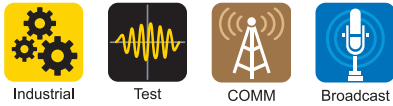
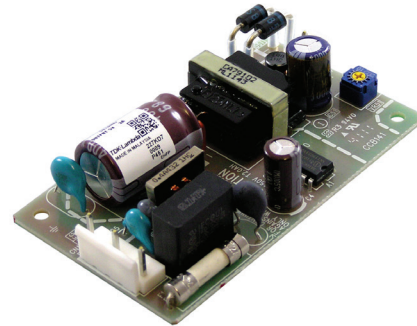


## 6.6 to 30W Single Output, High Reliability Power Supplies



The ZWS-B 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, machinery, semiconductor fabrication and test and measurement equipment manufacturers depend upon the ZWS-B to provide a reliable source of power. Conservatively rated electrolytic capacitor temperatures offer improved field life-times of up to 10 years. Available in three power levels, 10W, 15W and 30W, the series provides a choice of 3.3 to 24V outputs. L bracket and cover mechanical configurations are available, in addition to a double sided board coating option.

Features	Benefits
• 10 Year Electrolytic Capacitor Lifetimes	• Improved Field Life
• Convection Cooled	• Reduced Dirt and Dust Contamination
• Curve B Radiated and Conducted EMI	• Easier System Compliance
• 5 year Warranty	• Low Cost of Ownership

Model Selector								
Model	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Maximum Output Power (W)	Maximum Ripple & Noise (mV)	Over Current Protection (A)	Over Voltage Protection (V)	Efficiency (Typ) (%) (100/200Vac)
ZWS10B-3	3.3	2.97-3.63	2	6.6	120	>2.1	4.0-5.25	70 / 70
ZWS15B-3	3.3	2.97-3.63	3	9.9	120	>3.15	4.0-5.25	70 / 71
ZWS30B-3	3.3	2.97-3.63	6	19.8	120	>6.3	4.0-5.25	75 / 77
ZWS10B-5	5	4.5-5.5	2	10	120	>2.1	5.75-7.0	77 / 78
ZWS15B-5	5	4.5-5.5	3	15	120	>3.15	5.75-7.0	76 / 78
ZWS30B-5	5	4.5-5.5	6	30	120	>6.3	5.75-7.0	80 / 82
ZWS10B-12	12	10.8-13.2	0.9	10.8	150	>0.95	13.8-16.2	82 / 83
ZWS15B-12	12	10.8-13.2	1.3	15.6	150	>1.37	13.8-16.2	80 / 83
ZWS30B-12	12	10.8-13.2	2.5	30	150	>2.63	13.8-16.2	84 / 86
ZWS10B-15	15	13.5-16.5	0.7	10.5	150	>0.74	17.3-20.3	83 / 84
ZWS15B-15	15	13.5-16.5	1	15	150	>1.05	17.3-20.3	81 / 84
ZWS30B-15	15	13.5-16.5	2	30	150	>2.1	17.3-20.3	85 / 87
ZWS10B-24	24	21.6-26.4	0.5	12	150	>0.53	27.6-32.4	84 / 85
ZWS15B-24	24	21.6-26.4	0.7	16.8	150	>0.74	27.6-32.4	82 / 85
ZWS30B-24	24	21.6-26.4	1.3	31.2	150	>1.37	27.6-32.4	86 / 88

<b>ZWS</b>	<b>30</b>	<b>-B</b>	<b>-</b>	<b>3</b>	<b>/</b>											
	Nominal power: 10, 15, 30			Output voltage: 3 (3.3V), 5, 12, 15, 24												
						<table border="1"> <thead> <tr> <th>Suffix</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>Blank</td><td>Open frame</td></tr> <tr><td>/A</td><td>L-bracket &amp; cover</td></tr> <tr><td>/L</td><td>L-bracket</td></tr> <tr><td>/CO2</td><td>Double sided PCB coating</td></tr> </tbody> </table>	Suffix	Description	Blank	Open frame	/A	L-bracket & cover	/L	L-bracket	/CO2	Double sided PCB coating
Suffix	Description															
Blank	Open frame															
/A	L-bracket & cover															
/L	L-bracket															
/CO2	Double sided PCB coating															

Option combinations are available, please contact your local sales office

Specifications				
Model		ZWS10B	ZWS15B	ZWS30B
<b>Input</b>				
Input Voltage range <sup>(1)</sup>	Vac	85 - 265		
Input Frequency	Hz	47 - 63		
DC Input Voltage Range <sup>(2)</sup>	Vdc	120 - 370		
Input Current (100/200Vac)	A	3.3V: 0.18 / 0.11 5-24V: 0.25 / 0.13	3.3V: 0.24 / 0.15 5-48V: 0.34 / 0.17	3.3V: 0.5 / 0.3 5-48V: 0.65 / 0.35
Inrush Current at 200Vac (typ) (Cold Start)	A	30		
Leakage Current (230Vac 60Hz)	mA	<0.3		
No Load Power Consumption	W	<0.5		
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 (See immunity table)		
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 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	A	
Surge	EN61000-4-5	Normal ± 2kV 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		ZWS10B	ZWS15B	ZWS30B
<b>Output</b>				
Output Voltage Adjustment	-	See Model Selector Table		
Switching Frequency	kHz	100		
Line Regulation	mV	3.3-5V: 20, 12V: 48, 15V: 60, 24V: 96		
Load Regulation	mV	3.3-5V: 40, 12V: 96, 15V: 120, 24V: 150		
External Load Capacitance	uF	3.3/5V: 10,000, 12V: 2,000, 15V:1,400, 24V: 300	3.3/5V: 10,000, 12V: 2,500, 15V:1,000, 24V: 500	3.3/5V: 10,000, 12V: 2,700, 15V:1,500, 24V: 600
Ripple & Noise	-	See Model Selector Table		
Temperature Coefficient	%/°C	0.02		
Minimum Load	-	No minimum load required		
Overcurrent Protection	-	See Model Selector Table		
Overvoltage Protection	V	See Model Selector Table		
Remote Sense	-	-		
Remote On/Off	-	-		
Parallel Operation	-	Not possible		

Specifications				
Model		ZWS10B	ZWS15B	ZWS30B
<b>Environmental</b>				
Operating Temperature <sup>(3)</sup> (Convection Cooling, Horizontal Mounting)	°C	-10 to +70, derate from 100% to 20% load from 50 to 70	-10 to +70, derate from 100% to 40% load from 50 to 70	-10 to +70, derate from 100% to 20% load from 50 to 70
Operating Temperature <sup>(3)</sup> (Forced Air Cooling, 0.7m/s)	°C	-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 - 95 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		
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500VDC		
Vibration (Non operating)	-	10-55Hz (Sweep for 1min.) 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	45	55	105
Size (LxWxH) (Open frame models)	mm	73.5 x 50 x 22	87.5 x 50 x 22	105 x 50 x 26
Size (LxWxH) (Open frame models)	Inches	2.89 x 1.97 x 0.87	3.44 x 1.97 x 0.87	4.13 x 1.97 x 1.02
Connectors	-	JST		
MTBF - JEITA RCR-9102B <sup>(4)</sup>	Hours	433,084	399,466	336,105
Warranty	Years	5		

**Notes:**

See website for detailed specifications, test methods and installation manual

(1) Derate linearly to 90% load from 90 to 85Vac input

(2) Safety certified for AC input only

(3) See Instruction manual for further details and mounting orientations

(4) Component count method, ground fixed. Note the JEITA RCR-9102B calculation method produces figures significantly lower than Telcordia

**Outline Drawing ZWS10B (Open Frame)**

4mm max(Surface Mount Device)

PCB t=1.6mm

18±1

50±1

40±0.5

5

(4)

5

63.5±0.5

SEE NOTE D

SEE NOTE B,C

NAME PLATE

COMPONENT SIDE

INPUT

1

3

5

OUTPUT

1

2

CN51(CN2)

VR51

(68.5)

(25.5)

(6)

(18)

(27)

SEE NOTE A

73.5±1

SEE NOTE E

**CONNECTORS USED:**

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5-VH	JST	1
PIN HEADER(OUTPUT SIDE CN51(CN2))	B2P-VH	JST	1

**MATCHING HOUSINGS AND PINS(NOT INCLUDED WITH THE PRODUCT):**

SOCKET HOUSING (CN1)	VHR-5N	JST	1
SOCKET HOUSING (CN51(CN2))	VHR-2N	JST	1
TERMINAL PINS	SVH-21T-P1.1	JST	5

**NOTES:**

A: THE 2- $\phi$ 3.5 HOLE ARE CUSTOMER CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.

B: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.

D:  $\downarrow$  IS PROTECTIVE BONDING TERMINAL.

E: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PC-BOARD EDGE AND CUSTOMER'S CHASSIS.

HAND CRIMPING TOOL : YC-160R CN1,CN51(CN2) MANUFACTURER : JST

**Outline Drawing ZWS15B (Open Frame)**

4mm max(Surface Mount Device)

PCB t=1.6mm

18±1

50±1

40±0.5

5

(4)

5

77.5±0.5

SEE NOTE D

SEE NOTE B,C

NAME PLATE

COMPONENT SIDE

INPUT

1

3

5

OUTPUT

1

2

CN51

VR51

(82.5)

(20)

(4.5)

(17)

(32)

SEE NOTE A

87.5±1

SEE NOTE E

**CONNECTORS USED:**

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5-VH	JST	1
PIN HEADER(OUTPUT SIDE CN51)	B2P-VH	JST	1

**MATCHING HOUSINGS AND PINS(NOT INCLUDED WITH THE PRODUCT):**

SOCKET HOUSING (CN1)	VHR-5N	JST	1
SOCKET HOUSING (CN51)	VHR-2N	JST	1
TERMINAL PINS	SVH-21T-P1.1	JST	5

**NOTES:**

A: THE 2- $\phi$ 3.5 HOLE ARE CUSTOMER CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.

B: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

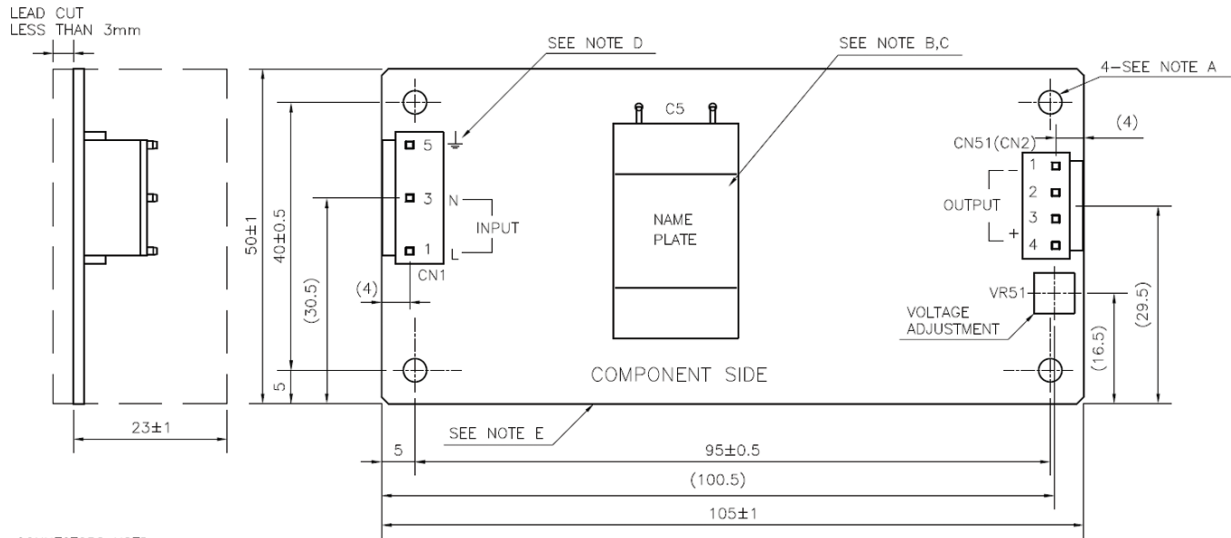
C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.

D:  $\downarrow$  IS PROTECTIVE BONDING TERMINAL.

E: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PC-BOARD EDGE AND CUSTOMER'S CHASSIS.

HAND CRIMPING TOOL : YC-160R CN1,CN51 MANUFACTURER : JST

## Outline Drawing ZWS30B (Open Frame)



**CONNECTORS USED:**

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5-VH	JST	1
PIN HEADER(OUTPUT SIDE CN51(CN2))	B4P-VH	JST	1

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

**MATCHING HOUSINGS AND PINS(NOT INCLUDED WITH THE PRODUCT):**

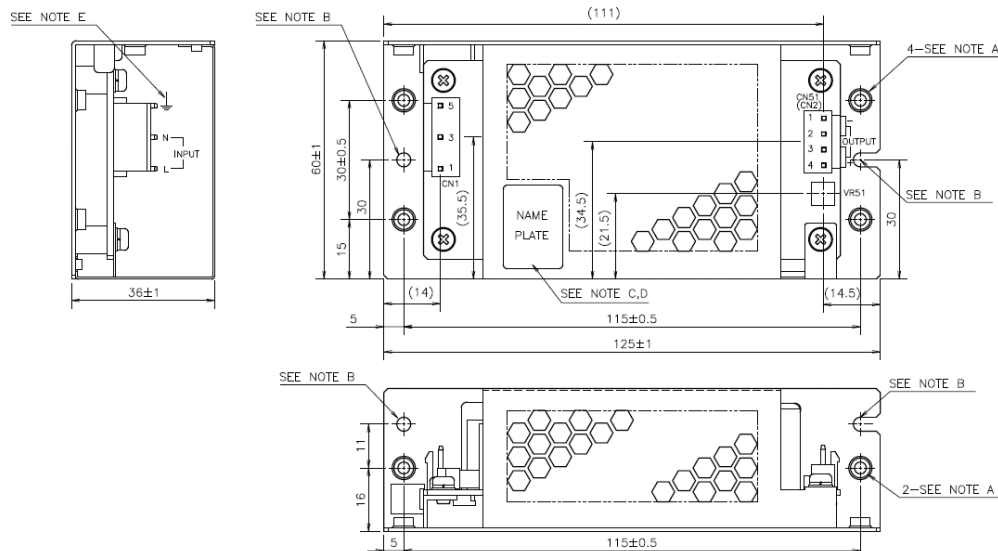
SOCKET HOUSING (CN1)	VHR-5N	JST	1
SOCKET HOUSING (CN51(CN2))	VHR-4N	JST	1
TERMINAL PINS	SVH-21T-P1.1	JST	7

HAND CRIMPING TOOL : YC-160R CN1,CN51(CN2) MANUFACTURER : JST

**NOTES**

- A: THE 4- $\phi$ 3.5 HOLE ARE CUSTOMER CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION SPEC.
- B: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.
- D:  $\downarrow$  IS PROTECTIVE BONDING TERMINAL.
- E: TO KEEP THE DISTANCE MORE THAN 4mm BETWEEN PC-BOARD EDGE AND CUSTOMER'S CHASSIS.

## Outline Drawing ZWS30B/A



**CONNECTORS USED:**

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
PIN HEADER (INPUT SIDE CN1)	B3P5-VH	J.S.T.	1
PIN HEADER (OUTPUT SIDE CN51(CN2))	B4P-VH	J.S.T.	1

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

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

SOCKET HOUSING (CN1)	VHR-5N	J.S.T.	1
SOCKET HOUSING (CN51(CN2))	VHR-4N	J.S.T.	1
TERMINAL PINS	SVH-21T-P1.1	J.S.T.	7
HAND CRIMPING TOOL	YC-160R	J.S.T.	-

**NOTES**

- A: M3 EMBOSSED TAPPED & COUNTERSINK HOLES (6) ARE FOR CUSTOMER'S CHASSIS MOUNTING.
- B:  $\phi$ 3.5 HOLES (2) AND R1.75 SLOT HOLES (2) ARE FOR CUSTOMER'S CHASSIS MOUNTING.
- C: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- D: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.
- E:  $\downarrow$  IS PROTECTIVE BONDING TERMINAL.



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<https://product.tdk.com/en/power/>

