

# AC/DC Converter

## DIN15-XX Series



15W, AC/DC DIN-Rail Power Supply



EN62368-1

### FEATURES

- Universal 85-264VAC (277VAC available) or 120-370VDC (390VDC available) input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range -40°C to +70°C
- High I/O isolation test voltage up to 4000VAC
- Industrial product technology design
- Over-voltage class III (Designed to meet EN61558-1 safety standards)
- Low standby power consumption, high efficiency
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- DIN rail TS35X7.5/ TS35X15 mountable

The DIN15-XX series is Tiger Powers' 15W din rail series featuring a cost-effective, energy efficient solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise, compliant with international IEC62368 standards for EMC and safety specifications meet IEC/EN61000-4, CISPR32/EN55032, UL62368, EN62368, IEC62368, IEC/EN61010, IEC/EN61558 and IEC60335. These light weight AC-DC converters also have an extremely compact design for space saving and are ideal for applications such as industrial control equipment machinery and all kinds of applications in a harsh environment.

### Selection Guide

| Certification | Part No. | Output Power (W) | Nominal Output Voltage and Current (Vo/Io) | Output Voltage Adjustable Range ADJ (V)* | Efficiency at 230VAC (%) Typ. | Capacitive Load (µF) Max. |
|---------------|----------|------------------|--|--|-------------------------------|---------------------------|
| CE UKCA       | DIN15-5  | 12               | 5V/2.4A                                    | 4.5-5.5                                  | 80                            | 2000                      |
|               | DIN15-12 | 15               | 12V/1.25A                                  | 10.8-13.8                                | 85                            | 1500                      |
|               | DIN15-15 | 15               | 15V/1A                                     | 13.5-18.0                                | 85.5                          | 1100                      |
|               | DIN15-24 | 15.2             | 24V/0.63A                                  | 21.6-29.0                                | 86                            | 700                       |
|               | DIN15-48 | 15.4             | 48V/0.32A                                  | 43.2-55.2                                | 87                            | 300                       |

Note: \* The actual adjustment range may extend outside the values stated, care should be exercised to ensure that the output voltage and power levels remain within the published maximum values.

### Input Specifications

| Item                | Operating Conditions | Min.        | Typ. | Max. | Unit |
|---------------------|----------------------|-------------|------|------|------|
| Input Voltage Range | AC input             | 85          | --   | 264  | VAC  |
|                     | DC input             | 120         | --   | 370  | VDC  |
| Input Frequency     |                      | 47          | --   | 63   | Hz   |
| Input Current       | 115VAC               | --          | --   | 0.5  | A    |
|                     | 230VAC               | --          | --   | 0.25 |      |
| Inrush Current      | 115VAC               | --          | 15   | --   | A    |
|                     | 230VAC               | --          | 25   | --   |      |
| Leakage Current     | 240VAC               | 0.5mA       |      |      |      |
| Hot Plug            |                      | Unavailable |      |      |      |

### Output Specifications

| Item                    | Operating Conditions                 | Min.         | Typ. | Max. | Unit |    |
|-------------------------|--------------------------------------|--------------|------|------|------|----|
| Output Voltage Accuracy | 0% - 100% load                       | 5V Output    | --   | ±2   | --   | %  |
|                         |                                      | Other output | --   | ±1   | --   |    |
| Line Regulation         | Rated load                           | --           | ±0.5 | --   |      |    |
| Load Regulation         | 230VAC                               | --           | ±1   | --   |      |    |
| Output Ripple & Noise*  | 20MHz bandwidth (peak-to-peak value) | 5V Output    | --   | --   | 80   | mV |
|                         |                                      | 12V Output   | --   | --   | 120  |    |
|                         |                                      | 15V Output   | --   | --   | 120  |    |
|                         |                                      | 24V Output   | --   | --   | 150  |    |

|  |                       |            |  |       |     |      |
|--|-----------------------|------------|--|-------|-----|------|
|  |                       | 48V Output | --   | --    | 240 |      |
| Temperature Coefficient  |                       |            | --   | ±0.02 | --  | %/°C |
| Stand-by Power Consumption   | 230VAC input          |            | --   | --    | 0.3 | W    |
| Short Circuit Protection   |                       |            | Hiccup, continuous, self-recovery  |       |     |      |
| Over-current Protection  | Constant voltage mode |            | ≥110% I <sub>o</sub> , self-recovery   |       |     |      |
|  | Constant current mode |            | Hiccup mode or constant current limiting when output voltage <50%, recovers automatically after fault condition is removed |       |     |      |
| Over-voltage Protection  | 5V Output             |            | ≤6.75V (Output voltage hiccup)   |       |     |      |
|  | 12V Output            |            | ≤16.2V (Output voltage hiccup)   |       |     |      |
|  | 15V Output            |            | ≤22.5V (Output voltage hiccup)   |       |     |      |
|  | 24V Output            |            | ≤36V (Output voltage hiccup)   |       |     |      |
|  | 48V Output            |            | ≤64.8V (Output voltage hiccup)   |       |     |      |
| Minimum Load   |                       |            | 0  | --    | --  | %    |
| Start-up Time  |                       |            | --   | --    | 2   | s    |
| Hold-up Time   | 115VAC                |            | --   | 12    | --  | ms   |
|  | 230VAC                |            | --   | 30    | --  |      |
| Note: *The "Tip and barrel method" is used for ripple and noise test, using a 12" twisted pair-wire terminated with a 0.1uf ceramic capacitor & 47uf parallel capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information. |                       |            |  |       |     |      |

### General Specifications

| Item                  | Operating Conditions | Min.  | Typ. | Max. | Unit    |     |
|-----------------------|----------------------|---|------|------|---------|-----|
| Isolation             | Input - Output       | Electric Strength Test for 1min.,<br>(leakage current <5mA)   | 4000 | --   | --      | VAC |
| Operating Temperature |                      | -40   | --   | +70  | °C      |     |
| Storage Temperature   |                      | -40   | --   | +85  |         |     |
| Storage Humidity      |                      | --  | --   | 95   | %RH     |     |
| Operating Altitude    |                      | --  | --   | 2000 | m       |     |
| Switching Frequency   |                      | --  | 65   | --   | kHz     |     |
| Power Derating        | -40°C to -30°C       | 5.0   | --   | --   | % / °C  |     |
|                       | +50°C to +70°C       | 2.5   | --   | --   |         |     |
|                       | 85VAC - 100VAC       | 1.34  | --   | --   | % / VAC |     |
| Safety Standard       |                      | Design refer to UL/IEC62368-1/EN62368-1<br>IEC/EN61010-1<br>IEC/EN61558-1<br>IEC60335-1<br>EN62368-1 (Report) Safety Approval |      |      |         |     |
| Safety Class          |                      | CLASS II  |      |      |         |     |
| MTBF                  | MIL-HDBK-217F@25°C   | > 300,000 h   |      |      |         |     |

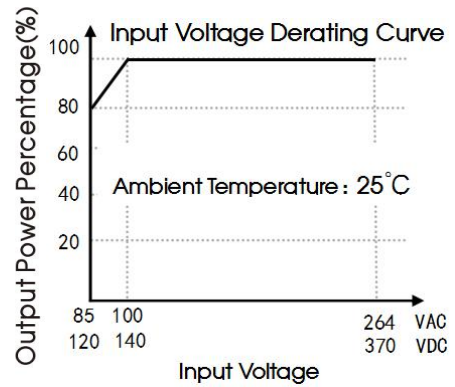
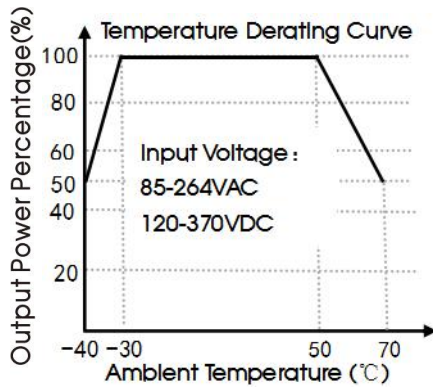
### Mechanical Specifications

|                    |                                   |
|--------------------|-----------------------------------|
| Case Material      | Plastic, heat-resistant (UL94V-0) |
| Package Dimensions | 90.00 x 58.00 x 17.50mm           |
| Weight             | 60g (Typ.)                        |
| Cooling method     | Free air convection               |

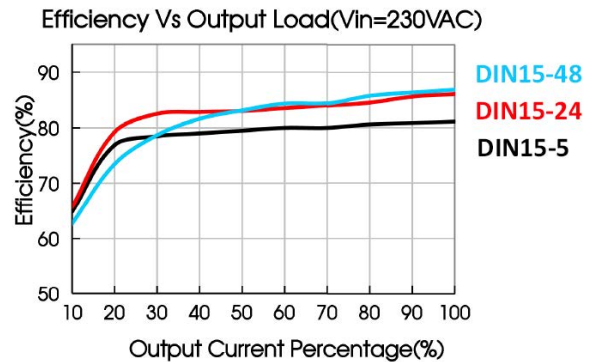
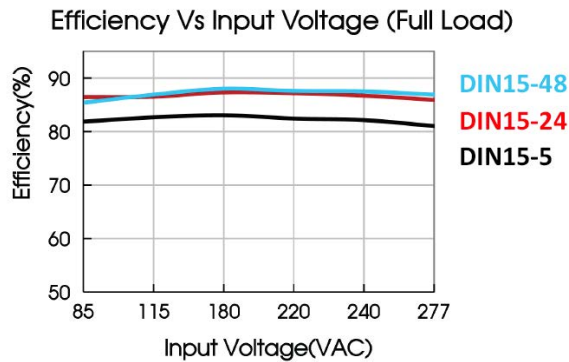
### Electromagnetic Compatibility (EMC)

|           |   |                  |  |                  |
|-----------|---|------------------|--|------------------|
| Emissions | CE  | CISPR32/EN55032  | CLASS B  |                  |
|           | RE  | CISPR32/EN55032  | CLASS B  |                  |
|           | Harmonic current  | IEC/EN61000-3-2  | CLASS A  |                  |
| Immunity  | ESD   | IEC/EN61000-4-2  | Contact $\pm 4\text{KV}$ / Air $\pm 8\text{KV}$                        | Perf. Criteria A |
|           | RS  | IEC/EN61000-4-3  | 10V/m  | perf. Criteria A |
|           | EFT   | IEC/EN61000-4-4  | $\pm 2\text{KV}$   | perf. Criteria A |
|           | Surge   | IEC/EN61000-4-5  | line to line $\pm 1\text{KV}$  | perf. Criteria A |
|           | CS  | IEC/EN61000-4-6  | 10Vr.m.s   | perf. Criteria A |
|           | Voltage dips, short interruptions and voltage variations immunity | IEC/EN61000-4-11 | 100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods | perf. Criteria B |

### Product Characteristic Curve

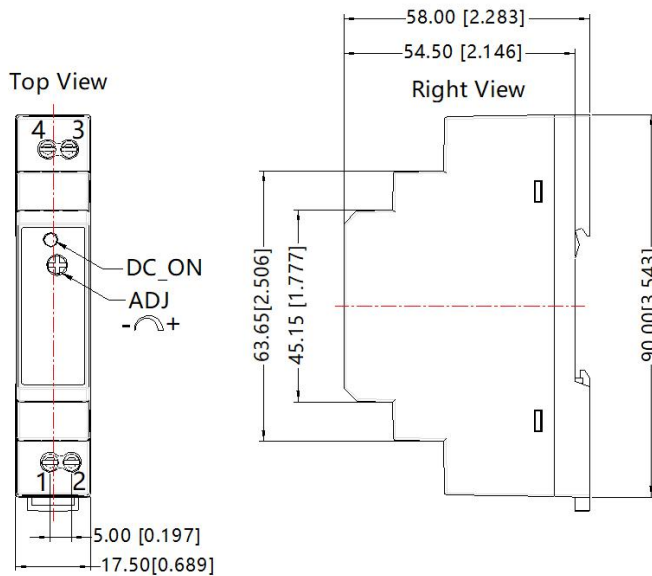


Note: ① With an AC input between 85-100VAC and a DC input between 120-140VDC, the output power must be derated as per temperature derating curves;  
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.



### Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



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

Note:

Unit: mm[inch]

ADJ: Adjustable resistance to change output voltage

Wire range: 24-12 AWG

Tightening torque: Max 0.4 N·m

Mounting rail: TS35, rail needs to connect safety ground

General tolerances:  $\pm 1.00[\pm 0.039]$

Note:

1. For additional information on Product Packaging please refer to [www.TigerPowerSupplies.com](http://www.TigerPowerSupplies.com)
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of  $T_a=25^\circ\text{C}$ , humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Specifications are subject to change without prior notice.
6. Products are related to laws and regulations: see "Features" and "EMC";
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.