

50W DALI + PUSH Dimming power supply



■ Approve



Features

- For luminaries of protection Class I or II, SELV, Built-in/Independent (With side caps)
- Input Voltage 220-240VAC
- Protections: SCP/OLP/OVP/OTP
- Power Factor: >0.95
- Efficiency : 90%
- Adjustable Output Current with dip-switch
- Support DALI-2, Push Dimming
- Suitable for emergency lighting acc. to EN 50172
- EoFi=100%
- DALI maintainace (Part 251,252,253)
- 5 years warranty

Applications

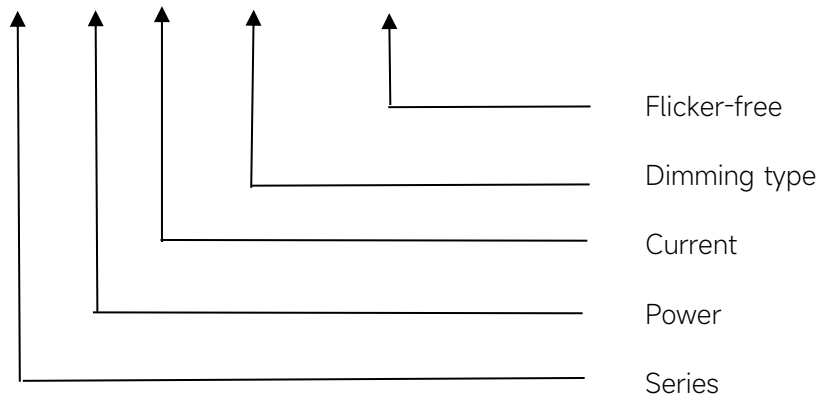
- Linear light

◆ Description

FMS-50-1050 DALI-2 LD is a 50W constant current LED driver that operates from 198-264Vac input with 350 to 1050mA output current and a forward voltage range from 15 to 51Vdc. The output current is adjustable. by dip-switch. With it's compact dimensions from 280 x 30 x 21 mm. It is easy to integrate in linear light products. To ensure trouble-free operation, protection is provided against output short circuit and over Load.

◆ Model code

FMS-50-1050 DALI-2 LD



◆ Specification

| | | | | | |
|-------------|----------------------------------|--|-------|--------|----------|
| Output | Constant Current | 350mA | 400mA | ...mA | 1050mA |
| | Voltage Range | 15-51VDC | | ...VDC | 15-47VDC |
| | Unload voltage Max. | 59VDC | | | |
| | Current Accuracy | ±5% | | | |
| | Output LF current ripple(≤120Hz) | ±5% | | | |
| | SVM | ≤0.4 | | | |
| | Pst | ≤1 | | | |
| | Efficiency(Typ.) | 90% | | | |
| | EOFI | 100% | | | |
| Input | Rated input voltage | 220-240V | | | |
| | Range of input voltage | 198-264VAC | | | |
| | Maximum voltage | 300VAC@1 h maximum,unit might not operate in this abnormal condition | | | |
| | Range input voltage(DC) | 176-280VDC | | | |
| | Frequency(Hz) | 0/50/60 Hz | | | |
| | Displacement factor | >0.95 | | | |
| | Power Factor(Typ.) | >0.95 | | | |
| | Input Current | 0.32A max. | | | |
| | Start-up time | < 0.8S | | | |
| | Switch over time(AC/DC mode) | < 0.4S | | | |
| | No Load Power | ≤0.3W | | | |
| | Standby Power | ≤0.3W | | | |
| | Network standby power | ≤0.3W | | | |
| | THD (Typ.) | <10% | | | |
| | | | | | |
| Dimming | Dimming | YES | | | |
| | Dimming mode | DALI-2 (IEC 62386-101,102,207,251,252,253) & Push Dimming (Corridor Function) | | | |
| | Dimming depth | 5mA@350-500mA, 1%@550-1050mA | | | |
| | Dimming current range | 1 ~100% | | | |
| | Dimming method | 1%-13% @PWM dimming, 13%-100% @AM dimming | | | |
| Protection | Over Load Protection | 103-120% | | | |
| | | YES/Latch off | | | |
| | Over Voltage Protection | 59VDC | | | |
| | | YES/Latch off | | | |
| | Short circuit Protection | YES/Latch off | | | |
| Capability | Over Temperature Protection | YES/Auto Resume | | | |
| | Surge capability (L-N) | 1KV | | | |
| | Surge capability (L/N-Ground) | 2KV | | | |
| Environment | Operating Temperature | -25°C~+60°C | | | |
| | Humidity | 10%-90%RH | | | |

| | | |
|------------------|--|--|
| | Tc | 80°C |
| | Storage Temperature | -25°C~+85°C |
| | Lifetime | >50000h,@Tc=80°C |
| | Ripple&Noise | 25dB(A)@20CM |
| Surface | Dimension | 280 x 30 x 21(LXWXH)mm |
| | material | metal case |
| Standards | Safety | GB19510. 1, GB19510. 14;IEC61347- 1, IEC61347-2- 13;EN61347- 1, EN61347-2- 13;EN61347- 1, EN61347-2- 13, EN62384 |
| | EMC | GB/T17743, GB17625. 1;EN55015, EN61000-3-2, EN61000-3-3, EN61547;EN61000-4-2,3,4,5,6,8,11, EN61547 |
| | ErP | Erp2.0 EU 2019/2020 |
| | RoHS | RoHS (2011/65/EU) (EU)2015/863 |
| DALI performance | EN 62386-101 (DALI-2) EN 62386-102 (DALI-2) EN 62386-207 (DALI-2,inclusing part251,252,253) | |
| Note | <p>1.All parameters NOT specially mentioned are measured at 230VAC input , full load and 25°C of ambient temperature.</p> <p>2.Ripple & Noise are measured at 20MHz of bandwidth.</p> <p>3.The DC input for this product is only used for emergency lighting and applies to functional and safety requirements, EMC is not considered.</p> <p>4.DALI protocol comprises 16 groups and 64 addresses.Up to 32 drivers can perform the PUSH dimming at the same time when utilizing one push button.</p> <p>5.Unload voltage Max. is measured 5 seconds after power-on.</p> <p>6.EL compatible with IEC 61347-2-13 Annex J, compatible with EN 60598-2-22 emergency lighting fixtures, compatible with EN 50172 central battery system applications.</p> <p>7.All Astralux power supply are complied with EMI regulations. Since they are belong to component and will be installed inside system enclosure. When they are integrated into a system, the EMI characteristics of the system must be re-verified again.</p> | |

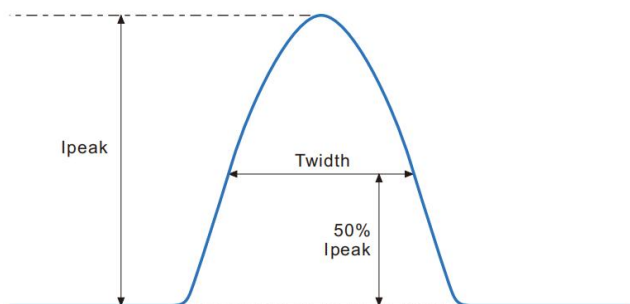
◆ Parameter

| Number | Output | | | | Switch position | | | |
|--------|-----------------|------------------|-----------------------------|--------------|-----------------|----|----|----|
| | Current (mA) | Voltage (VDC) | Voltage No load (VDC) | Power (W) | 1 | 2 | 3 | 4 |
| 1 | 350mA | 15-51VDC | 59VDC | 17.9W | ON | -- | -- | -- |
| 2 | 400mA | 15-51VDC | | 20.4W | -- | ON | -- | -- |
| 3 | 450mA | 15-51VDC | | 22.9W | ON | ON | -- | -- |
| 4 | 500mA | 15-51VDC | | 25.5W | -- | -- | ON | -- |
| 5 | 550mA | 15-51VDC | | 28.1W | ON | -- | ON | -- |
| 6 | 600mA | 15-51VDC | | 30.6W | -- | ON | ON | -- |
| 7 | 650mA | 15-51VDC | | 33.2W | ON | ON | ON | -- |
| 8 | 700mA | 15-51VDC | | 35.7W | -- | -- | -- | ON |
| 9 | 750mA | 15-51VDC | | 38.3W | ON | -- | -- | ON |
| 10 | 800mA | 15-51VDC | | 40.8W | -- | ON | -- | ON |
| 11 | 850mA | 15-51VDC | | 43.4W | ON | ON | -- | ON |
| 12 | 900mA | 15-51VDC | | 45.9W | -- | -- | ON | ON |
| 13 | 950mA | 15-51VDC | | 48.5W | ON | -- | ON | ON |
| 14 | 1000mA | 15-50VDC | | 50W | -- | ON | ON | ON |
| *15 | 1050mA | 15-47VDC | | 49.4W | ON | ON | ON | ON |

* Factory default

◆ Inrush Current

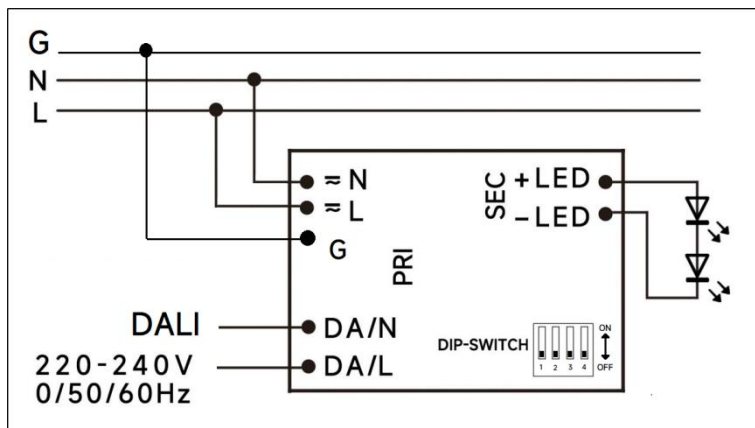
| I_{peak} | Twidth | B10 | B16 | B20 | C10 | C16 | C20 |
|------------|------------|-------|-------|-------|-------|-------|-------|
| 12A | 40 μ s | 25pcs | 40pcs | 50pcs | 25pcs | 40pcs | 50pcs |



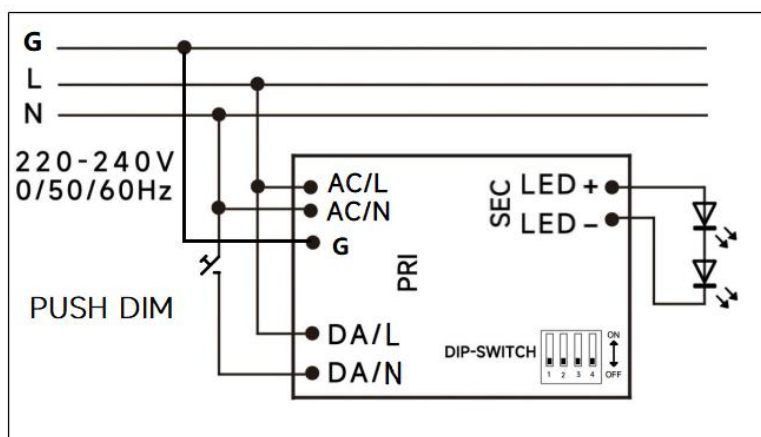
Remarks:

- 1.The number of drives mounted under different MCBs in the table is the maximum value. Please do not exceed this number during installation.
- 2.Different brands and models of miniature circuit breakers, the number of drives mounted will be slightly different.

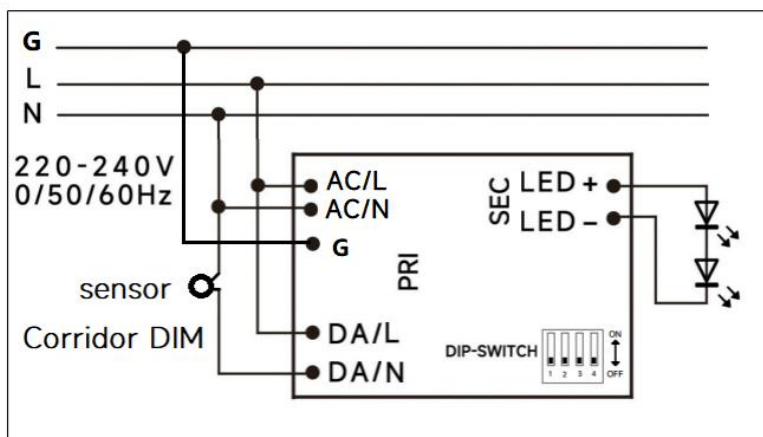
◆ Wiring diagram



DALI dimming application

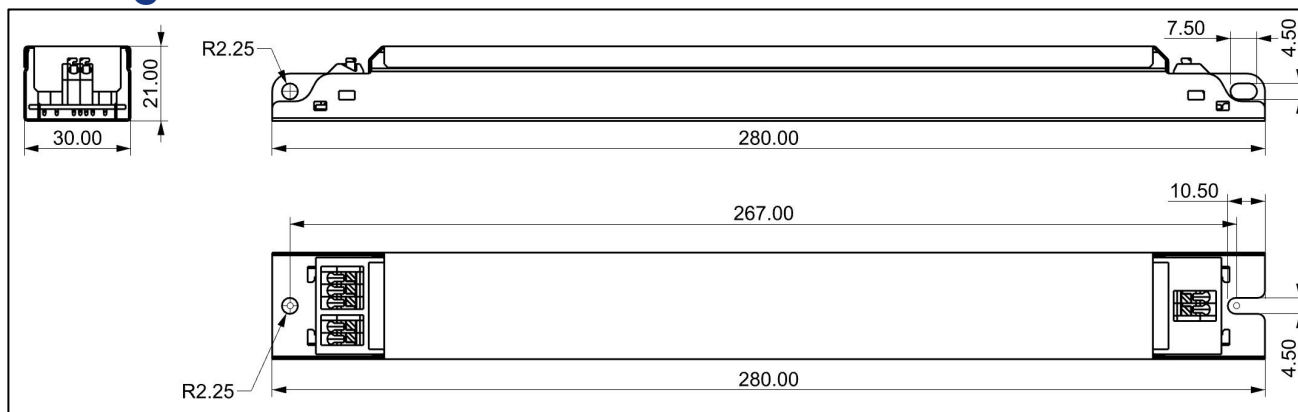


PushDIM dimming application



Corridor DIM dimming application

◆ 2D diagram



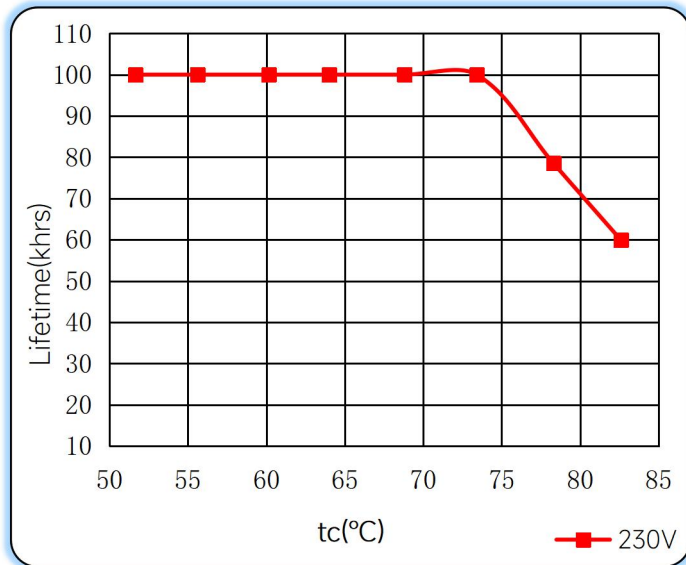
◆ Wiring & Connections

| Specification item | | Value (Unit) |
|--------------------|---------------------------|---|
| Input | Input wire cross-section | 0.5...1.5 mm ² (With A side caps: 0.75...1.5 mm ²) |
| | Input wire gauge. | 16...20 AWG (With A side caps: 16...22 AWG) |
| | Input wire strip length | 7...9mm |
| Output | Output wire cross-section | 0.5...1.5 mm ² |
| | Output wire gauge. | 16...20 AWG |
| | Output wire strip length | 7...9mm |

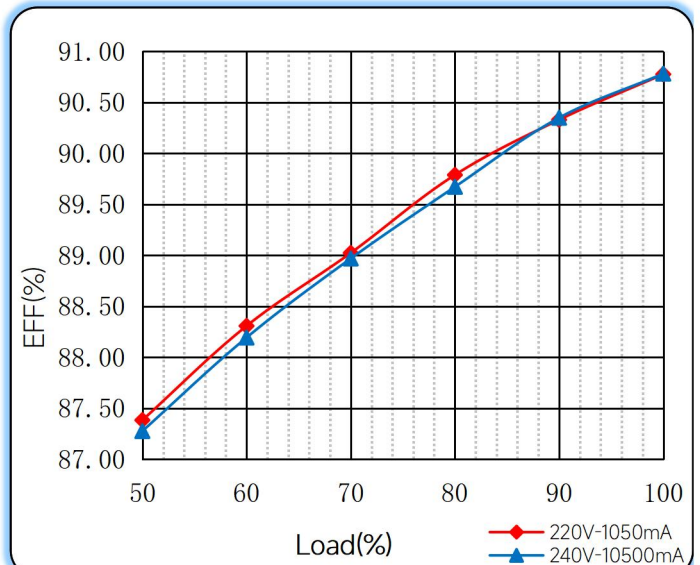
Note: Solid wire is risky to use on an angled terminal. Stranded wire is recommended for this kind of use.

◆ Curve for FMS-50-1050 DALI-2 LD, $I_o=1050\text{mA}$

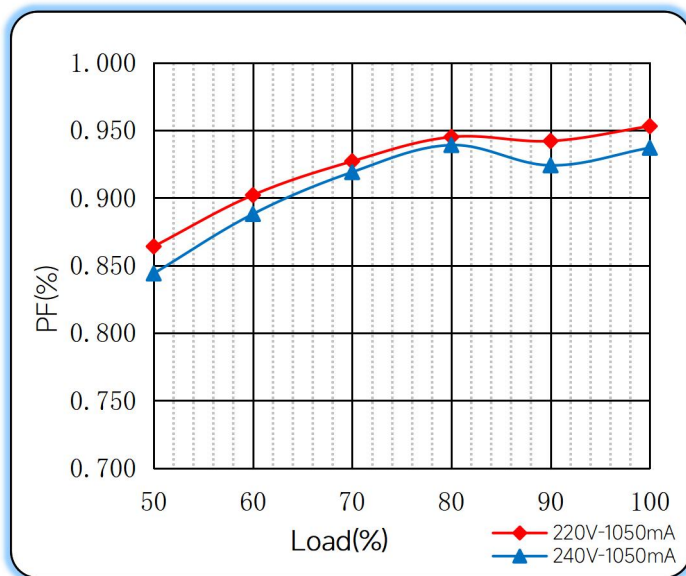
Lifetime vs. Temperature Curve



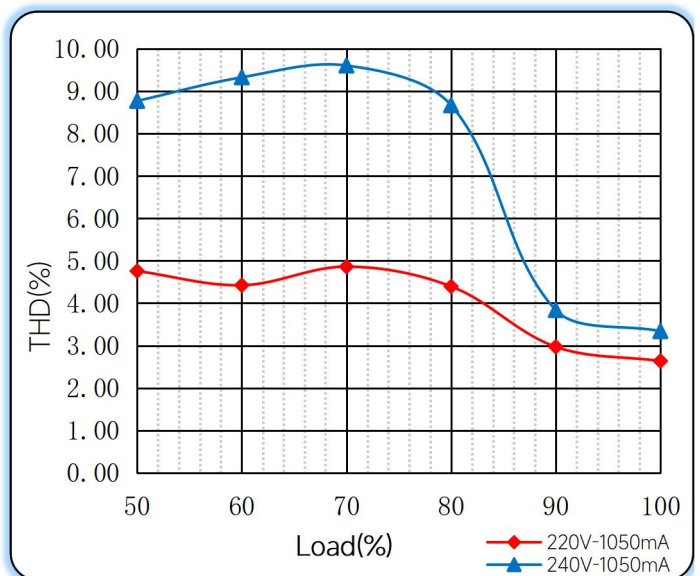
Efficiency vs. Load



Power Factor Characteristics



THD vs. Load



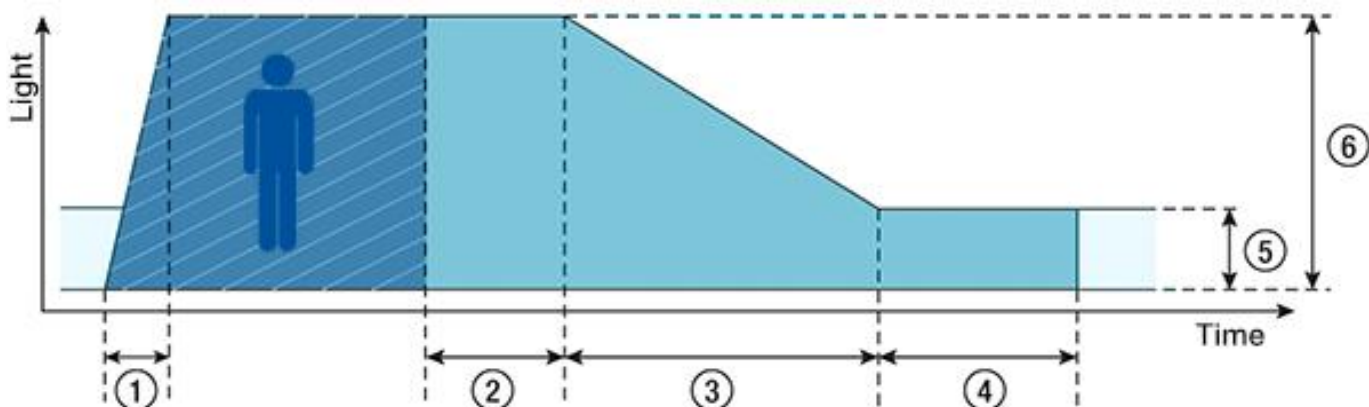
◆ Push dimming operation

| Action | Action duration | Function |
|--------------------------|-----------------|---|
| Short push | <0.5s | Turn on/off |
| Short push twice | <0.5s | LED on: Save current brightness level LED off: Delete saved level and turn on at 100% brightness |
| Short push five times | <3s | Quit Corridor mode |
| Long push | 0.5-14s | Dimming up or down |
| Long push | 15s-2mins | Sync all LEDs to be 100% brightness |
| Long push | >2mins | Enter Corridor mode - LED keep 100% brightness for 2mins. Then brightness will turn to be 10% within 32s if no action during 2mins 100% brightness. |

Note:

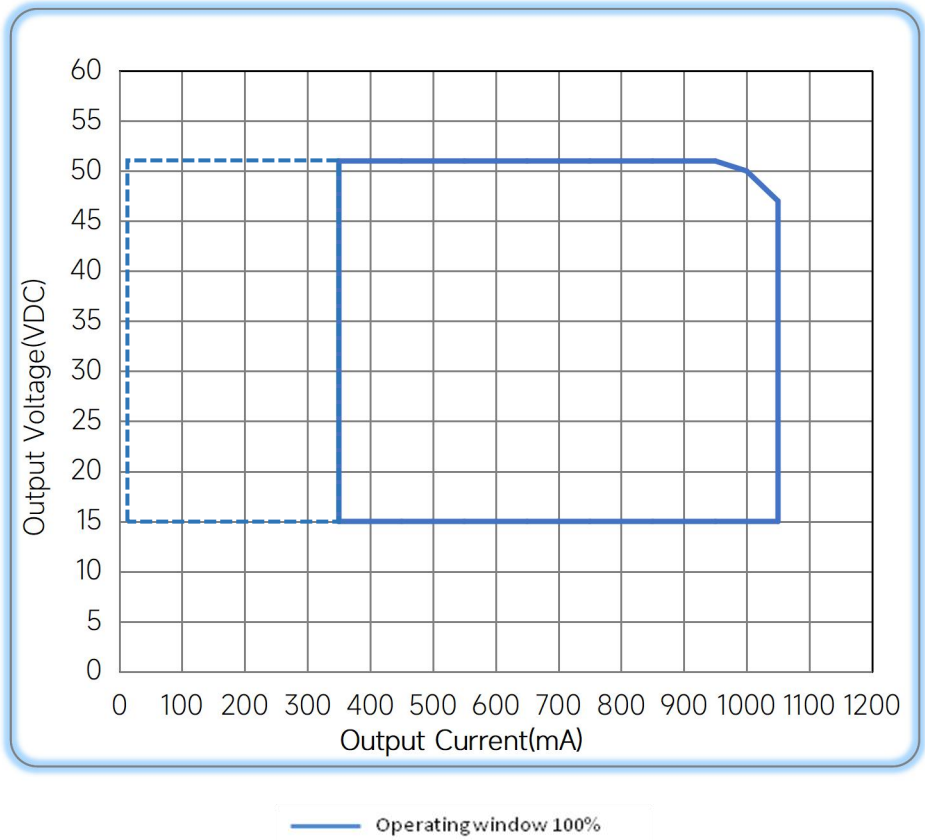
- 1.The factory default brightness is at 100%.
- 2.Up to 30 drivers can perform the PUSH dimming at the same time when utilizing one common push button
- 3.The maximum length of the cable from the push button to the last driver is 200 meters.

◆ Corridor mode



- ◆ ① **Fade-in time(0.5s)**: the time that starts as soon as the presence of a person is detected. During the fade-in time the luminous intensity is faded up to the presence value.
- ◆ ② **Run-on time(120s)**: the time that starts as soon as the presence of a person is no longer detected. If the presence of a person is detected again during the run-on time the run-on time is restarted from zero. If no presence is detected during the run-on time the fade time is started as soon as the run-on time expires.
- ◆ ③ **Fade time(32s)**: the time during which the luminous intensity is faded from the presence value to the absence value.
- ◆ ④ **Switch-off delay (Never Off)**: the time during which the absence value is held before the lighting is switched off. Depending on the profile selected the switch-off delay may have different values or may not be defined.
- ◆ ⑤ **Absence value(default: 10 %)**: the luminous intensity when there is no person present.
- ◆ ⑥ **Presence value (default: 100 %)**: the luminous intensity when persons are present.

◆ Operating window



◆ Revision Updates

| ITEM | BEFORE | AFTER | VERSION | DATE |
|---------------|--------|---------------------------------|---------|------------|
| Initial | | | A | 2023/05/05 |
| Dimming depth | 1% | 5mA@350-500mA, 1%@550-1050mA | B | 2024/03/02 |

Remark:The final interpretation of the contents of the specification belongs to Astralux.

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