

## 12W DALI + PUSH Dimming power supply



■ Approve

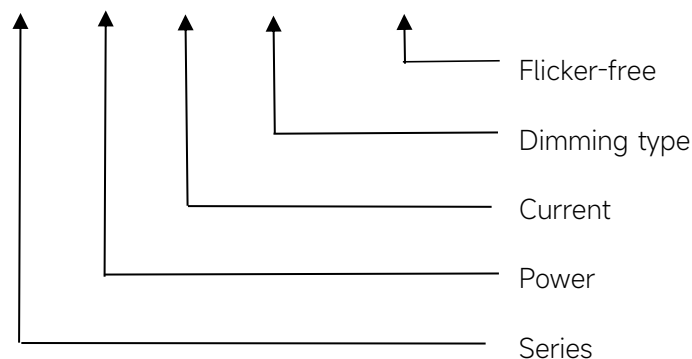


### ◆ Description

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 strips, 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 DALI-2 LD



### Features

- Class II, SELV, Built-in/Independent (With side caps)
- Input Voltage 220-240VAC
- Protections: SCP/OLP/OVP/OTP
- Power Factor : 0.9C
- Efficiency : 82%
- 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,230VAC  |   |     |     |     |     |     |     |
| Input       | Rated input voltage  | 220-240VAC  |   |     |     |     |     |     |     |
|             | Range of input voltage   | 198-264VAC  |   |     |     |     |     |     |     |
|             | Rated input voltage(DC)  | 198-280VDC  |   |     |     |     |     |     |     |
|             | Frequency(Hz)  | 0/50/60 Hz  |   |     |     |     |     |     |     |
|             | Displacement factor  | ≥0.7  |   |     |     |     |     |     |     |
|             | Power Factor   | >0.9@Full Load,230VAC   |   |     |     |     |     |     |     |
|             | 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%@Full Load,230VAC   |   |     |     |     |     |     |     |
| 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%<br>YES/Latch off   |   |     |     |     |     |     |     |
|             | Over Voltage Protection  | > 57VDC<br>YES/Latch off  |   |     |     |     |     |     |     |
|             | Short circuit Protection   | YES/Latch off   |   |     |     |     |     |     |     |
|             | Over Temperature Protection  | YES/Auto Resume   |   |     |     |     |     |     |     |
|             | Operating Temperature  | -20°C~+45°C   |   |     |     |     |     |     |     |
| Environment | 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   | EN 61347-1; EN61347-2-13; EN62384; EN55015; EN61000-3-2 ; EN61000-3-3; EN 61547; |   |   |     |     |     |     |     |     |

|        |   |                                |
|--------|---|--------------------------------|
| 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.Data are typical values obtained from test samples.<br>4.Switch and dimmer are not recommended to connect between this product output and luminaries. |                                |

## ◆ Parameter

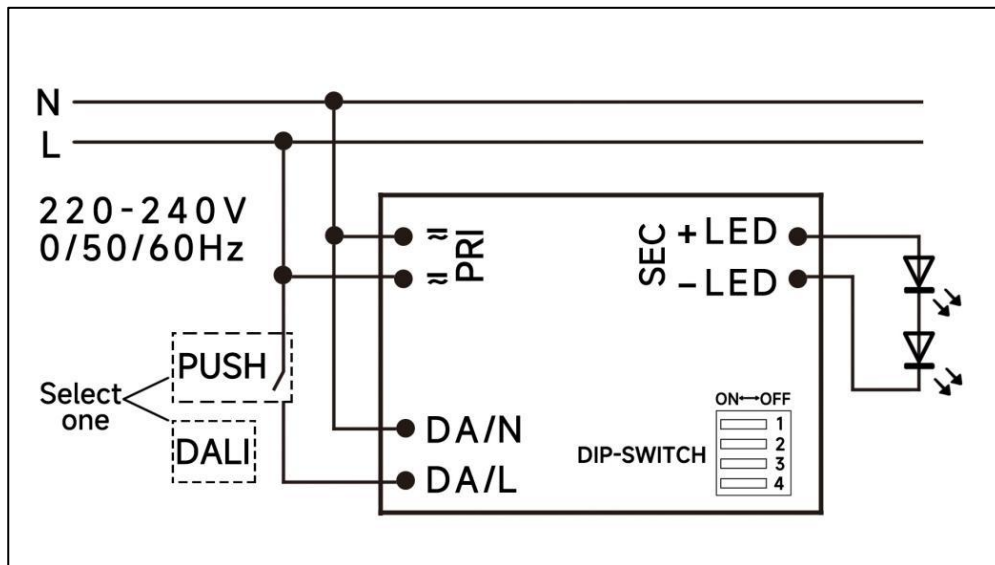
| Number | Output      | Switch position |    |    |
|--------|-------------|-----------------|----|----|
|        | Current(mA) | 1               | 2  | 3  |
| 1      | 120         | --              | -- | -- |
| 2      | 150         | ON              | -- | -- |
| 3      | 180         | --        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

\* Factory default

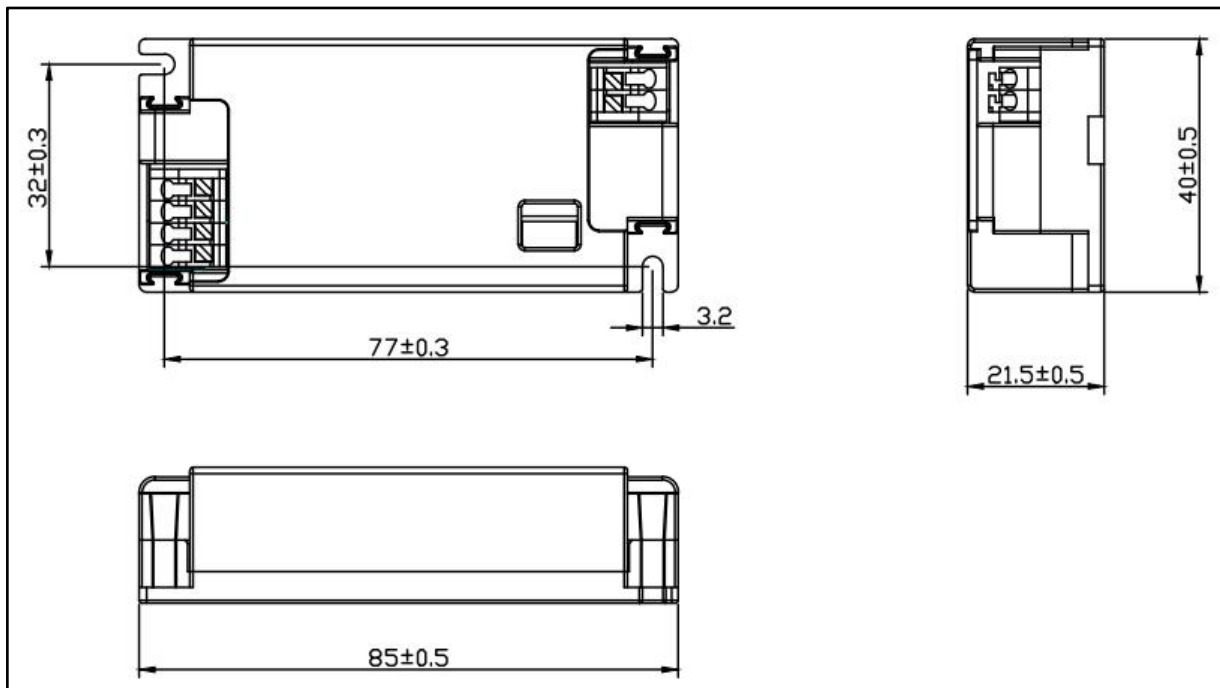
## ◆ Circuit Breaker

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

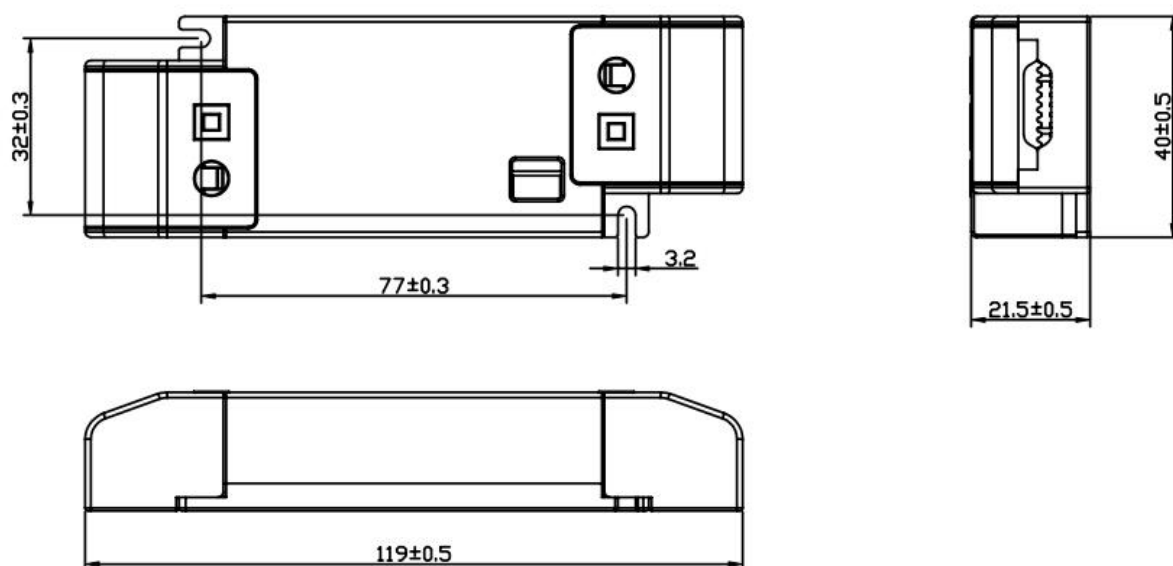
## ◆ Wiring diagram



## ◆ 2D diagram



With side caps



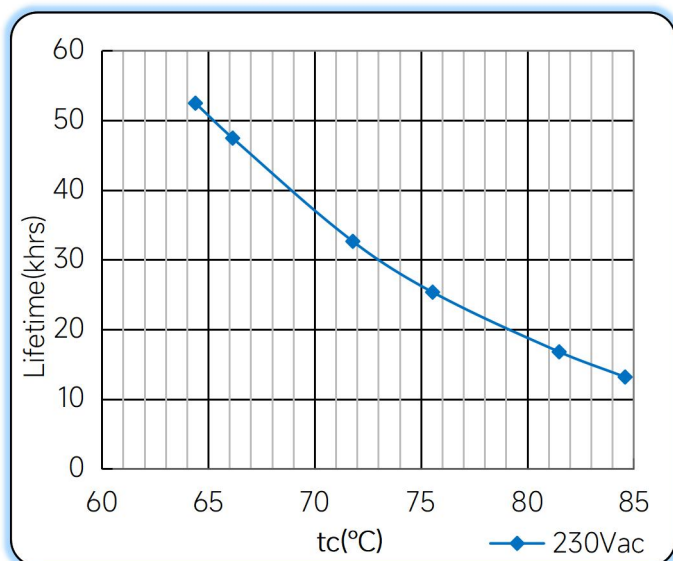
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## ◆ Wiring & Connections

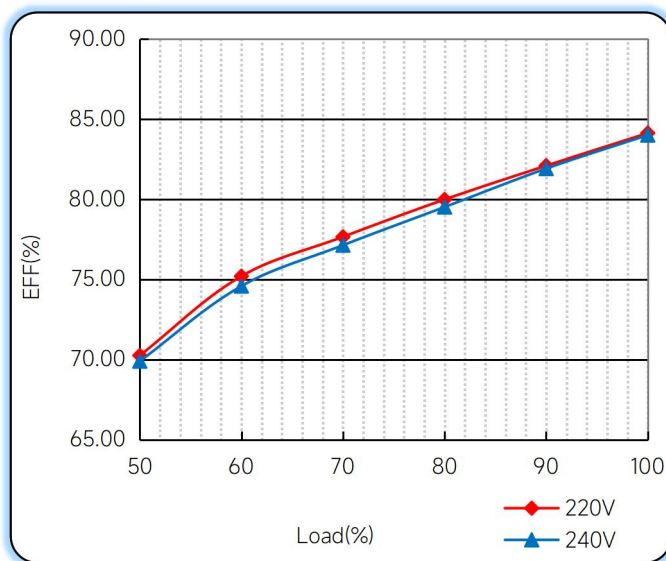
| Specification item |                           | Value (Unit )             |
|--------------------|---------------------------|---------------------------|
| Input              | Input wire cross-section  | 0.5...1.5 mm <sup>2</sup> |
|                    | Input wire gauge.         | 16...20 AWG               |
|                    | 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, $I_o=350mA$

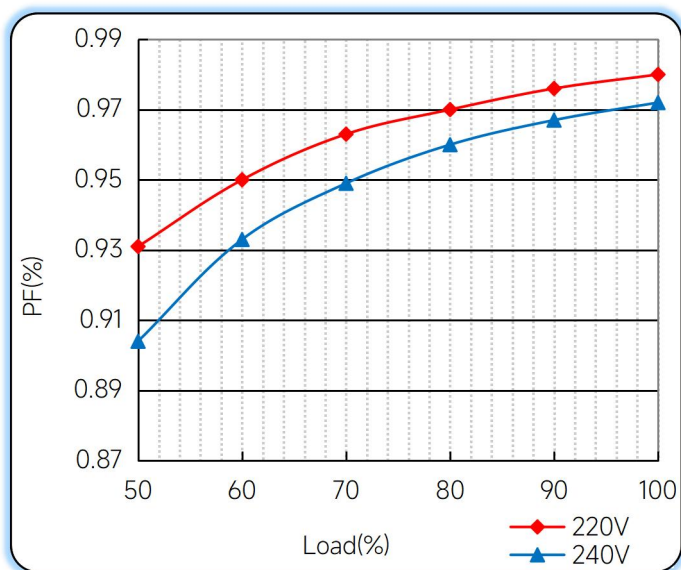
### Lifetime vs. Temperature Curve



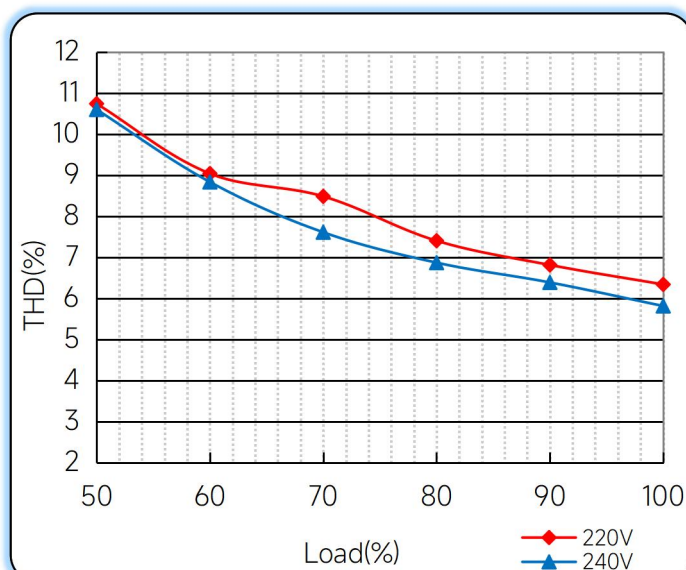
### Efficiency vs. Load



### Power Factor Characteristics



### THD vs. Load



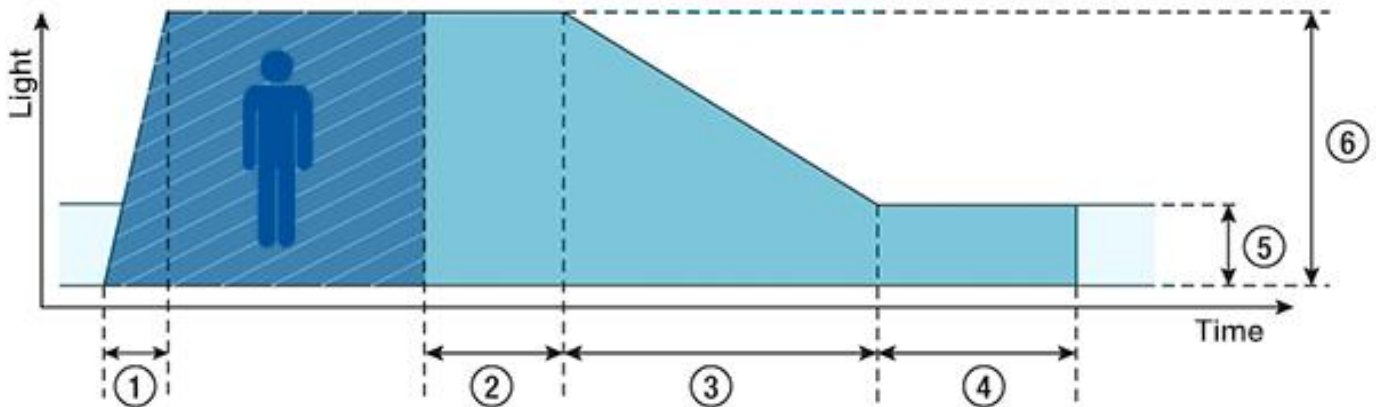
## ◆ Push dimming operation

| Action                   | Action duration | Function  |
|--------------------------|-----------------|---|
| Short push               | <0.5s           | Turn on/off   |
| Short push<br>twice      | <0.5s           | LED on: Save current brightness level<br>LED off: Delete saved level and turn on at 100% brightness   |
| Short push five<br>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.<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.

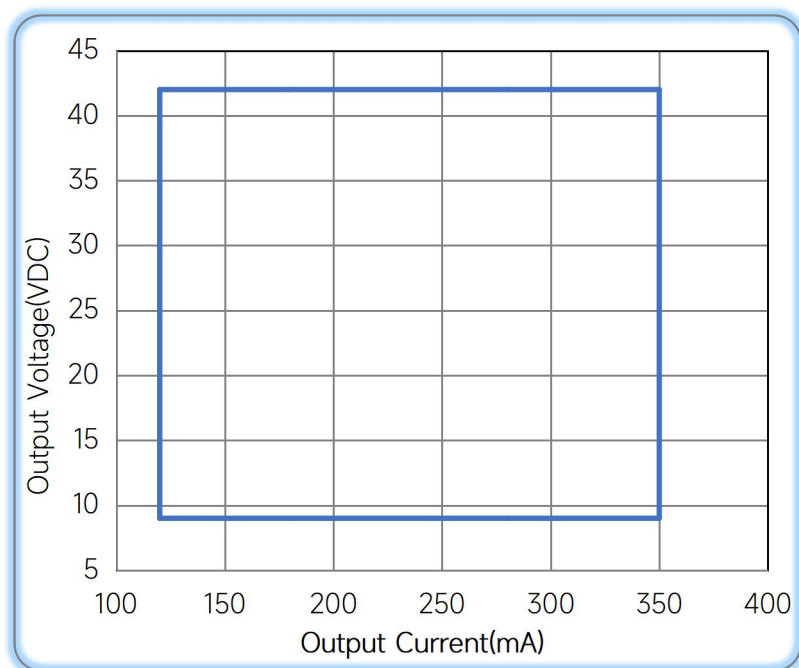
## ◆ Corridor mode



- ◆ 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



Operating window 100%

## ◆ Revision Updates

| ITEM          | BEFORE | AFTER | VERSION | DATE       |
|---------------|--------|-------|---------|------------|
| Initial       |        |       | A       | 2022/02/15 |
| Start-up time | 0.5S   | 0.7S  | B       | 2022/08/12 |
| 2D diagram    |        | Added | C       | 2023/06/02 |

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Manual