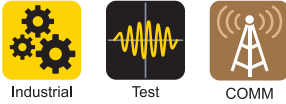
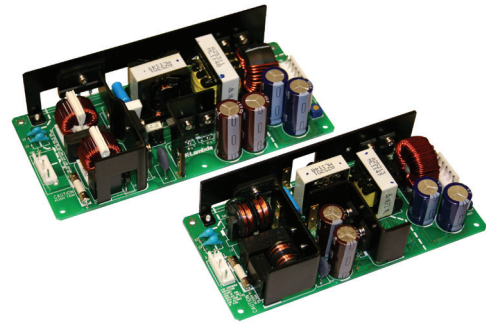


## 150 to 240W High Reliability Power Supplies with 200% Peak Power



The ZWS-BP industrial grade power supplies are used in a wide range of applications where equipment down-time cannot be tolerated during years of operation. Globally, process control, test and measurement equipment, machinery, semiconductor fabrication, communications and printer manufacturers depend upon the ZWS-BP to provide a reliable source of power. Conservatively rated electrolytic capacitor temperatures offer improved field life-times of up to 10 years. They are available in 150W or 240W power levels (each with a 200% peak power capability for up to 5 seconds with a 40% duty cycle) with a choice of 24V, 36V and 48V outputs. A variety of mechanical configurations are available, in addition to a double sided board coating option.

| Features                                   | Benefits  |
|--|---|
| • Up to 200% Peak Power Capability         | • Suitable for Powering Capacitive, Inductive and Thermal Printer Loads |
| • 10 Year Electrolytic Capacitor Lifetimes | • Improved Field Life   |
| • Convection Cooled                        | • Reduced Dirt and Dust Contamination                                   |
| • 5 year Warranty                          | • Low Cost of Ownership   |

| Model Selector |                    |                      |                     |                          |                  |                               |                                   |
|----------------|--------------------|----------------------|---------------------|--------------------------|------------------|-------------------------------|-----------------------------------|
| Model          | Output Voltage (V) | Adjustment Range (V) | Maximum Current (A) | Maximum Output Power (W) | Peak Current (A) | Peak Power (W) <sup>(1)</sup> | Efficiency (Typ) (%) (100/200Vac) |
| ZWS150BP-24    | 24                 | 21.6 - 26.4          | 6.3                 | 151.2                    | 12               | 288                           | 87 / 90                           |
| ZWS240BP-24    | 24                 | 21.6 - 26.4          | 10                  | 240                      | 20               | 480                           | 88 / 91                           |
| ZWS150BP-36    | 36                 | 32.4 - 39.6          | 4.2                 | 151.2                    | 8                | 288                           | 87 / 90                           |
| ZWS240BP-36    | 36                 | 32.4 - 39.6          | 6.7                 | 241.2                    | 13.4             | 482.4                         | 88 / 91                           |
| ZWS150BP-48    | 48                 | 39.6 - 52.8          | 3.2                 | 153.6                    | 6                | 288                           | 87 / 90                           |
| ZWS240BP-48    | 48                 | 39.6 - 52.8          | 5                   | 240                      | 10               | 480                           | 88 / 91                           |

|            |            |           |          |           |          |
|------------|------------|-----------|----------|-----------|----------|
| <b>ZWS</b> | <b>240</b> | <b>BP</b> | <b>-</b> | <b>24</b> | <b>/</b> |
|------------|------------|-----------|----------|-----------|----------|

Nominal power:  
150, 240

Output voltage:  
24, 36, 48

| Suffix | Description                        | Models         |
|--------|------------------------------------|----------------|
| Blank  | Open frame, JST connectors         | ZWS150 - 240BP |
| /A     | L-bracket, cover, JST connectors   | ZWS150 - 240BP |
| /L     | L-bracket, JST connectors          | ZWS150 - 240BP |
| /CO2   | Double sided PCB coating           | ZWS150 - 240BP |
| /R     | Remote on/off                      | ZWS150 - 240BP |
| /T     | Screw terminal connections         | ZWS240BP       |
| /TA    | Screw terminals, L bracket & cover | ZWS240BP       |

Preferred option

Option combinations are available, please contact your local sales office

| Specifications                              |          |   |           |
|---|----------|---|-----------|
| Model                                       | ZWS150BP |   | ZWS240BP  |
| <b>Input</b>                                |          |   |           |
| Input Voltage range <sup>(2)</sup>          | Vac      | 85 - 265  |           |
| Input Frequency                             | Hz       | 47 - 63   |           |
| DC Input Voltage Range <sup>(3)</sup>       | Vdc      | 120 - 370   |           |
| Input Current (100/200Vac)                  | A        | 1.9 / 0.95  | 2.8 / 1.5 |
| Inrush Current at 200Vac (typ) (Cold Start) | A        | 30  |           |
| Leakage Current                             | mA       | <0.5  |           |
| Power Factor (100/200Vac)                   | -        | 0.98/0.93   |           |
| Harmonic Compliance                         | -        | Meets IEC61000-3-2  |           |
| Hold Up Time (typ) at 100Vac, 100% load     | ms       | 20  |           |
| Efficiency                                  | -        | See Model Selector Table  |           |
| Conducted & Radiated EMI                    | -        | EN55011 / EN55032-B, FCC-B, VCCI-B                                    |           |
| Immunity                                    | -        | IEC61000-6-2, EN61000-4-2, -3, -4, -5, -6, -8, -11                    |           |
| Insulation Class                            | -        | Class I   |           |
| Safety Certifications and Markings          | -        | IEC/UL/CSA/EN62368-1, 60950-1, EN50178 (OV II), CE Mark and UKCA Mark |           |

| Immunity                        |              |  |          |  |
|---------------------------------|--------------|--|----------|--|
| Test                            | Standard     | Test Level   | Criteria | Notes  |
| ESD                             | EN61000-4-2  | Air ± 8kV and contact ± 4kV                                  | A        | See IEC61000 immunity test report on website |
| Radiated Susceptibility         | EN61000-4-3  | 80M -1GHz: 10V/m<br>1.4 - 2.0GHz: 3V/m<br>2.0 - 2.7GHz: 1V/m | A        |  |
| Electrical Fast Transient Burst | EN61000-4-4  | ± 2kV  | A        |  |
| Surge                           | EN61000-4-5  | Normal ± 2kV<br>Common ± 4kV                                 | A        |  |
| Conducted Susceptibility        | EN61000-4-6  | 10Vrms   | A        |  |
| Magnetic Fields                 | EN61000-4-8  | 30A/m  | A        |  |
| Voltage Dips                    | EN61000-4-11 | 30% 500ms  | B        |  |
|                                 |              | 60% 200ms  | B        |  |
|                                 |              | 100% 20ms  | B        |  |
|                                 |              | 100% 5000ms  | B        |  |

| Specifications                       |          |  |          |
|--------------------------------------|----------|--|----------|
| Model                                | ZWS150BP |  | ZWS240BP |
| <b>Output</b>                        |          |  |          |
| Output Voltage Adjustment            | -        | See Model Selector Table                                 |          |
| Switching Frequency (Main converter) | kHz      | 120  |          |
| Line Regulation                      | mV       | 24V: 96, 36V: 144, 48V: 192                              |          |
| Load Regulation                      | mV       | 24V: 192, 36: 288, 48V: 384                              |          |
| External Load Capacitance            | -        | Not applicable   |          |
| Ripple & Noise                       | mV       | 24V: 240, 36V: 360, 48V: 480                             |          |
| Temperature Coefficient              | %/°C     | 0.02   |          |
| Minimum Load                         | -        | No minimum load required                                 |          |
| Overcurrent Protection               | %        | >101 of peak current capability (constant current style) |          |
| Overvoltage Protection               | V        | 24V: 28.8 - 33.6, 36V: 41.4 - 48.6, 48V: 55.2 - 64.8     |          |
| Remote Sense                         | -        | -  |          |
| Remote On/Off                        | -        | Optional, see part numbering scheme                      |          |
| Parallel Operation                   | -        | Not possible   |          |

| Specifications   |        |  |                    |
|--|--------|--|--------------------|
| Model  |        | ZWS150BP   | ZWS240BP           |
| <b>Environmental</b>   |        |  |                    |
| Operating Temperature <sup>(4)</sup><br>(Convection Cooling) | °C     | ZWS150BP: -10 to +70, derate linearly from 100% to 50% load from 50 to 70<br>ZWS240BP: -10 to +70, derate linearly from 100% to 30% load from 50 to 70 |                    |
| Operating Temperature <sup>(4)</sup><br>(Forced Air Cooling) | °C     | ZWS150BP: -10 to +70, derate linearly from 100% to 70% load from 60 to 70<br>ZWS240BP: -10 to +70, derate linearly from 100% to 70% load from 60 to 70 |                    |
| Storage Temperature  | °C     | -30 to +75   |                    |
| Humidity (non condensing)                                    | %RH    | 30 - 90 Operating, 10 - 90 storage   |                    |
| Cooling  | -      | Convection. (Forced air will reduce derating at high ambient temperatures)   |                    |
| Altitude   | m      | 3,000  |                    |
| Withstand Voltage (For 1 minute)                             | Vac    | Input to Ground 2,000, Input to Output 3,000, Output to Ground 500 for 1 minute  |                    |
| Isolation Resistance   | MΩ     | >100 at 25°C, 70%RH & 500VDC   |                    |
| Vibration (Non operating)                                    | -      | 10-55Hz (Sweep for 1min.)<br>19.6m/s <sup>2</sup> Constant X,Y,Z 1 hour each   |                    |
| Shock (Non operating)  | -      | Less than 196m/s <sup>2</sup>  |                    |
| <b>Other</b>   |        |  |                    |
| Weight (Typ) (Open frame models)                             | g      | 360  | 520                |
| Size (LxWxH) (Open frame models)                             | mm     | 160 x 75 x 37  | 180 x 84 x 42      |
| Size (LxWxH) (Open frame models)                             | Inches | 6.3 x 2.95 x 1.46  | 7.09 x 3.31 x 1.65 |
| Connectors   | -      | JST or optional screw terminals for ZWS240BP, see part numbering scheme  |                    |
| MTBF - JEITA RCR-9102B(5)                                    | Hours  | 217,836  | 197,152            |
| Warranty   | Years  | 5  |                    |

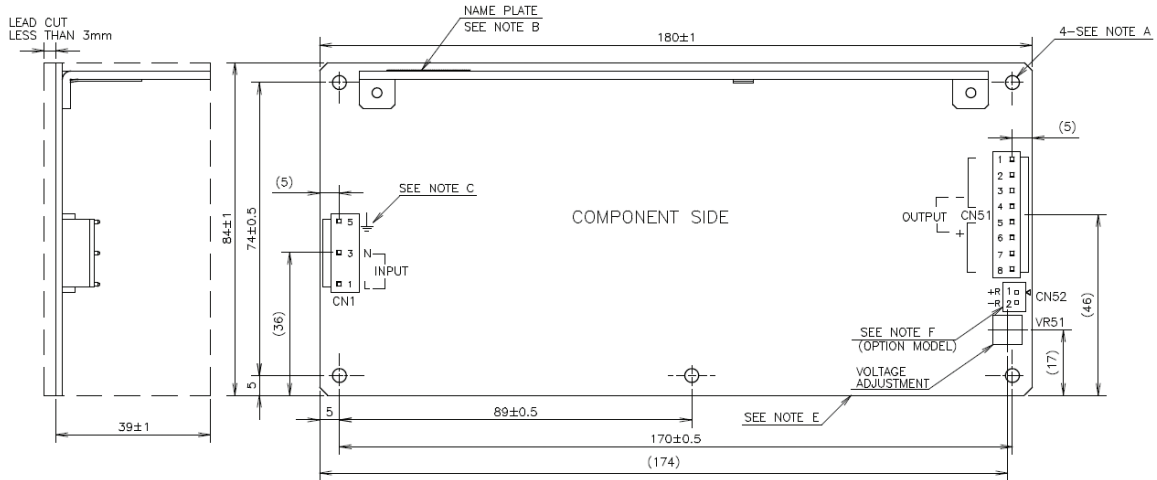
**Notes:**

See website for detailed specifications, test methods and installation manual

- (1) See instruction manual for peak power and duty cycle information. Average power not to exceed maximum power ratings
- (2) Derate linearly to 80% load from 90 to 85Vac input
- (3) Safety certified for AC input only
- (4) See Instruction manual for further details and mounting orientations
- (5) Component count method, ground fixed. Note the JEITA RCR-9102B calculation method produces figures significantly lower than Telcordia



## Outline Drawing ZWS240BP (Open Frame)



**CONNECTORS USED:**

| PART DESCRIPTION              | PART NAME | MANUFACT. | QTY |
|-------------------------------|-----------|-----------|-----|
| PIN HEADER (INPUT SIDE CN1)   | B3P5-VH   | JST       | 1   |
| PIN HEADER (OUTPUT SIDE CN51) | B8P-VH    | JST       | 1   |

\*OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

**MATCHING HOUSINGS, PINS & TOOL (NOT INCLUDED WITH THE PRODUCT):**

| PART DESCRIPTION      | PART NAME                    | MANUFACT. | QTY |
|-----------------------|------------------------------|-----------|-----|
| SOCKET HOUSING (CN1)  | VHR-SN                       | JST       | 1   |
| SOCKET HOUSING (CN51) | VHR-BN                       | JST       | 1   |
| TERMINAL PINS         | SVH-21T-P1.1<br>BVH-21T-P1.1 | JST       | 11  |
| HAND CRIMPING TOOL    | YC-160R                      | JST       | -   |

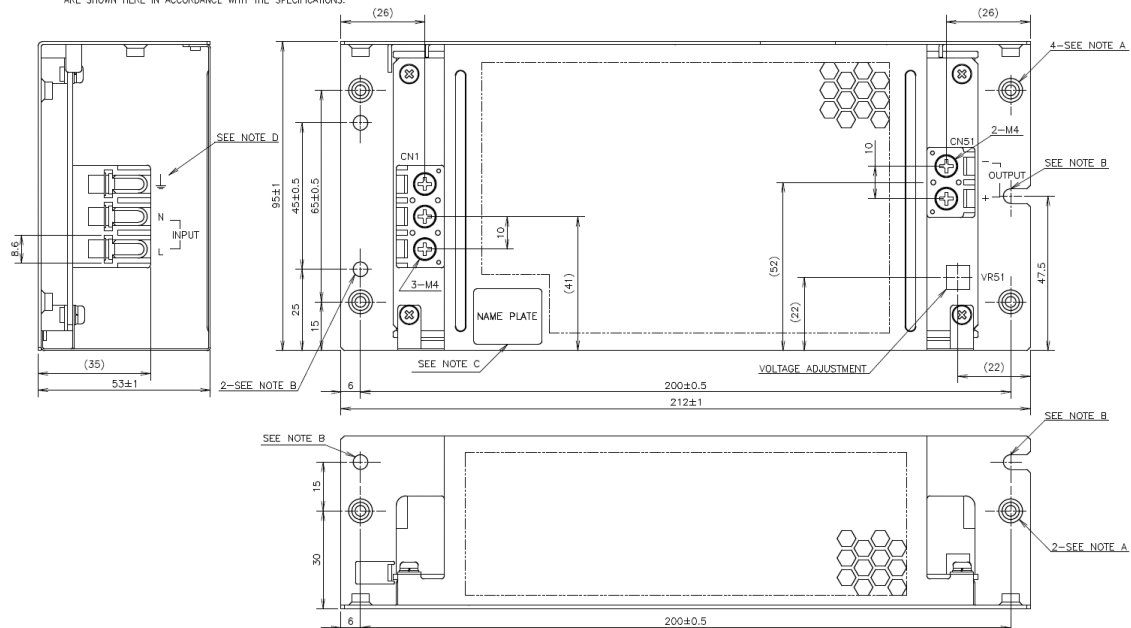
**NOTES**

- A: 4- $\phi$ 3.5 HOLES ARE FOR CUSTOMER'S CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.
- B: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- C:  $\downarrow$  IS PROTECTIVE BONDING TERMINAL.
- D: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PCB EDGE AND CUSTOMER'S CHASSIS.
- E: OPTION MODEL (ZWS240BP-\*/R)  
REMOTE ON/OFF CONTROL CONNECTOR (CN52) : B2B-XH-AM (JST)  
MATCHING HOUSING : XHP-2 (JST)  
MATCHING TERMINAL : BXH-001T-P0.6 (JST) OR SXH-001T-P0.6 (JST)  
HAND CRIMPING TOOL : YC-110R (JST) OR YRS-110 (JST)  
MATCHING HOUSING AND TERMINAL --- NOT INCLUDED WITH THE PRODUCT

## Outline Drawing ZWS240BP/TA

**NOTES**

- A: M4 EMBOSSED TAPPED & COUNTERSINK HOLES (6) ARE FOR CUSTOMER'S CHASSIS MOUNTING.
- B:  $\phi$ 4.5 HOLES (3) AND R2.25 SLOT HOLES (2) ARE FOR CUSTOMER'S CHASSIS MOUNTING HOLES.
- C: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- D:  $\downarrow$  IS PROTECTIVE BONDING TERMINAL.



[Click here for other outline drawings and technical information](#)



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