



## FEATURES

- Universal 85 - 264VAC or 120 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C to +70°C
- High efficiency, high reliability
- Built-in active PFC function
- 150% peak load output for 3 seconds
- LED indicator for power on
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to IEC/EN/UL62368, UL61010

LIF240-10BxxR2S is Mornsun AC-DC converter series featuring a cost-effective, energy efficient green power supply solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise for industrial control equipment, machinery, and other industrial equipment in a variety of harsh environments. These light weight AC-DC converters have an extremely compact design and the standard rail installation for space saving. With good EMC performance, compliant with international IEC/EN/UL62368, UL61010, UL508 standards for EMC and safety.

## Selection Guide

| Certification             | Part No.*       | Output Power (W) | Nominal Output Voltage and Current (Vo/Io) | Output Voltage Adjustable Range (V) | Efficiency at 230VAC (%) Typ. | Max. Capacitive Load (µF) |
|---------------------------|-----------------|------------------|--|-------------------------------------|-------------------------------|---------------------------|
| UL/EN/BIS<br>(UL pending) | LIF240-10B12R2S | 192              | 12V/16A                                    | 12.0-14.0                           | 93                            | 160,000                   |
|                           | LIF240-10B24R2S | 240              | 24V/10A                                    | 24.0-28.0                           | 94                            | 40,000                    |
|                           | LIF240-10B48R2S |                  | 48V/5A                                     | 48.0-53.0                           |                               | 10,000                    |

Note: \*Use suffix "QQ" for double-faced conformal coating.

## Input Specifications

| Item                    | Operating Conditions            |                | Min.        | Typ. | Max. | Unit |
|-------------------------|---------------------------------|----------------|-------------|------|------|------|
| Input Voltage Range     | Rated input (Certified voltage) |                | 100         | --   | 240  | VAC  |
|                         | AC input                        |                | 85          | --   | 264  | VAC  |
|                         | DC input                        |                | 120         | --   | 370  | VDC  |
| Input Voltage Frequency |                                 |                | 47          | --   | 63   | Hz   |
| Input Current           | 115VAC                          |                | --          | --   | 3    | A    |
|                         | 230VAC                          |                | --          | --   | 1.5  |      |
| Inrush Current          | 115VAC                          |                | --          | 15   | --   |      |
|                         | 230VAC                          |                |             | 30   | --   |      |
| Power Factor            | 115VAC                          |                | --          | 0.98 | --   | --   |
|                         | 230VAC                          |                | --          | 0.95 | --   |      |
| Leakage Current         | 264VAC                          | Input - output | <0.5mA      |      |      |      |
|                         |                                 | Input - ⊕      | <1mA        |      |      |      |
| Hot Plug                |                                 |                | Unavailable |      |      |      |

## Output Specifications

| Item                    | Operating Conditions |         | Min. | Typ. | Max. | Unit |
|-------------------------|----------------------|---------|------|------|------|------|
| Output Voltage Accuracy | Full load range      | 12V     | --   | ±2.0 | --   | %    |
|                         |                      | 24V/48V | --   | ±1.0 | --   |      |
| Line Regulation         | Rated load           |         | --   | ±0.5 | --   |      |

|                             |  |                                      |   |      |     |    |
|-----------------------------|--|--------------------------------------|---|------|-----|----|
| Load Regulation             | 0% - 100% load   |                                      | --  | ±1.0 | --  |    |
| Ripple & Noise*             | 20MHz bandwidth (peak-to-peak value)                   |                                      | --  | 75   | 150 | mV |
| Hold-up Time                |  |                                      | --  | 20   | --  | ms |
| Short Circuit Protection    | Recovery time < 10s after the short circuit disappear. |                                      | Constant current, continuous, self-recovery |      |     |    |
| Over-current Protection     | 230VAC, rated load                                     | Normal temperature, high temperature | 110% - 200% Io, self-recovery               |      |     |    |
|                             |  | Low temperature                      | ≥ 105% Io, self-recovery                    |      |     |    |
| Over-voltage Protection     | 12V  |                                      | ≤ 18V (Hiccup, self-recovery)               |      |     |    |
|                             | 24V  |                                      | ≤ 35V (Hiccup, self-recovery)               |      |     |    |
|                             | 48V  |                                      | ≤ 60V (Hiccup, self-recovery)               |      |     |    |
| Over-temperature Protection | 230VAC, rated load                                     |                                      | --  | 80   | --  | °C |

Note: \*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

### General Specifications

| Item                  | Operating Conditions           |   | Min.  | Typ. | Max. | Unit   |
|-----------------------|--------------------------------|---|---|------|------|--------|
| Isolation Test        | Input - ⊕                      | Electric strength test for 1min., leakage current <10mA | 2000  | --   | --   | VAC    |
|                       | Input - output                 |   | 3000  | --   | --   |        |
|                       | Output - ⊕                     |   | 500   | --   | --   |        |
| Insulation Resistance | Input - ⊕                      | At 500VDC   | 50  | --   | --   | MΩ     |
|                       | Input - output                 |   | 50  | --   | --   |        |
|                       | Output - ⊕                     |   | 50  | --   | --   |        |
| Operating Temperature |                                |   | -40   | --   | +70  | °C     |
| Storage Temperature   |                                |   | -40   | --   | +85  |        |
| Storage Humidity      | Non-condensing                 |   | --  | --   | 95   | %RH    |
| Operating Humidity    |                                |   | --  | --   | 90   |        |
| Switching Frequency   |                                |   | --  | 100  | --   | kHz    |
| Power Derating        | Operating temperature derating | -40°C to -25°C  | 3.34  | --   | --   | % / °C |
|                       |                                | +40°C to +70°C  | 1.67  | --   | --   |        |
|                       |                                | +50°C to +70°C  | 2.5   | --   | --   |        |
|                       | Input voltage derating         |   | 85VAC-100VAC  | 1.33 | --   | --     |
| Safety Standard       |                                |   | IS13252 (Part1) safety approved & EN62368-1 (Report)<br>Design refer to IEC/UL62368-1, UL508, UL61010-1 |      |      |        |
| Safety Class          |                                |   | CLASS I   |      |      |        |
| MTBF                  | MIL-HDBK-217F@25°C             |   | >300,000 h  |      |      |        |

### Mechanical Specifications

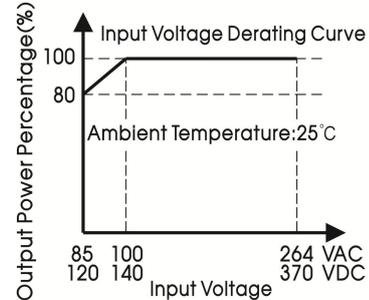
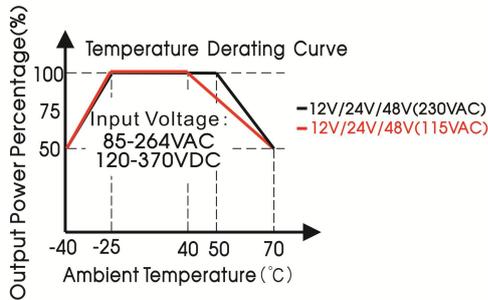
|                |  |
|----------------|--|
| Case Material  | Metal (AL1100, SPCC) and Plastic (PC945) |
| Dimensions     | 124.00 x 54.00 x 110.00mm                |
| Weight         | 600g (Typ.)                              |
| Cooling Method | Free air convection                      |

### Electromagnetic Compatibility (EMC)

|           |                  |                  |   |
|-----------|------------------|------------------|---|
| Emissions | CE               | CISPR32/EN55032  | CLASS B                                   |
|           | RE               | CISPR32/EN55032  | CLASS B                                   |
|           | Harmonic current | IEC/EN61000-3-2  | CLASS A and CLASS D                       |
| Immunity  | ESD              | IEC/EN 61000-4-2 | Contact ±6KV/Air ±8KV<br>perf. Criteria A |

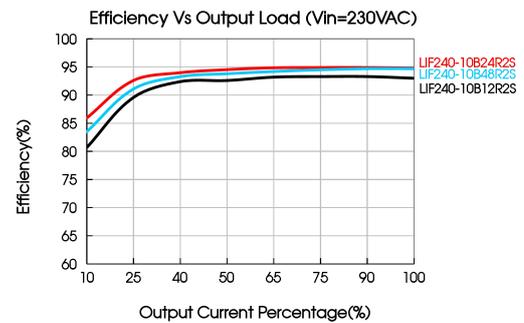
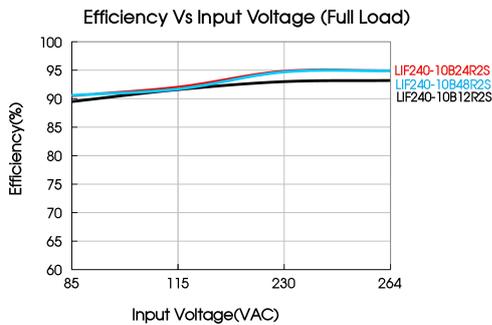
|   |                  |                                       |                  |
|---|------------------|---------------------------------------|------------------|
| RS  | IEC/EN 61000-4-3 | 10V/m                                 | perf. Criteria A |
| EFT   | IEC/EN 61000-4-4 | ±2KV                                  | perf. Criteria A |
| Surge   | IEC/EN 61000-4-5 | line to line ±2KV/line to ground ±4KV | perf. Criteria A |
| CS  | IEC/EN61000-4-6  | 10 Vr.m.s                             | perf. Criteria A |
| Voltage dips, short interruptions and voltage variations immunity | IEC/EN61000-4-11 | 0%, 70%                               | perf. Criteria B |

## Product Characteristic Curve

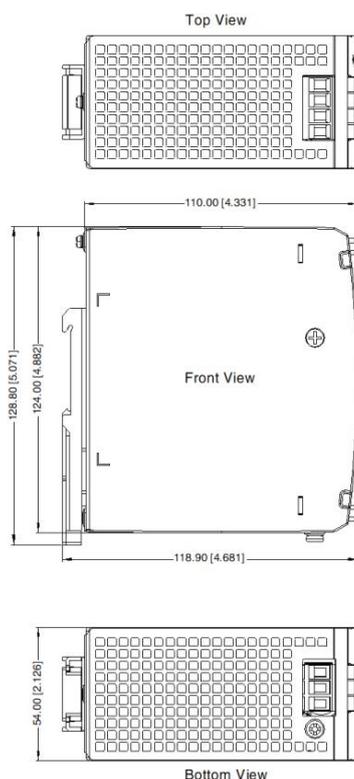


Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

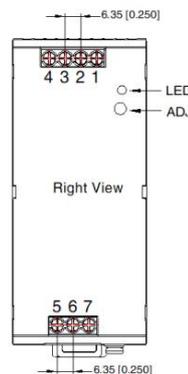
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



## Dimensions and Recommended Layout



THIRD ANGLE PROJECTION



| Pin-Out |       |
|---------|-------|
| Pin     | Mark  |
| 1       | -Vo   |
| 2       | -Vo   |
| 3       | +Vo   |
| 4       | +Vo   |
| 5       | AC(N) |
| 6       | AC(L) |
| 7       | ⏏     |

Note:

Unit: mm[inch]

ADJ: Output adjustable resistor

Wire range: 26-10 AWG

Tightening torque: Max 0.4 N·m

Mounting rail: TS35, rail needs to connect safety ground

General tolerances: ± 1.00[± 0.039]

Note:

1. For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220231;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of  $T_a=25^{\circ}\text{C}$ , humidity<75%RH with nominal input voltage and rated output load;
3. The room temperature derating of  $5^{\circ}\text{C}/1000\text{m}$  is needed for operating altitude greater than 2000m;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. The out case needs to be connected to PE ( $\perp$ ) of system when the terminal equipment in operating;
9. The output voltage can be adjusted by the ADJ, clockwise to increase;
10. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

## Mornsun Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China

Tel: 86-20-38601850

Fax: 86-20-38601272

E-mail: [info@mornsun.cn](mailto:info@mornsun.cn)

[www.mornsun-power.com](http://www.mornsun-power.com)