

## 20W Constant Current power supply



■ Approve



### Features

- Class II, SELV, independent
- Input Voltage 220-240VAC
- Protections: SCP/OLP/OVP
- Power Factor : 0.95
- Efficiency : 85%
- 5 years warranty

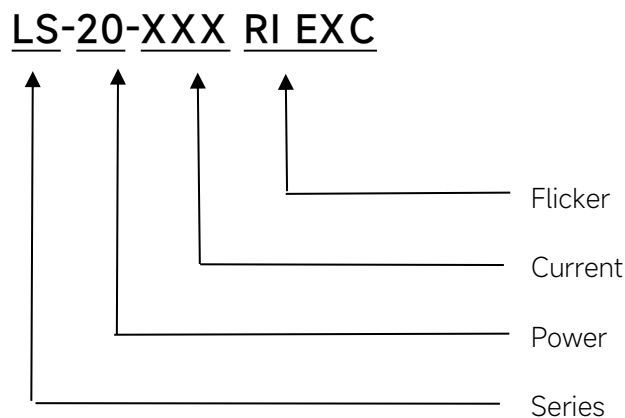
### Applications

- LED panel, LED down light
- LED spot light

### ◆ Description

LS-20-XXX RI EXC is a 20W constant current LED driver that operates from 198-264Vac input with 350mA to 500mA output current. With it's compact dimensions from 100 x 38.2 x 25mm 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



## ◆ Specification

|             |                                  |                                                                      |       |       |       |
|-------------|----------------------------------|----------------------------------------------------------------------|-------|-------|-------|
| Output      | Constant Current                 | 350mA                                                                | 400mA | 450mA | 500mA |
|             | Voltage Range                    | 40-60                                                                | 24-42 |       |       |
|             | Unload voltage Max.              | 72                                                                   | 59    |       |       |
|             | Current Accuracy                 | ±6%                                                                  |       |       |       |
|             | Output HF current ripple(≥1KHz)  | ±5%                                                                  |       |       |       |
|             | Output LF current ripple(≤120Hz) | ±70%                                                                 | ±50%  |       |       |
|             | SVM                              | NA                                                                   |       |       |       |
|             | P <sub>st</sub>                  | NA                                                                   |       |       |       |
|             | Efficiency(Typ.)                 | 85%@Full load,230V                                                   |       |       |       |
| Input       | Rated input voltage              | 220-240VAC                                                           |       |       |       |
|             | Range of input voltage           | 198-264VAC                                                           |       |       |       |
|             | Maximum voltage                  | 300VAC@1 h maximum,unit might not operate in this abnormal condition |       |       |       |
|             | Frequency(Hz)                    | 50/60 Hz                                                             |       |       |       |
|             | Displacement factor              | ≥0.7                                                                 |       |       |       |
|             | Power Factor                     | 0.95@Full load,230V                                                  |       |       |       |
|             | Input Current max                | 0.16A MAX                                                            |       |       |       |
|             | Start-up time                    | < 0.5S                                                               |       |       |       |
|             | No Load Power                    | ≤0.5W                                                                |       |       |       |
|             | THD (Typ.)                       | < 20%@Full load,230V                                                 |       |       |       |
| Protection  | Over Load Protection             | 103-120%                                                             |       |       |       |
|             |                                  | YES/Auto Resume                                                      |       |       |       |
|             | Over Voltage Protection          | 72VDC                                                                | 59VDC |       |       |
|             |                                  | YES/Auto Resume                                                      |       |       |       |
|             | Short circuit Protection         | YES/Auto Resume                                                      |       |       |       |
| Environment | Operating Temperature            | -20°C~+45°C                                                          |       |       |       |
|             | Humidity                         | 20%-90%RH                                                            |       |       |       |
|             | T <sub>c</sub>                   | 80°C                                                                 |       |       |       |
|             |                                  | 85°C@500mA                                                           |       |       |       |
|             | Storage Temperature              | -25°C~+60°C                                                          |       |       |       |
|             | Life time                        | > 50000h@T <sub>c</sub> =70°C,230VAC                                 |       |       |       |
|             |                                  | > 50000h@T <sub>c</sub> =85°C,230VAC,500mA                           |       |       |       |
| Noise       | ≤20dB(A)@10cm                    |                                                                      |       |       |       |
| Surface     | Dimension                        | 100X38.2X25(LXWXH)mm                                                 |       |       |       |
|             | material                         | PP                                                                   |       |       |       |
| Standards   | Safety                           | EN61347- 1, EN61347-2- 13;EN62384                                    |       |       |       |
|             | EMC                              | EN55015, EN61000-3-2, EN61000-3-3, EN61547;EN61000-4-5               |       |       |       |
|             | ErP                              | Erp2.0 EU 2019/2020                                                  |       |       |       |

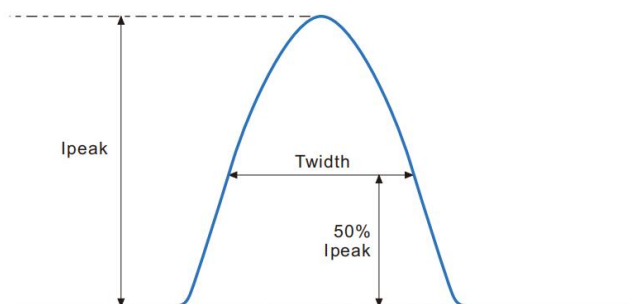
|      |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|      | 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. |                                |

## ◆ Model list

| Number | Model number      | Input         |             |                | Output       |               |                       |           |
|--------|-------------------|---------------|-------------|----------------|--------------|---------------|-----------------------|-----------|
|        |                   | Voltage (VAC) | Current (A) | Frequency (Hz) | Current (mA) | Voltage (VDC) | Voltage No load (VDC) | Power (W) |
| 1      | *LS-20-350 RI EXC | 220-240       | 0.16        | 50/60          | 350          | 40-60         | 72                    | 21        |
| 2      | LS-20-400 RI EXC  |               |             |                | 400          | 24-42         | 59                    | 16.8      |
| 3      | LS-20-450 RI EXC  |               |             |                | 450          | 24-42         | 59                    | 18.9      |
| 4      | *LS-20-500 RI EXC |               |             |                | 500          | 24-42         | 59                    | 21        |

## ◆ Inrush Current

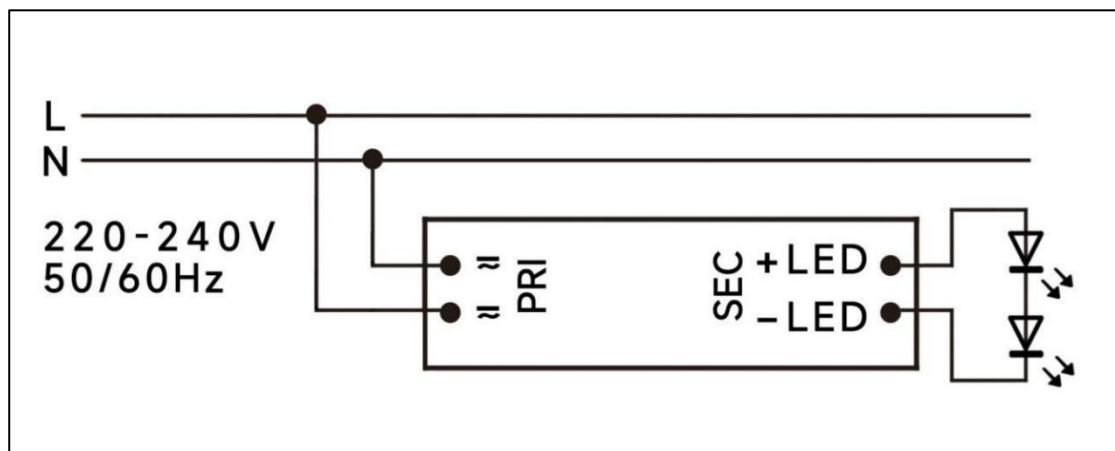
| I <sub>peak</sub> | T <sub>width</sub> | B10   | B16   | B20    | C10   | C16   | C20    |
|-------------------|--------------------|-------|-------|--------|-------|-------|--------|
| 4.18A             | 36μs               | 50pcs | 80pcs | 100pcs | 50pcs | 80pcs | 100pcs |



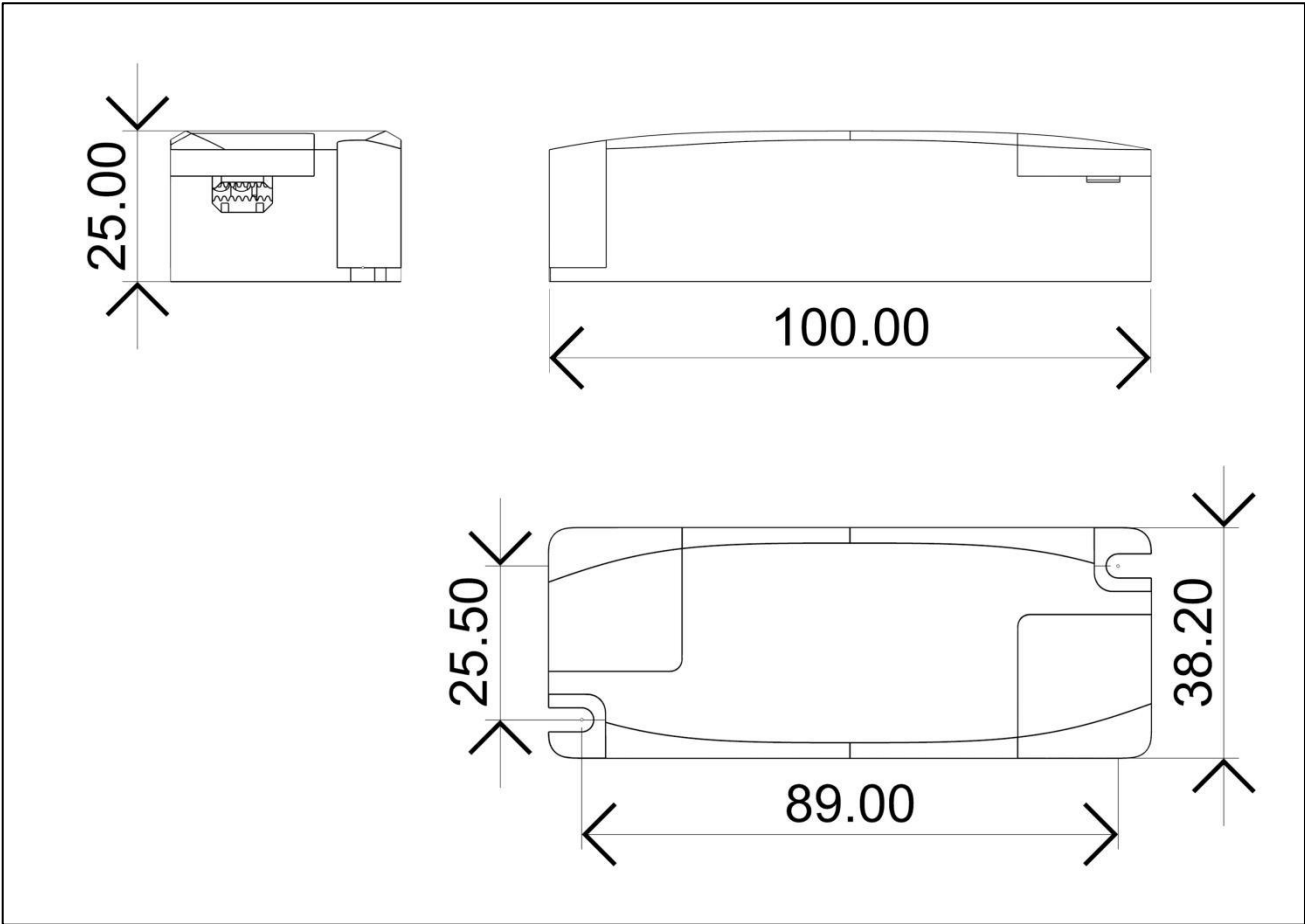
### Remarks:

- 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



◆ 2D diagram



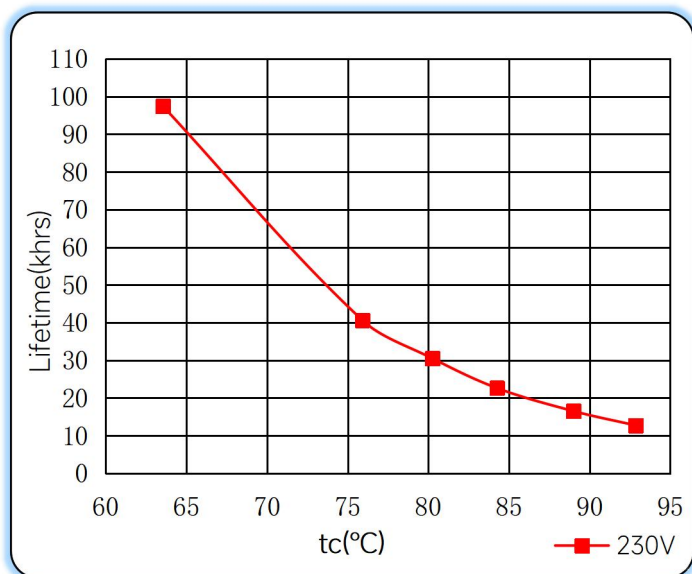
◆ Wiring & Connections

| 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                   |

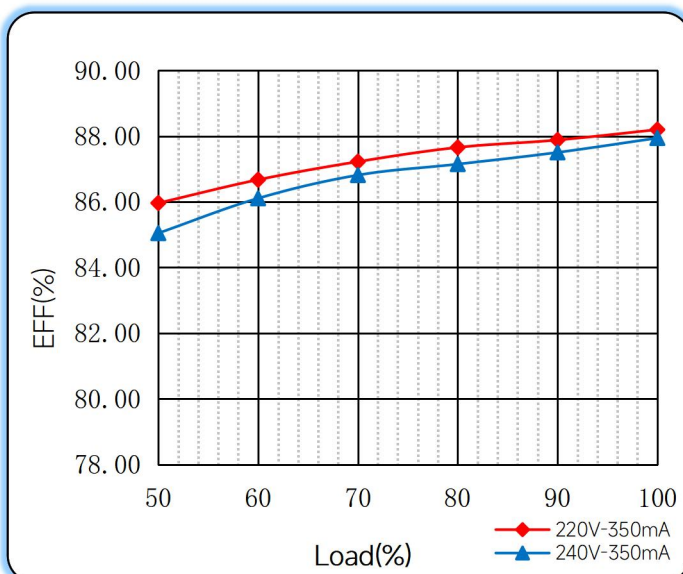
Note:Solid wire is risky to use on an angled terminal.Stranded wire is recommended for this kind of use.

# ◆ Curve for LS-20-350 RI EXC, I<sub>o</sub>=350mA

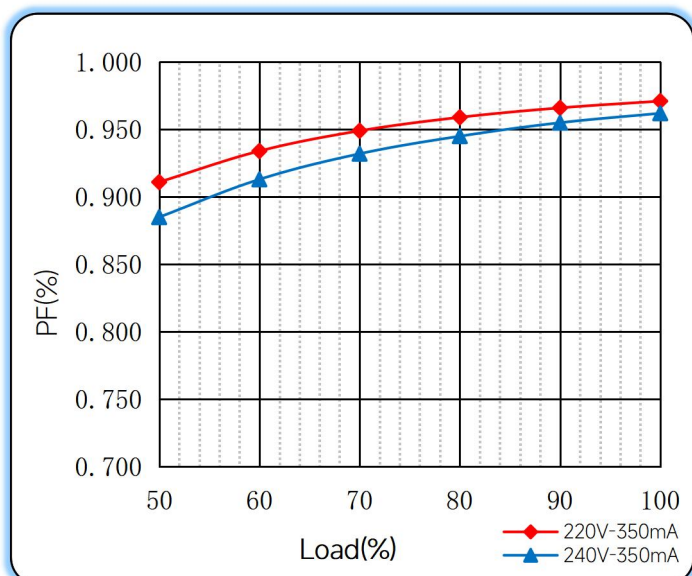
Lifetime vs. Temperature Curve



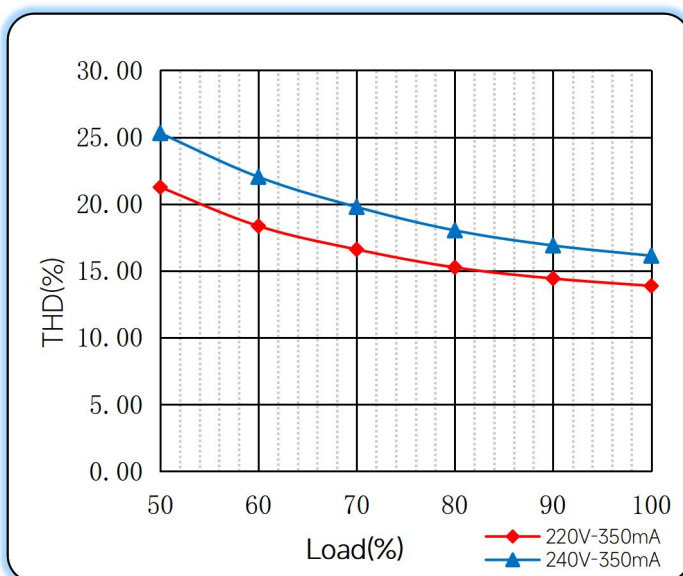
Efficiency vs. Load



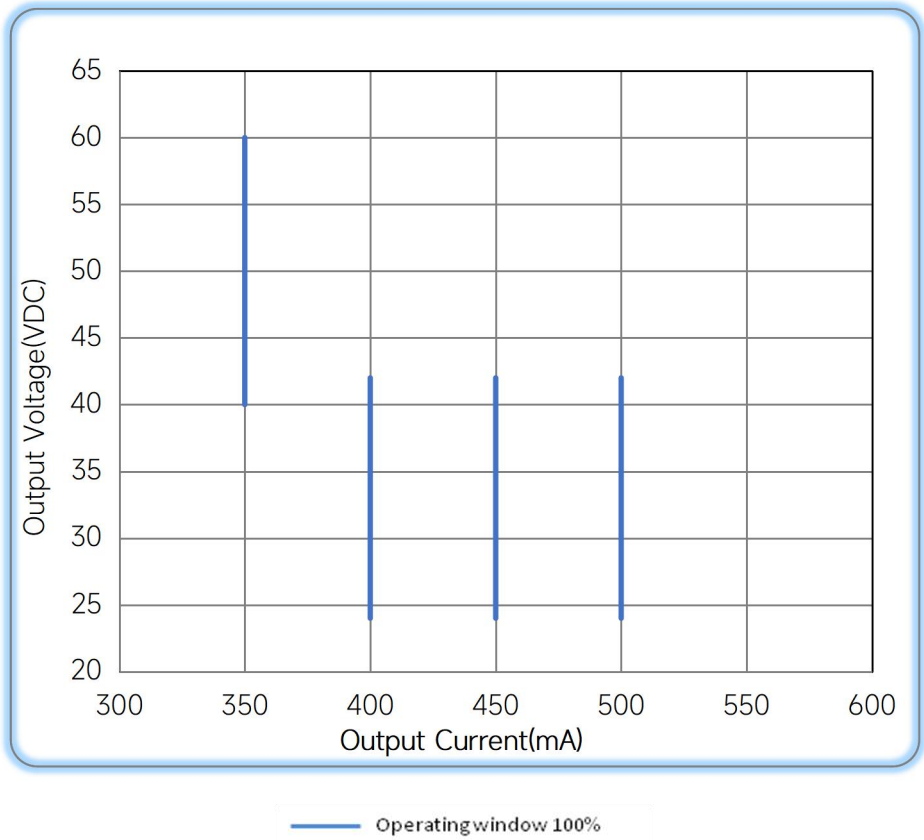
Power Factor Characteristics



THD vs. Load



◆ Operating window



◆ Revision Updates

| ITEM                     | BEFORE     | AFTER      | VERSION | DATE       |
|--------------------------|------------|------------|---------|------------|
| Initial                  |            |            | A       | 2023/08/23 |
| update                   |            |            | B       | 2023/11/17 |
| Output LF current ripple | ±50%@350mA | ±70%@350mA | C       | 2024/01/12 |

Remark:The final interpretation of the contents of the specification belongs to Eaglerise Electric & Electronic (China) Co., Ltd.

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