

## 12W DALI + PUSH Dimming power supply



■ Approve

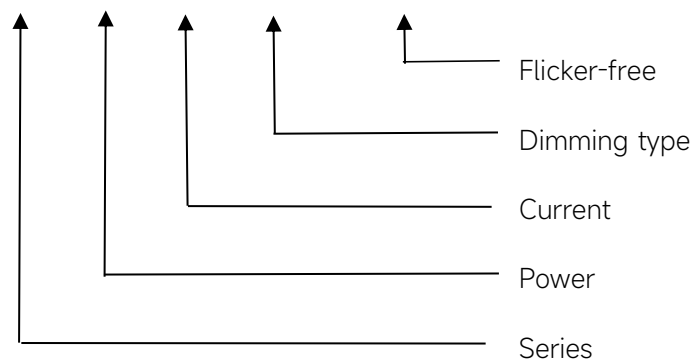


### ◆ Description

FLS-12-350 DALI2 LD is a 12W constant current LED driver with 120 to 350mA output current and a forward voltage range from 9 to 42Vdc. The output current is adjustable by DIP Switch. With it's dimensions from 119 x 40 x 21.5 mm. It is easy to integrate in LED panel, spot and down light products. To ensure trouble-free operation, protection is provided against output short circuit and over Load.

### ◆ Model code

#### FLS-12-350 DALI2 LD



#### Features

- Class II, SELV, Built-in/Independent (With side caps)
- Input Voltage 220-240VAC
- Protections: SCP/OLP/OVP/OTP
- Power Factor : 0.95@Full load
- Efficiency : 82%@Full load
- Support DALI-2, Push Dimming
- 5 years warranty

#### Applications

- LED panel, Spot light, Down light

## ◆ Specification

|                             |                                  |                                                                   |     |     |     |     |     |     |     |
|-----------------------------|----------------------------------|-------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Output                      | Constant Current (mA)            | 120                                                               | 150 | 180 | 200 | 250 | 280 | 300 | 350 |
|                             | Voltage Range (VDC)              | 9-42                                                              |     |     |     |     |     |     |     |
|                             | Unload voltage Max.              | 57VDC                                                             |     |     |     |     |     |     |     |
|                             | Current Accuracy                 | ±7%                                                               |     |     |     | ±5% |     |     |     |
|                             | Output LF current ripple(≤120Hz) | ±5%                                                               |     |     |     |     |     |     |     |
|                             | SVM                              | ≤0.4                                                              |     |     |     |     |     |     |     |
|                             | P <sub>st</sub>                  | ≤1                                                                |     |     |     |     |     |     |     |
|                             | Efficiency(Typ.)                 | 82%@Full load                                                     |     |     |     |     |     |     |     |
| Input                       | Rated input voltage              | 220-240VAC                                                        |     |     |     |     |     |     |     |
|                             | Range of input voltage           | 198-264VAC                                                        |     |     |     |     |     |     |     |
|                             | Rated input voltage(DC)          | 198-280VDC                                                        |     |     |     |     |     |     |     |
|                             | Frequency(Hz)                    | 50/60 Hz                                                          |     |     |     |     |     |     |     |
|                             | Displacement factor              | ≥0.7                                                              |     |     |     |     |     |     |     |
|                             | Power Factor                     | 0.95@Full load                                                    |     |     |     |     |     |     |     |
|                             | Input Current                    | 0.12A                                                             |     |     |     |     |     |     |     |
|                             | Start-up time                    | < 0.7S                                                            |     |     |     |     |     |     |     |
|                             | No Load Power                    | ≤0.5W                                                             |     |     |     |     |     |     |     |
|                             | Standby Power                    | ≤0.5W                                                             |     |     |     |     |     |     |     |
|                             | Network standby power            | ≤0.5W                                                             |     |     |     |     |     |     |     |
|                             | THD (Typ.)                       | <10%                                                              |     |     |     |     |     |     |     |
| Dimming                     | Dimming                          | YES                                                               |     |     |     |     |     |     |     |
|                             | Dimming mode                     | DALI-2 (IEC 62386-101,102,207) & Push Dimming (Corridor Function) |     |     |     |     |     |     |     |
|                             | Dimming depth                    | 1%                                                                |     |     |     |     |     |     |     |
|                             | Dimming current range            | 1 ~100%                                                           |     |     |     |     |     |     |     |
| Protection                  | Over Load Protection             | 103-120%                                                          |     |     |     |     |     |     |     |
|                             |                                  | YES/Latch off                                                     |     |     |     |     |     |     |     |
|                             | Over Voltage Protection          | > 57VDC                                                           |     |     |     |     |     |     |     |
|                             |                                  | YES/Latch off                                                     |     |     |     |     |     |     |     |
|                             | Short circuit Protection         | YES/Latch off                                                     |     |     |     |     |     |     |     |
| Over Temperature Protection | YES/Auto Resume                  |                                                                   |     |     |     |     |     |     |     |
| Environment                 | Operating Temperature            | -20°C~~+45°C                                                      |     |     |     |     |     |     |     |
|                             | Humidity                         | 20%-90%RH                                                         |     |     |     |     |     |     |     |
|                             | Tc                               | 80°C                                                              |     |     |     |     |     |     |     |
|                             | Storage Temperature              | -25°C~~+60°C                                                      |     |     |     |     |     |     |     |
|                             | Lifetime                         | >50000h,@Tc=65°C                                                  |     |     |     |     |     |     |     |
| Surface                     | Dimension                        | 85X40X21.5mm(With side caps :119X40X21.5mm)                       |     |     |     |     |     |     |     |

|           |                                                                                                                                                                                                                                                                                                                                                                     |                                |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| standards | IEC61347- 1, IEC61347-2- 13;EN61347- 1, EN61347-2- 13;EN61347- 1<br>EN61347-2- 13, EN62384:GB/T17743,GB 19510.1,GB 19510.14;GB/T 17743                                                                                                                                                                                                                              |                                |
| Others    | ErP                                                                                                                                                                                                                                                                                                                                                                 | EU 2019/2020                   |
|           | RoHS                                                                                                                                                                                                                                                                                                                                                                | RoHS (2011/65/EU) (EU)2015/863 |
| Note      | 1.All parameters NOT specially mentioned are measured at 230VAC input , full load and 25°C of ambient temperature.<br>2.Ripple & Noise are measured at 20MHz of bandwidth by using a 300mm twisted pair-wire terminated with a 0.1uF & 47 uF parallel capacitor.<br>3.Switch and dimmer are not recommended to connect between this product output and luminaries.. |                                |

## ◆ Parameter

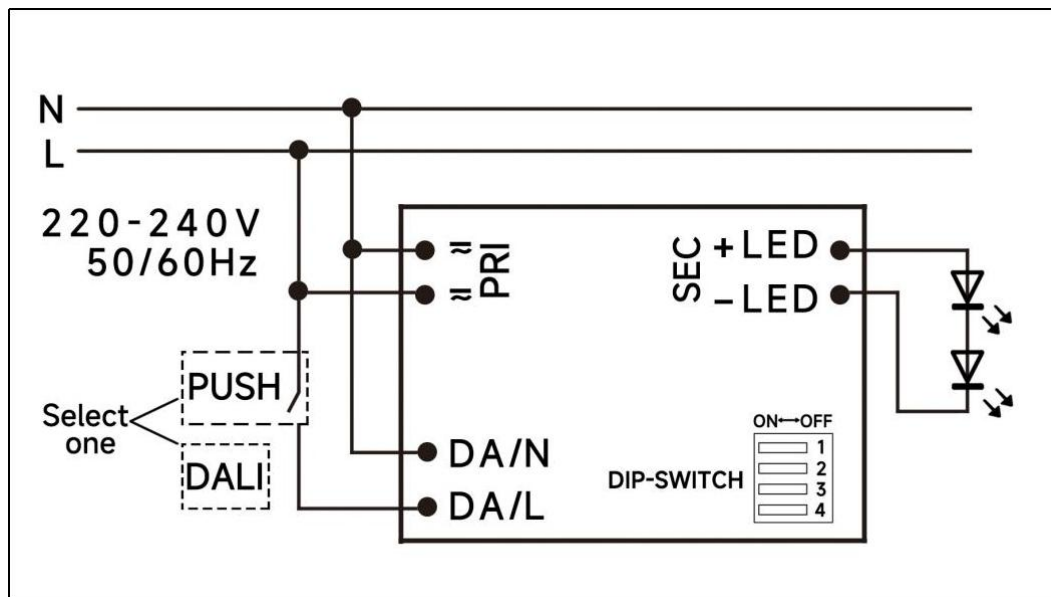
| Number | Output      | Switch position |    |    |
|--------|-------------|-----------------|----|----|
|        | Current(mA) | 1               | 2  | 3  |
| 1      | 120         | --              | -- | -- |
| 2      | 150         | ON              | -- | -- |
| 3      | 180         | --              | ON | -- |
| 4      | 200         | ON              | ON | -- |
| 5      | 250         | --              | -- | ON |
| 6      | 280         | ON              | -- | ON |
| 7      | 300         | --              | ON | ON |
| *8     | 350         | ON              | ON | ON |

\* Factory default

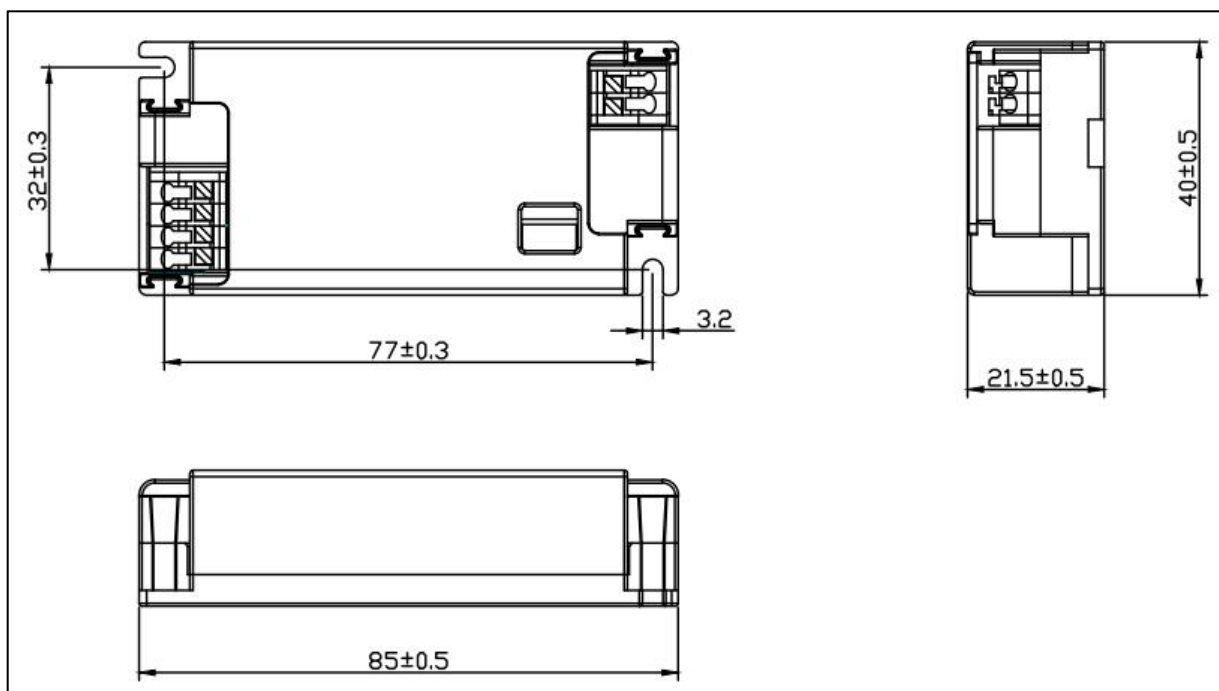
## ◆ Circuit Breaker

| I <sub>peak</sub> | T <sub>width</sub> | B10   | B16    | B20    | C10   | C16    | C20    |
|-------------------|--------------------|-------|--------|--------|-------|--------|--------|
| 3.3A              | 41.2μs             | 66pcs | 106pcs | 133pcs | 66pcs | 106pcs | 133pcs |

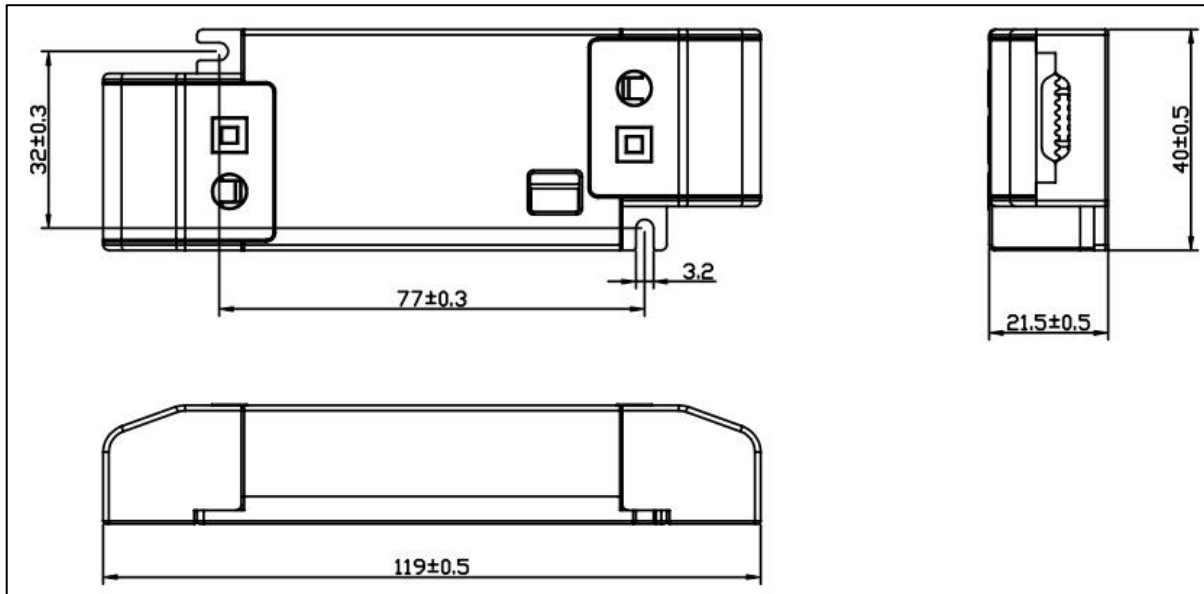
## ◆ Wiring diagram



## ◆ 2D diagram



With side caps

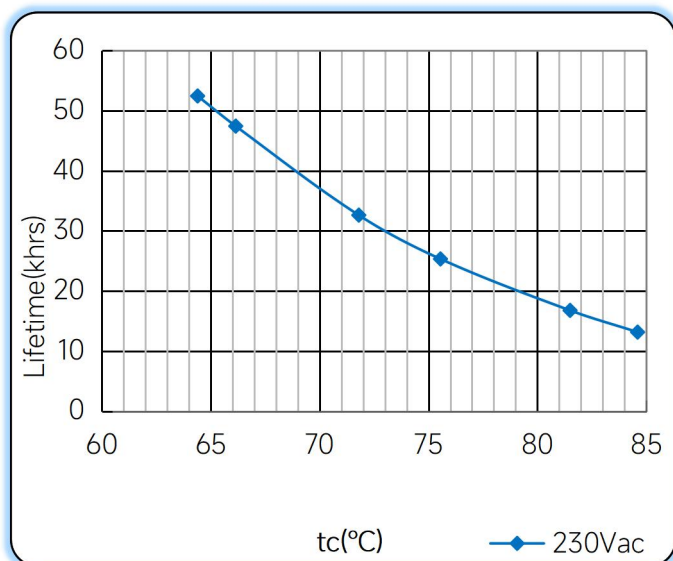


## ◆ Wiring & Connections

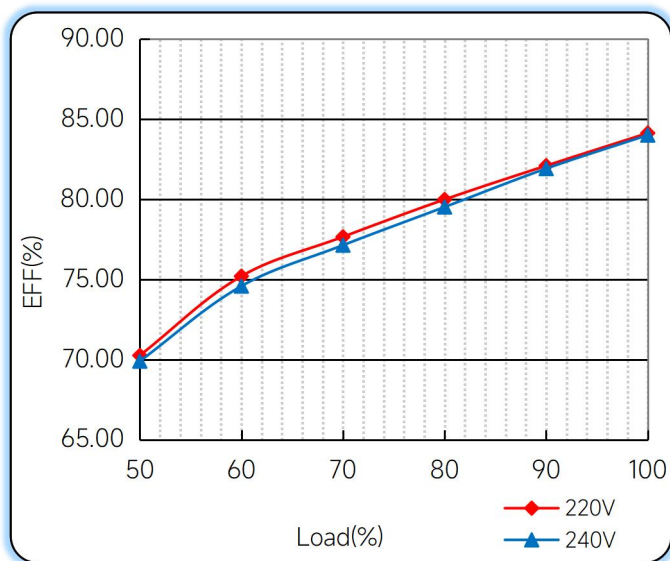
| Specification item |                           | Value (Unit )             |
|--------------------|---------------------------|---------------------------|
| Input              | Input wire cross-section  | 0.5...1.5 mm <sup>2</sup> |
|                    | Input wire gauge.         | 16...20 AWG               |
|                    | Input wire strip length   | 8...9mm                   |
| Output             | Output wire cross-section | 0.5...1.5 mm <sup>2</sup> |
|                    | Output wire gauge.        | 16...20 AWG               |
|                    | Output wire strip length  | 8...9mm                   |

## ◆ Curve for FLS-12-350 DALI-2 LD, $I_o=350mA$

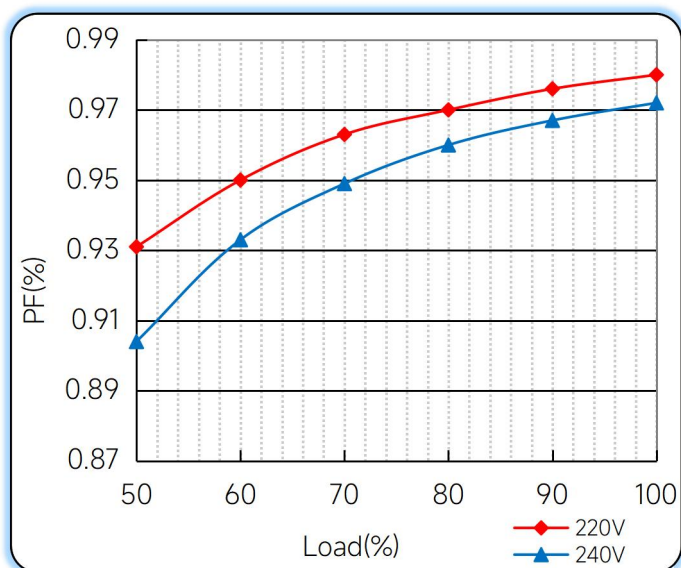
### Lifetime vs. Temperature Curve



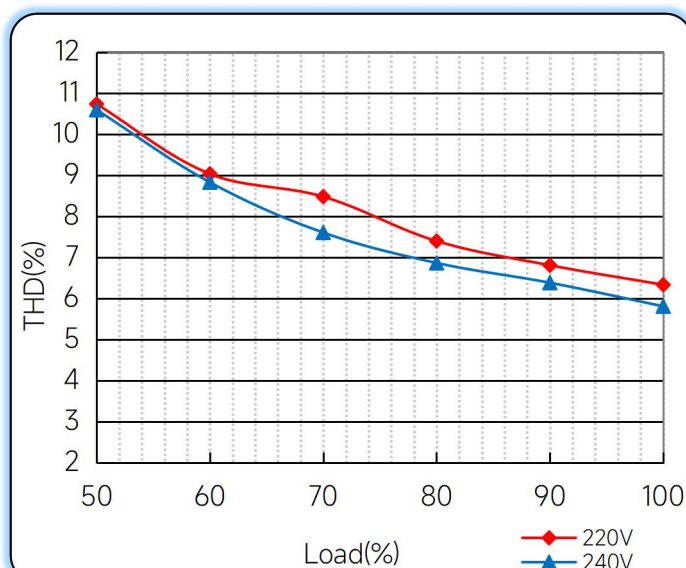
### Efficiency vs. Load



### Power Factor Characteristics



### THD vs. Load



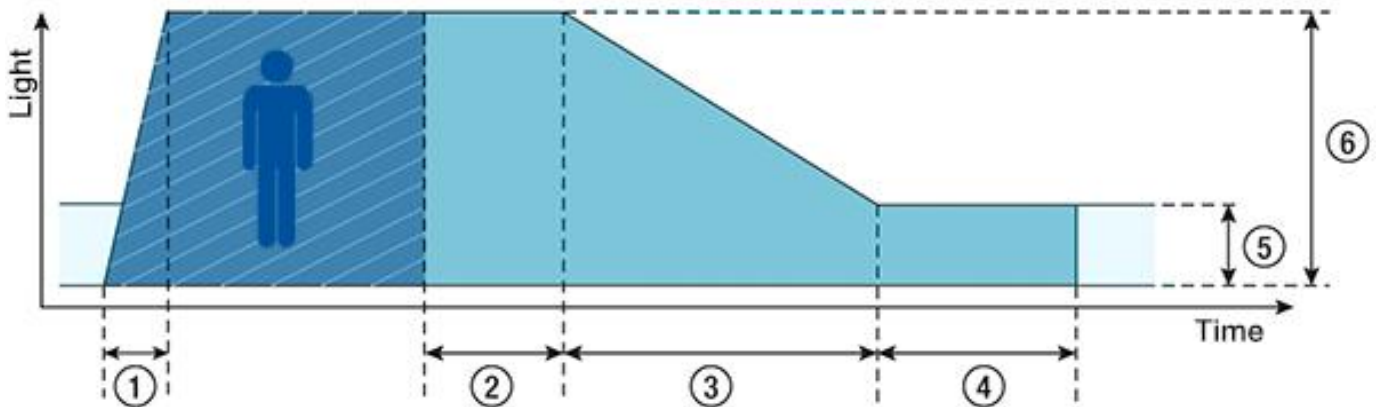
## ◆ Push dimming operation

| Action                | Action duration | Function                                                                                                                                                  |
|-----------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Short push            | <0.5s           | Turn on/off                                                                                                                                               |
| Short push twice      | <0.5s           | LED on: Save current brightness level<br>LED off: Delete saved level and turn on at 100% brightness                                                       |
| Short push five times | <0.5s           | 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.<br>Then brightness will turn to be 10% within 32s if no action during 2mins<br>100% brightness. |

### Note:

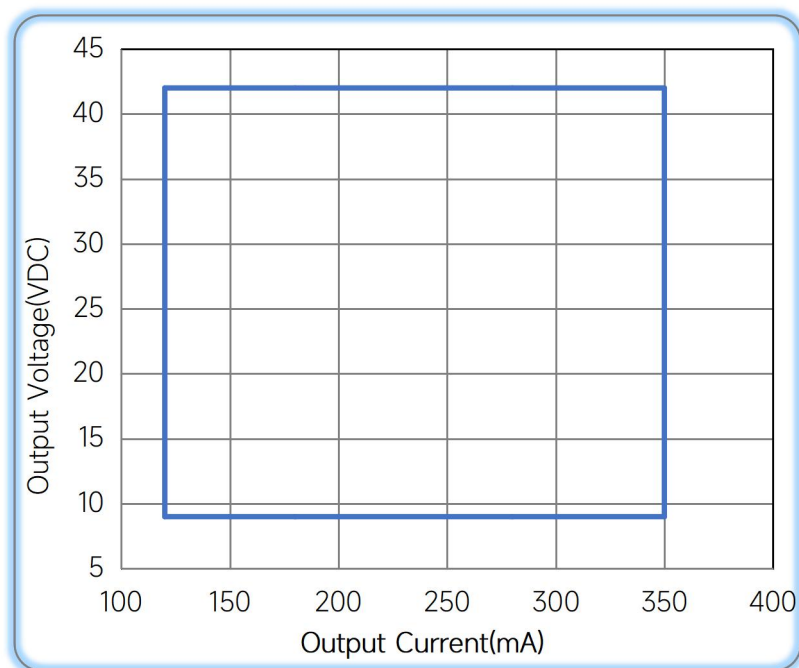
- 1.The factory default brightness is at 100%.
- 2.Up to 30 drivers can perform the PUSH dimming at the same time when utilizing one common push button
- 3.The maximum length of the cable from the push button to the last driver is 200 meters.

## ◆ Corridor mode



- ◆ **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.
- ◆ **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.
- ◆ **Fade time(32s):** the time during which the luminous intensity is faded from the presence value to the absence value.
- ◆ **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.
- ◆ **Absence value(default: 10 %):** the luminous intensity when there is no person present.
- ◆ **Presence value (default: 100 %):** the luminous intensity when persons are present.

## ◆ Operating window



Operating window 100%

## ◆ Revision Updates

| ITEM          | BEFORE | AFTER | VERSION | DATE       |
|---------------|--------|-------|---------|------------|
| Initial       |        |       | A       | 2022/02/15 |
| Start-up time | 0.5S   | 0.7S  | A       | 2022/08/12 |

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Manual