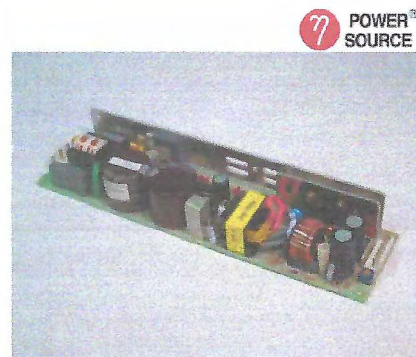


# BWB-SX-U

AC/DC Power Supply  
Single Output

# 50W

The BW-series is an open frame board with an optional cover. Simplified circuit design enabled optimal cost performance and miniaturization. Safety design is applied to UL, CUL and VDE.



### Features

Wide input voltage range (85-264Vac)  
High efficiency & reliability  
Output voltage +/-10%  
Warranty: 2 years

### Mechanical features

Dimensions (WxLxH): 55x222x32mm  
Weight: 300g  
Connector: JST connectors  
Closed or open frame type  
Optional: Wire harness for JST connectors (add- WH)  
Cover (add -P)

### Standards

Safety: UL :UL60950; C-UL:CSA C22.2 No.60950;  
VDE : EN60950; IEC60950; VDE 805  
EMI : EN 55022 ClassB; FCC Part 15-B ClassB; VCCI ClassB

### Possible applications

Process control  
Office equipment  
Computer peripherals  
Telecommunications  
Industrial electronics & machines

### Control features

Over voltage protection: Output shutdown  
Over current protection: Current limiting, auto recovery



# BWB Series POWER SUPPLY - USER GUIDE

Model BWB3.3SX-U1A open board switching power supply  
Model BWB3.3SX-P-U1A enclosed switching power supply

**For use with Rosahl membrane types M-10J1R and S-10T1**

BWB3.3SX\*\*U1A power supplies meet the requirements of:

Safety: VDE: EN60950; IEC60950; VDE805; UL: UL60950; C-UL: CSA C22.2 No.60950  
EMC: EN 55022 Class B; FCC Part 15-B Class B; VCCI Class B

The BWB Series is CE marked in accordance with LVD 2006/95/EC

## IMPORTANT

To prevent injury to a person or damage to property and to ensure safe operation, ensure you have a good understanding of local electrical regulations, and read this manual before using the Power Supply Unit (PSU).

## WARNING/CAUTION

- Installation must be by a suitably trained person as high voltages may be involved
- Do not touch components. There is a risk of electrical shock/high temperature
- Do not disassemble the PSU
- Confirm the correct input and output voltages before use
- Do not exceed the maximum rating of the PSU
- Use a suitable earth/ground connection
- Ensure the PSU is isolated from the supply before installing, removing or inspecting
- Do not operate under faulty or wet conditions
- In the event of a fault, disconnect the input immediately to avoid risk fire of accident.

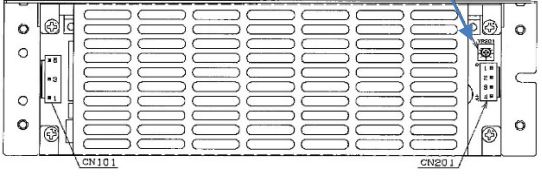
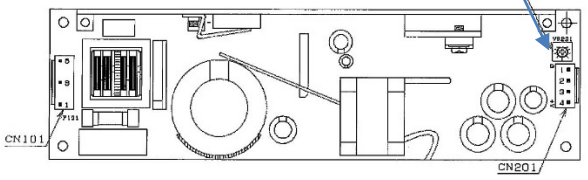
## INSTRUCTIONS

- Carefully remove PSU from packaging
- Pay attention to all warnings and instructions
- Visually inspect PSU before use to ensure no physical damage has occurred.
- If damage has occurred, do not use the PSU. Contact your supplier
- Apply suitable warning labels to the equipment according to local regulations
- Cooling is by convection. Ensure adequate ventilation to avoid overheating and damage to adjacent items. Restricting the ventilation may cause the power supply to overheat and fail.

# BWB Series POWER SUPPLY - USER GUIDE

Model BWB3.3SX-U1A open board switching power supply  
 Model BWB3.3SX-P-U1A enclosed switching power supply

## 1. Layout

Enclosed type BWB3.3SX-P-U1A			Open type BWB3.3SX-U1A																													
<p>Variable output voltage range adjuster</p> 			<p>Variable output voltage range adjuster</p> 																													
<table border="1"> <thead> <tr> <th>CN101</th> <th>Input Terminal</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>AC (L)</td> <td>Input</td> </tr> <tr> <td>3</td> <td>AC (N)</td> <td>Input</td> </tr> <tr> <td>5</td> <td>Earth/Ground</td> <td></td> </tr> </tbody> </table>	CN101	Input Terminal		1	AC (L)	Input	3	AC (N)	Input	5	Earth/Ground				<table border="1"> <thead> <tr> <th colspan="3">Terminal connector</th> </tr> <tr> <th colspan="3">Manufacturer JST</th> </tr> <tr> <th>Terminal</th> <th>Connector</th> <th>Cable crimp</th> </tr> </thead> <tbody> <tr> <td>CN101</td> <td>VHR-5N</td> <td>SVH-21T-P1.1</td> </tr> <tr> <td>CN201</td> <td>VHR-4N</td> <td>SVH-21T-P1.1</td> </tr> </tbody> </table>			Terminal connector			Manufacturer JST			Terminal	Connector	Cable crimp	CN101	VHR-5N	SVH-21T-P1.1	CN201	VHR-4N	SVH-21T-P1.1
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## 2. Connections

- To avoid accidents, ensure PSU is isolated before connecting any cables
- Ensure correct polarity of the input terminal or failure will occur.
- Keep input and output cables separate to avoid electrical noise.
- Ensure input and output cables are correctly rated for current & to avoid volt drop.
- Observe correct polarity when connecting output cables to Rosahl membranes
- **Use both sets of output cables when connecting to Rosahl membranes to ensure adequate current.**
- Ensure cables are protected from the metal enclosure to avoid damage to the insulation

## 3. Voltage range

3-1 Input voltage range

- Input voltage range is 85 to 264V AC 50/60Hz.

3-2 Variable output voltage range

- The output voltage of the standard PSU is 3.3V. When used with Rosahl membranes the output voltage range adjuster should be turned anti-clockwise to adjust to 3V using suitable calibration equipment.

- **Do not set the output at higher or lower than 3V DC**

# BWB Series POWER SUPPLY - USER GUIDE

Model BWB3.3SX-UIA open board switching power supply

Model BWB3.3SX-P-U1A enclosed switching power supply

## 3-3 Overcurrent protection function (OCP)

- When the output current exceeds 105% of the rated current value, the overcurrent protection function (OCP) will operate and output voltage will drop. The output will recover automatically when the overload is removed.

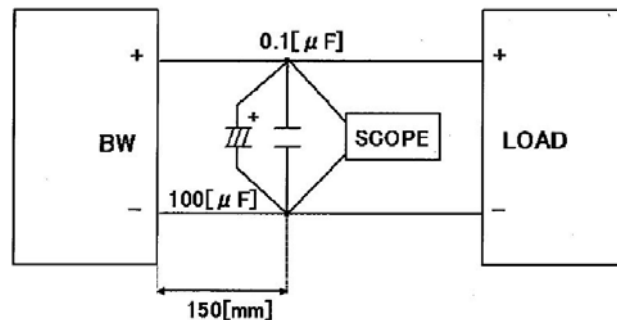
- Avoid continuous operation with overcurrent and short-circuit conditions as it causes overheating of internal components and risks damage to the PSU. Do not operated for more than 20 seconds in overload and short circuit conditions.

## 3-4 overvoltage protection function (OVP)

-When the overvoltage protective function has been activated, the input supply should be removed and restored after a delay of three minutes to restore the output.

## 3.5 Ripple noise

- Ripple and noise are measured using a 200mm wire with a 47  $\mu\text{F}$  Electrolytic Capacitor, and 0.1  $\mu\text{F}$  film capacitor with a 100 MHz bandwidth oscilloscope according to the diagram.



## 3-6 Inrush current

Input surge current prevention circuit using a power thermistor is built-in. Primary inrush current value will be proportional to the input voltage. Select appropriate fuse size.

Input voltage	Typical inrush current
100V	20A
230V	40A
(25°C-cold start)	

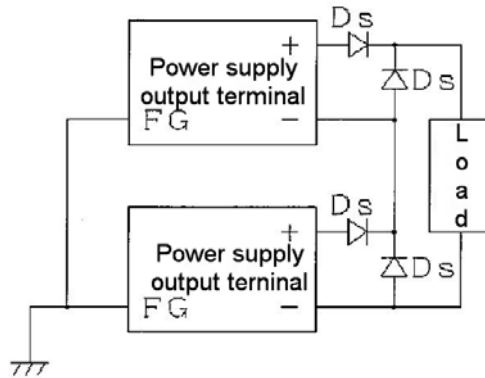
## 3-7 Serial operation

- It is possible to use serial operation by wiring as shown in the figure below.

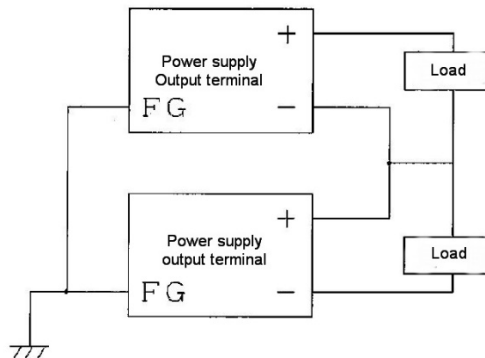
- When the output voltage of less than 5V connect as shown below, using schottky diodes (Ds).

# BWB Series POWER SUPPLY - USER GUIDE

Model BWB3.3SX-U1A open board switching power supply  
Model BWB3.3SX-P-U1A enclosed switching power supply



For connection without using the diodes, use configuration below. In the case of series operation, the maximum output current should be equal to or less than the rated current of the smaller connected power supply.



### 3-9 parallel operation

- Is not possible parallel operation. Do not connect for parallel operation as this will result in failure.

### 3 -10 Withstand voltage

- The PSU is designed for a withstand of 3kV AC between the input and output, and 2.5kV AC between earth/ground, the input, and 1kV AC between earth/ground and the output for one minute each. Current limit of the withstand voltage tester must be set to 20mA before performing the tests. However, for the output (secondary) to earth/ground test, set the Current limit of the withstand voltage tester must be set to 50mA before performing the test.

- When conducting withstand voltage tests, the applied voltage must be increased gradually to the required voltage, then reduced gradually to zero. Sudden application of removal of the test voltage will cause damage. If possible, avoid using a timer due to impulse voltages.

- For isolation resistance test between output and output should be carefully performed using a 500V DC insulation tester.

### 3.11 Input and output connectors

- Increased contact resistance from frequent insertion and removal of the power and

# BWB Series POWER SUPPLY - USER GUIDE

Model BWB3.3SX-UIA open board switching power supply

Model BWB3.3SX-P-U1A enclosed switching power supply

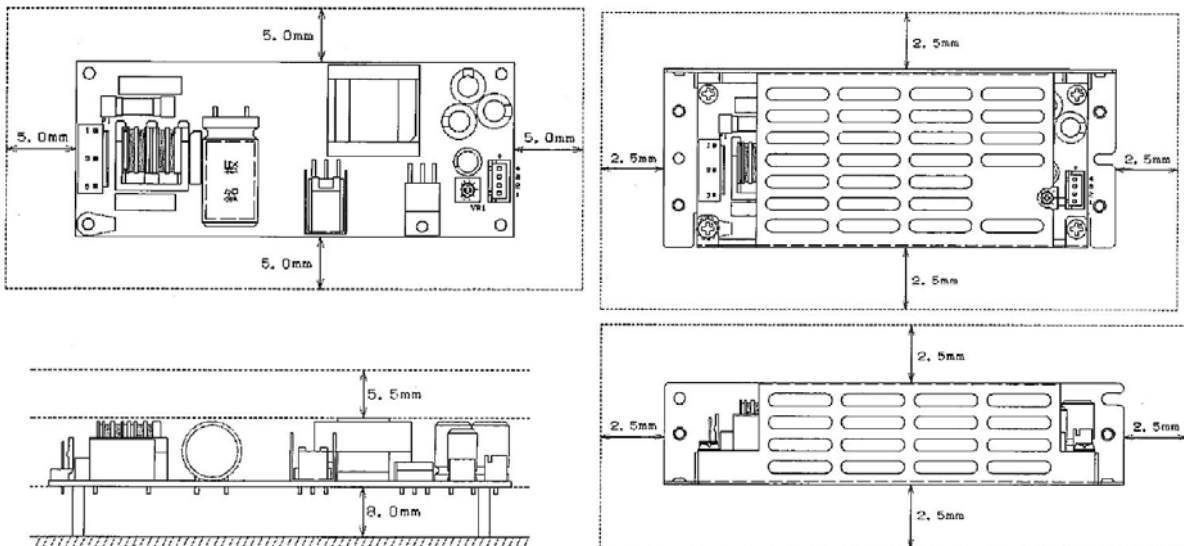
load connectors may generate heat and a deterioration in performance. We recommend that you use a new connector in this case.

## 4. Mounting

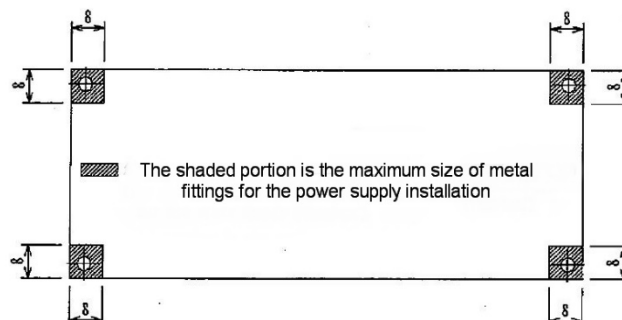
### 4.1 Method of mounting

- Depending on the ambient temperature of the power supply installation and the supply voltage used, the PSU may require derating. (Please refer to the specification)
- The PSU is cooled by natural convection and adequate clearance distances must be allowed around the installed PSU. Consider forced air cooling for higher temperature operation
- When installing the open board switching power supply, ensure the minimum clearance distances indicated below are exceeded.
- The enclosed switching power supply does not required clearances above or below when the surface is the same potential as Earth/Ground

Open board switching power supply	Enclosed switching power supply
-----------------------------------	---------------------------------



- When using mounting posts to install the open board switching power supply, ensure the posts do not exceed the 8mm hatched area indicated. Allow minimum 8mm clearance from the mounting surface.
- Service life and reliability of the power supply are greatly affected by the ambient temperature. It becomes necessary to verify whether or not especially long term continuous operation of equipment meet set service life of equipment.



# BWB Series POWER SUPPLY - USER GUIDE

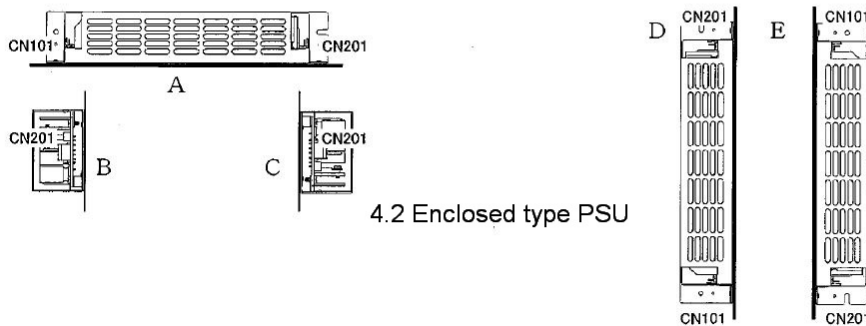
Model BWB3.3SX-U1A open board switching power supply  
Model BWB3.3SX-P-U1A enclosed switching power supply

## Direction of installation

- The open board PSU has four mounting points in the circuit board
- The enclosed PSU has four mounting points in the base and two along one side
- Use all mounting points and do not over tighten fixings
- Use figure 4.1 below for mounting direction when installing the open board type PSU
- Use Figure 4.2, below for mounting direction when installing the enclosed type PSU



4.1 Open board type PSU



4.2 Enclosed type PSU

## WARNING

There are no user serviceable parts in this power supply. If a defect occurs do not disassemble the PSU. There are many high capacity electrolytic capacitors and high-voltage, high-current power supply parts used that retain their charge long after the supply voltage is removed.

If you experience a problem, replace the power supply and contact your supplier if you need a repair.

## BWB SWITCHING POWER SUPPLY - GUIDE

Models: BWB3.3SX-U1A open board type; Model BWB3.3SX-P-U1A enclosed type

**For use with Rosahl membrane types M-10J1R, S-10T1**

**Download the full User Guide from <http://www.support.micro-dehumidifier.com/power-supply-documentation/>**

### IMPORTANT

To prevent injury to a person or damage to property and to ensure safe operation, ensure you have a good understanding of local electrical regulations, and read this manual before using the Power Supply Unit (PSU).

### WARNING/CAUTION

- Installation by suitably trained persons as high voltages may be involved
- Do not touch components. Risk of electrical shock/high temperature
- Confirm the correct input and output voltages before use
- Do not exceed the maximum rating of the PSU
- Use a suitable earth/ground connection
- PSU must be isolated from supply before installing, removing or inspecting
- Do not operate under faulty or wet conditions
- In the event of a fault, disconnect the input to avoid risk fire or accident.

### INSTRUCTIONS

- Carefully remove PSU from packing and pay attention to all warnings and instructions
- Visually inspect PSU before use to ensure no physical damage has occurred.
- If damage has occurred, do not use the PSU. Contact your supplier
- Apply suitable warning labels to the equipment according to local regulations
- Cooling is by convection. Ensure adequate ventilation to avoid overheating and damage to adjacent items. Derate according to instructions.
- Restricting the ventilation may cause the power supply to overheat and fail.
- Refer to current BWM user guide at [www.support.micro-dehumidifier.com/power-supplies](http://www.support.micro-dehumidifier.com/power-supplies)

### CONNECTIONS

**- Use both sets of output cables when connecting to Rosahl membranes to ensure adequate current capacity.**

<u>Power connection CN101 (JST: VHR-5N)</u>	<u>Load connection CN201 (JST: VHR-4N)</u>
1 AC (L)	1 -V DC output
3 AC (N)	2 -V DC output
5 Ground	3 +V DC output
	4 +V DC output

Connectors made by company JST

### 3. Voltage range

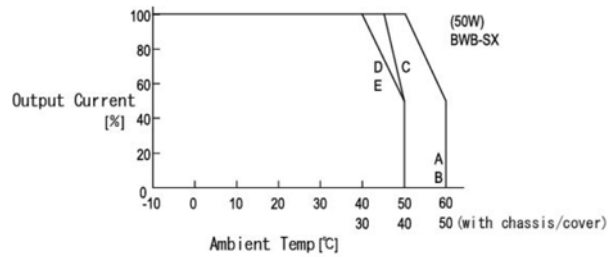
3-1 Input voltage range is 85 to 264V AC 50/60Hz.

3-2 Variable output voltage range to be adjusted to 3V using suitable calibration equipment.

## MOUNTING

- Depending on the ambient temperature of the power supply installation and the supply voltage used, the PSU may require derating. (Please refer to the specification)
- The PSU is cooled by natural convection and adequate clearance distances must be allowed around the installed PSU. Consider forced air cooling for higher temperature operation.

## DERATING

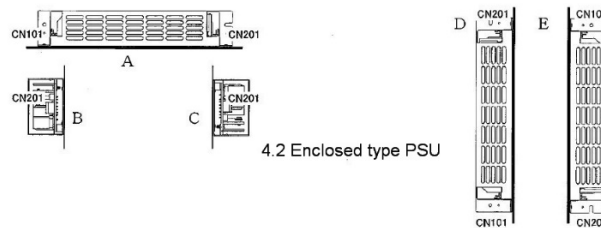


## DIRECTION OF INSTALLATION

- The open board PSU has four mounting points in the circuit board. The enclosed PSU has four mounting points in the base and two along one side. Use all mounting points and do not over tighten fixings
- Do not mount the enclosed type PSU below the mounting plate



4.1 Open board type PSU



4.2 Enclosed type PSU

## WARNING

- There are no user serviceable parts in this power supply. If a defect occurs do not disassemble the PSU. There are many high capacity electrolytic capacitors and high-voltage, high-current power supply parts used that retain their charge long after the supply voltage is removed.

## **BWB SWITCHING POWER SUPPLY - GUIDE**

- If you experience a problem, replace the power supply and contact your supplier if you need a repair.