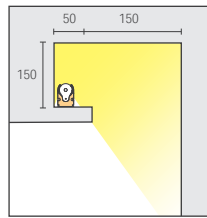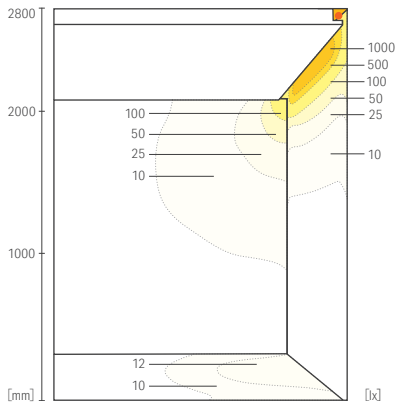
LRO-1142-W-DF-IW

Light source color	4000K
Brightness	159 cd
Luminous flux	738 lm
Color rendering index	Ra 94

1/2 illuminance angle
69°
65°
159
39
17
9
1000
500
200
100
50
20
(lx)
3m 2 1 0 1 2 3
1 2 3 4

0mm

LRO-1142-WW-DF-IW

Light source color	3500K
Brightness	151 cd
Luminous flux	712 lm
Color rendering index	Ra 94

1/2 illuminance angle
69°
65°
151
37
16
9
1000
500
200
100
50
20
(lx)
3m 2 1 0 1 2 3
1 2 3 4

50mm

LRO-1142-L30-DF-IW

Light source color	3000K
Brightness	136 cd
Luminous flux	686 lm
Color rendering index	Ra 93

1/2 illuminance angle
69°
65°
136
34
15
8
1000
500
200
100
50
20
(lx)
3m 2 1 0 1 2 3
1 2 3 4

100mm

LRO-1142-L27-DF-IW

Light source color	2700K
Brightness	138 cd
Luminous flux	659 lm
Color rendering index	Ra 93

1/2 illuminance angle
69°
65°
138
34
15
8
1000
500
200
100
50
20
(lx)
3m 2 1 0 1 2 3
1 2 3 4

150mm

LRO-1142-L24-DF-IW

Light source color	2400K
Brightness	131 cd
Luminous flux	606 lm
Color rendering index	Ra 93

1/2 illuminance angle
69°
65°
131
32
14
8
1000
500
200
100
50
20
(lx)
3m 2 1 0 1 2 3
1 2 3 4

200mm

300mm

Outdoor

Rigid light

LRO

EFRO IP65
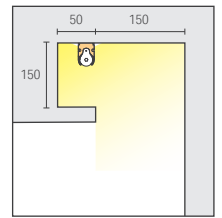
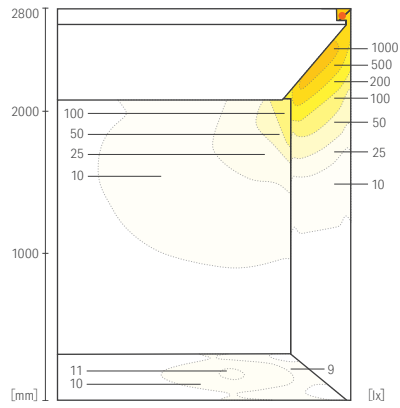Power LEDs Line IP65

LEDs Bar IP65

LEDs Line IP67

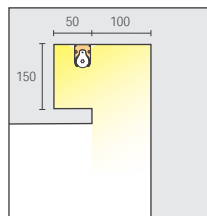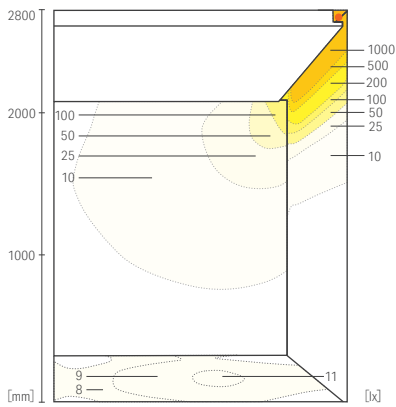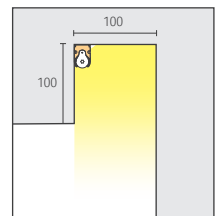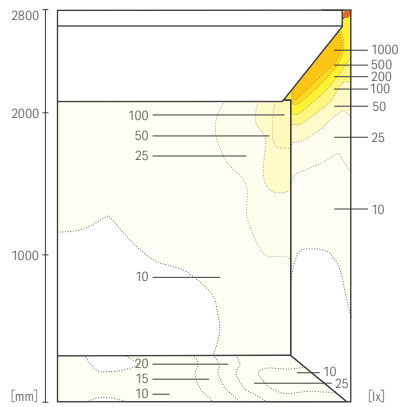## Recommendend dimensions and illumination distribuitions

Cornice lighting-1 CH=2800

Cornice lighting-2 CH=2800

Cornice lighting-3 CH=2800

Cornice lighting-4 CH=2800

Cove lighting CH=2800