

## 20W Constant Current-FMS Series



■ Approve



### Features

- Class I, Non-isolated, Built-in
- Input Voltage 220-240VAC
- Protections: SCP/OVP/OTP
- Power Factor:  $\geq 0.9$ (Typ.)
- Efficiency: 87%(Typ.)
- Adjustable Output Current with dip-switch
- 5 years warranty
- IP20

### Applications

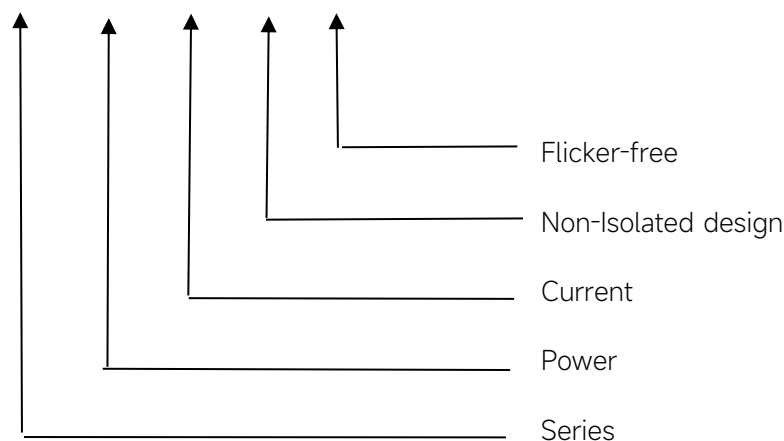
- Linear light

### ◆ Description

FMS-20-350 N-S LD EXC is a 20W constant current LED driver that operates from 198-264Vac input with 100 to 350mA output current. The output current is adjustable by DIP Switch. With it's dimensions from 168 x 30 x 21mm. It is easy to integrate in linear light products. To ensure trouble-free operation, protection is provided against output short circuit, over voltage and over temperature.

### ◆ Model code

FMS-20-350 N-S LD EXC



## ◆ Specification

|             |                                                                                                                                                                                                                                                                                                                                                                   |                                                          |       |       |       |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------|-------|-------|
| Output      | Constant Current                                                                                                                                                                                                                                                                                                                                                  | 100mA                                                    | 120mA | ...mA | 350mA |
|             | Voltage Range                                                                                                                                                                                                                                                                                                                                                     | 40-220VDC                                                |       |       |       |
|             | Unload voltage Max.(VDC)                                                                                                                                                                                                                                                                                                                                          | 250VDC                                                   |       |       |       |
|             | Current Accuracy                                                                                                                                                                                                                                                                                                                                                  | ±5%                                                      |       |       |       |
|             | Output HF current ripple(≥1KHz)                                                                                                                                                                                                                                                                                                                                   | ±5%                                                      |       |       |       |
|             | Output LF current ripple(<120Hz)                                                                                                                                                                                                                                                                                                                                  | ±5%                                                      |       |       |       |
|             | SVM                                                                                                                                                                                                                                                                                                                                                               | ≤0.4                                                     |       |       |       |
|             | Pst                                                                                                                                                                                                                                                                                                                                                               | ≤1                                                       |       |       |       |
|             | Efficiency(Typ.)                                                                                                                                                                                                                                                                                                                                                  | ≥87%@Full load ,220-240V                                 |       |       |       |
| Input       | Rated input voltage                                                                                                                                                                                                                                                                                                                                               | 220-240VAC                                               |       |       |       |
|             | Range of input voltage                                                                                                                                                                                                                                                                                                                                            | 198-264VAC                                               |       |       |       |
|             | Range of input DC voltage(VDC)                                                                                                                                                                                                                                                                                                                                    | 176-280VDC                                               |       |       |       |
|             | Frequency(Hz)                                                                                                                                                                                                                                                                                                                                                     | 0/50/60 Hz                                               |       |       |       |
|             | Displacement factor                                                                                                                                                                                                                                                                                                                                               | ≥0.9                                                     |       |       |       |
|             | Power Factor                                                                                                                                                                                                                                                                                                                                                      | ≥0.9@Full load ,220-240V                                 |       |       |       |
|             | Input Current max                                                                                                                                                                                                                                                                                                                                                 | 0.15A                                                    |       |       |       |
|             | Start-up time                                                                                                                                                                                                                                                                                                                                                     | < 0.5S                                                   |       |       |       |
|             | No Load Power                                                                                                                                                                                                                                                                                                                                                     | ≤0.5W                                                    |       |       |       |
|             | THD (Typ.)                                                                                                                                                                                                                                                                                                                                                        | <15% @Full load ,220-240V                                |       |       |       |
| Protection  | Over Voltage Protection                                                                                                                                                                                                                                                                                                                                           | YES/Auto Resume                                          |       |       |       |
|             | Short circuit Protection                                                                                                                                                                                                                                                                                                                                          | YES/Auto Resume                                          |       |       |       |
|             | Over Temperature Protection                                                                                                                                                                                                                                                                                                                                       | YES/Auto Resume<br>Ta≥75° C, reducing the output current |       |       |       |
| Environment | Operating Temperature                                                                                                                                                                                                                                                                                                                                             | -25°C~-+60°C                                             |       |       |       |
|             | Humidity                                                                                                                                                                                                                                                                                                                                                          | 20%-90%RH                                                |       |       |       |
|             | Maximum case temperature(Tc)                                                                                                                                                                                                                                                                                                                                      | 80°C                                                     |       |       |       |
|             | Storage Temperature                                                                                                                                                                                                                                                                                                                                               | -40°C~-+85°C                                             |       |       |       |
|             | Life time                                                                                                                                                                                                                                                                                                                                                         | >50,000h@Tc=75<br>>100,000h@Tc=65                        |       |       |       |
|             | Ripple & Noise                                                                                                                                                                                                                                                                                                                                                    | ≤20dB(A)@20cm                                            |       |       |       |
| Surface     | Dimension                                                                                                                                                                                                                                                                                                                                                         | 168 x 30 x 21(LXWXH)mm                                   |       |       |       |
| Standards   | IEC61347- 1, IEC61347-2- 13; EN61347- 1, EN61347-2- 13; EN61347- 1, EN61347-2- 13, EN62384; GB/T17743, GB17625. 1, GB19510. 1, GB19510. 14; EN55015, EN61000-3-2, EN61000-3-3, EN61547                                                                                                                                                                            |                                                          |       |       |       |
| 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

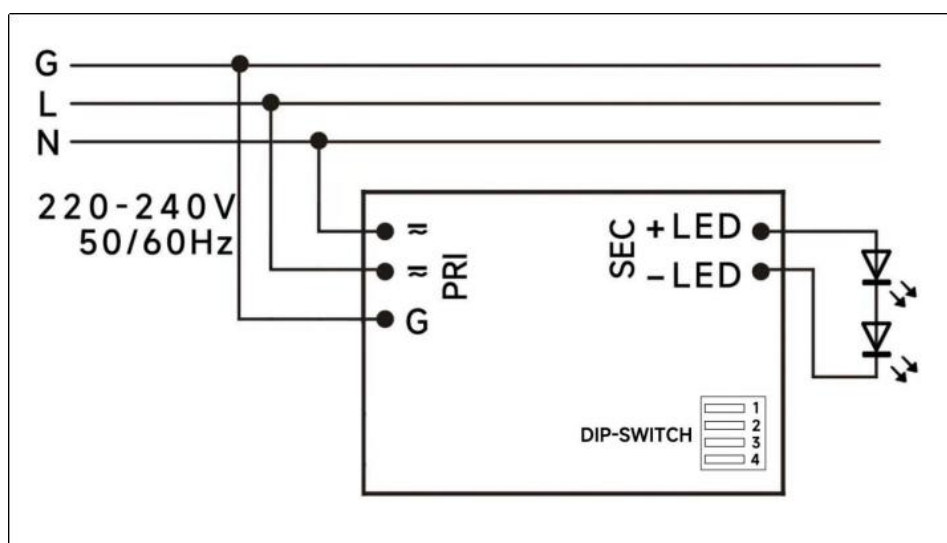
| Number | Output          |                  |              | Switch position |    |    |    |
|--------|-----------------|------------------|--------------|-----------------|----|----|----|
|        | Current<br>(mA) | Voltage<br>(VDC) | Power<br>(W) | 1               | 2  | 3  | 4  |
| 1      | 100mA           | 40-220           | 22W          | --              | -- | -- | -- |
| 2      | 120mA           | 40-165           | 19.8W        | ON              | -- | -- | -- |
| 3      | 150mA           | 40-130           | 19.5W        | --              | ON | -- | -- |
| 4      | 200mA           | 40-100           | 20W          | --              | -- | ON | -- |
| 5      | 250mA           | 40-80            | 20W          | --              | ON | ON | -- |
| 6      | 300mA           | 40-65            | 19.5W        | --              | -- | -- | ON |
| *7     | 350mA           | 40-55            | 19.25W       | --              | ON | -- | ON |

\* Factory default

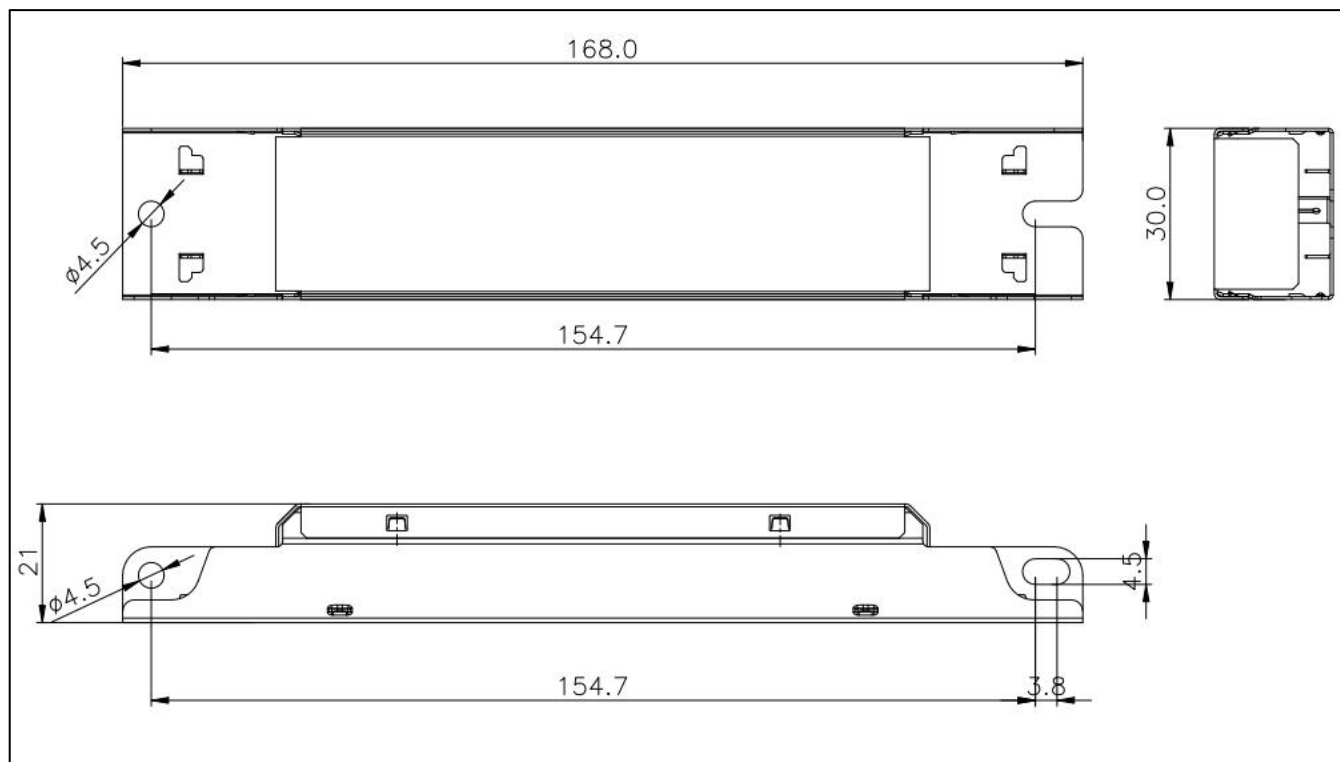
## ◆ Circuit Breaker

| I <sub>peak</sub> | T <sub>width</sub> | B10   | B16   | B20   | C10   | C16   | C20   |
|-------------------|--------------------|-------|-------|-------|-------|-------|-------|
| 17.6A             | 162μs              | 29pcs | 46pcs | 58pcs | 48pcs | 77pcs | 96pcs |

## ◆ Wiring diagram



## ◆ 2D diagram

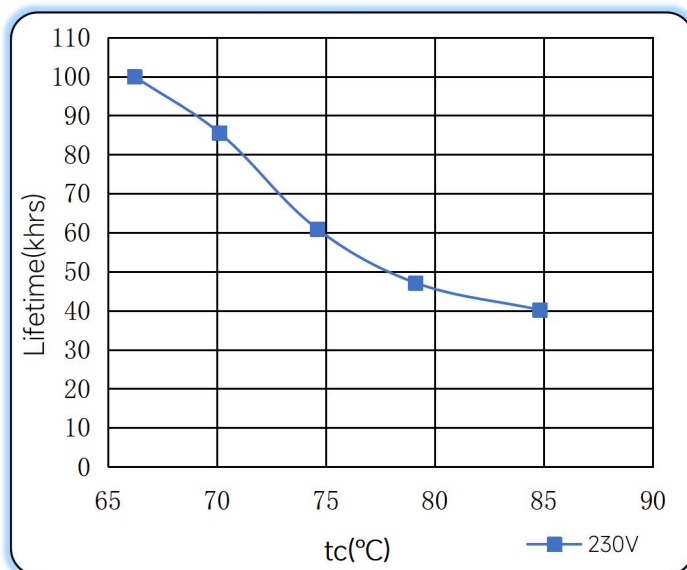


## ◆ Wiring & Connections

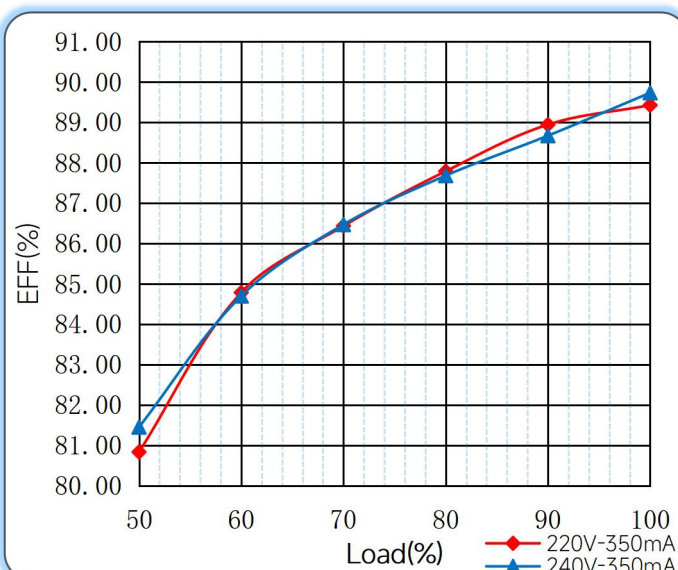
| Specification item |                           | Value (Unit )             |
|--------------------|---------------------------|---------------------------|
| Input              | Input wire cross-section  | 0.5...1.5 mm <sup>2</sup> |
|                    | Input wire gauge.         | 16...20 AWG               |
|                    | Input wire strip length   | 7...9mm                   |
| Output             | Output wire cross-section | 0.5...1.5 mm <sup>2</sup> |
|                    | Output wire gauge.        | 16...20 AWG               |
|                    | Output wire strip length  | 7...9mm                   |

## ◆ Curve for FMS-20-350 N-S LD EXC, $I_o=350\text{mA}$

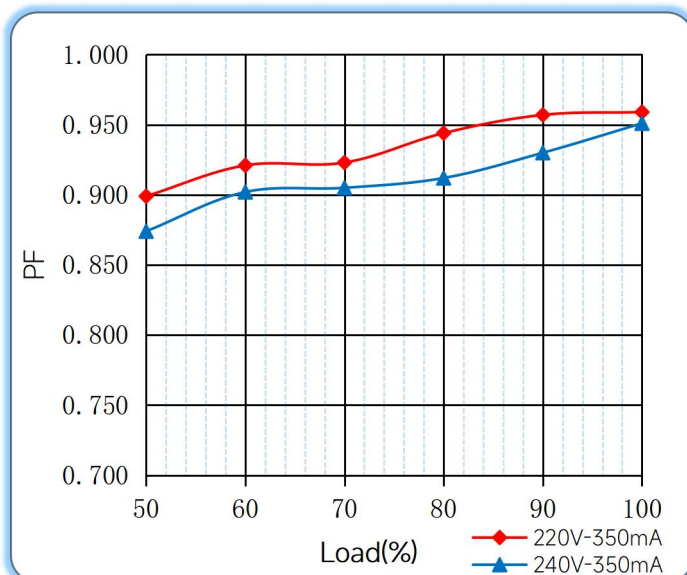
### Lifetime vs. Temperature Curve



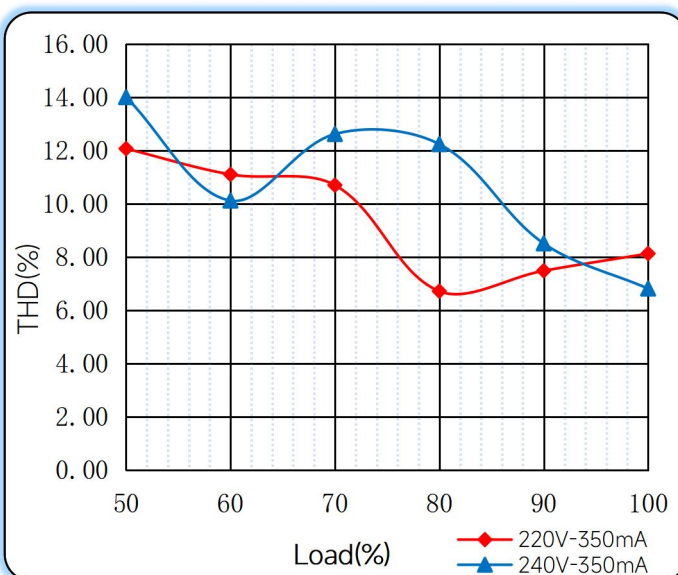
### Efficiency vs. Load



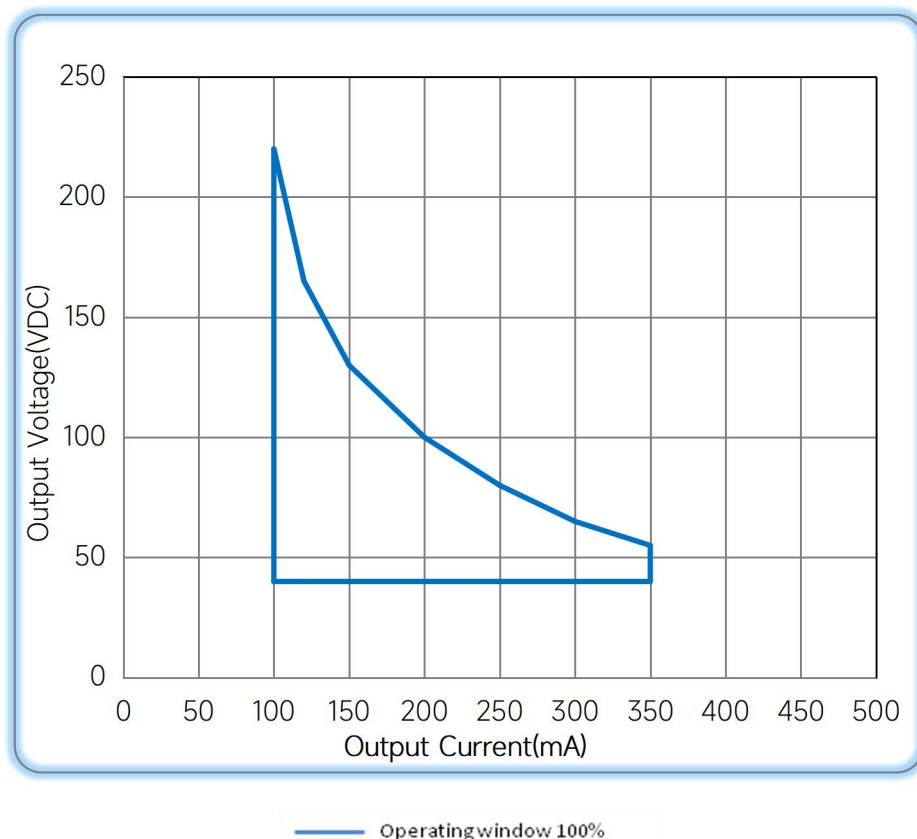
### Power Factor Characteristics



### THD vs. Load



## ◆ Operating window



## ◆ Revision Updates

| ITEM    | BEFORE | AFTER   | VERSION | DATE       |
|---------|--------|---------|---------|------------|
| Initial |        |         | A       | 2023/01/13 |
|         |        | Updated | B       | 2023/05/30 |

Tel: +86-0757-86256822, +86-0757-86256831

E-mail: sales@eaglerise.com

Website : <https://lighting.eaglerise.com>



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Manual