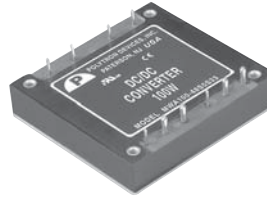




# 100 WATT SINGLE & DUAL OUTPUT

**Regulated,  
2:1 Input Range  
DC/DC Converters**



## Specifications

All specifications are typical at nominal input, full load and 25°C, unless otherwise noted.

### INPUT

Input Voltages Range .....	Single.....	36 - 72Vdc
UVLO Start-up Voltage .....	Single.....	34V typ. Dual.....35V typ.
UVLO Shutdown Voltage .....	Single.....	32V typ. Dual.....33V typ.
Input Filter (Note 3) .....		L-C type
Input Voltage Variation dv/dt .....		.5V/ms, max. (Complies with ETS300 132 part 4.4)
Input Surge Voltage 100mS max. (Single) .....		100Vdc
Start up time	Nominal Vin and constant resistor load .....	Single.....25mS typ.
Input Reflected Ripple Current (5Hz to 20MHz, 12µH source impedance) .....		Single.....20mA-p-p
Remote ON/OFF (Note 4)	Single (Positive Logic) .....	ON=Open or 3.5V<V <sub>r</sub> <15V, I <sub>IN</sub> =50µA max.
	.....OFF=Short or 0V<V <sub>r</sub> <1.2V, I <sub>IN</sub> =1mA max.	
	Single (Negative Logic) .....	ON=Short or 0V<V <sub>r</sub> <1.2V, I <sub>IN</sub> =1mA max.
	.....OFF=Open or 3.5V<V <sub>r</sub> <15V, I <sub>IN</sub> =50µA max.	
	Dual (Positive Logic) .....	ON=Open or 3V<V <sub>r</sub> <+Vin
	.....OFF=Short or 0V<V <sub>r</sub> <1.2V	
	Dual (Negative Logic) .....	ON=Open or 3V<V <sub>r</sub> <+Vin
	.....OFF=Open or 0V<V <sub>r</sub> <1.2V	

### OUTPUT

Output Power .....	Total output power .....	100 Watts max.
Voltage Accuracy .....	Full load and nominal Vin.....	Single.....±1.5% Dual.....±1.0%
Voltage Adjustability .....	Single (Note 1).....	±10%, -20% Dual for Each Outputs.....±10%
Minimum Load .....		0%
Line Regulation .....	LL to HL at FL.....	See Table
Load Regulation .....	Single (0% to 100% FL) Dual (0% to 100% FL) .....	See Table
	.....Dual for Each Outputs .....	See Table
Remote sense (Note 1) .....	Single .....	10% of Vout
Ripple and Noise .....	20 MHz bandwidth (Note 2).....	100mVp-p
Temperature Coefficient .....		±0.02%/°C, max.
Transient Response Recovery Time 25% load step change .....		200µS
Over Voltage Protection Threshold.....	Single (Hiccup).....	115% - 130% of Vout
	Dual 2.5V...3.0V 3.3V...3.9V 5V.....	6.2V
Over Current Protection Threshold .....	Single.....	110% - 140% of Iout Rated
Short Circuit Protection .....		Hiccup, automatic recovery

### GENERAL

Efficiency .....		See Table
Isolation Voltage .....	Input to Output.....	1600 Vdc, min. Input to Case.....1000 Vdc, min.
	.....Output to Case.....	1000 Vdc, min.
Isolation Resistance .....	Single.....	10 <sup>7</sup> Ohms, min. Dual.....10 <sup>8</sup> Ohms, min.
Isolation Capacitance .....	Single.....	2500pF, max. Dual.....1500pF, max.
Switching Frequency .....		300 KHz, typ
Approvals .....		IEC60950, UL60950, EN60950
Case Material.....	Dual.....	Non-conductive black plastic
Base Material .....		Aluminum base-plate
Potting Material .....	Single.....	Silicon (UL94-V0)
Weight .....	Single.....	55g (1.94 oz) Dual.....105g (3.7 oz)
MTBF (Note 5) .....	Single.....	2 x 10 <sup>6</sup> hrs Dual.....1.004 x 10 <sup>6</sup> hrs

### ENVIRONMENTAL

Operating Base-Plate Temperature Range (Note 6) .....		-40°C to +100°C
Over Temperature Protection .....	Single.....	110°C Dual for base plate.....105°C
Humidity max, Non-condensing.....		95%
Storage Temperature Range .....		-55°C to +125°C
Thermal Shock .....		MIL-STD-810D
Vibration .....		10-55Hz, 2G, 3 minutes period, 30 minutes along X, Y and Z

### EMC CHARACTERISTICS

Conducted emissions	EN55022 (Note 7)	Level A
	EN55022 (Note 7)	Level B
Radiated emissions	EN55022	Level A
ESD (single)	EN61000-4-2	Perf. Criteria2
Radiated immunity	EN61000-4-3	Perf. Criteria2
Fast transient	EN61000-4-4	Perf. Criteria2
Surge	EN61000-4-5	Perf. Criteria2
Conducted immunity	EN61000-4-6	Perf. Criteria2

## FEATURES

- **Input/Output Isolation (1600Vdc Min)**
- **Wide Input Voltage Range**
- **Industry Standard Footprint**
- **Compact 2.40" x 2.28" x 0.50"**
- **Adjustable Output Voltage**
- **No Minimum Load**
- **High Efficiency (Up to 90%)**
- **Short Circuit Protection**
- **Over Voltage Protection**
- **On/Off Control**

MWA100 Series

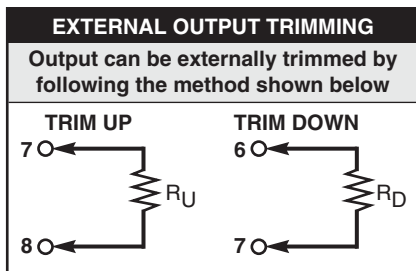
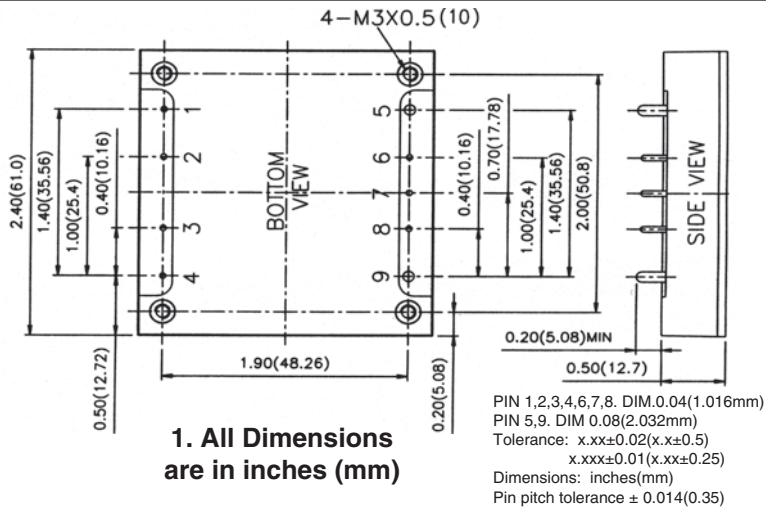
Selection Guide

(Continued)

	Input Voltage Nominal (Range) (Vdc)	Output Voltage (Vdc)	Output Current (A)	Efficiency %	Model Number	Case
SINGLE OUTPUT VOLTAGE	48 (36-72)	1.8	25	86	MWA100-48S1.8	H
		2.5	25	87	MWA100-48S2.5	H
		3.3	25	90	MWA100-48S33	H
		5	20	90	MWA100-48S5	H
		15	6.66	90	MWA100-48S15	H
DUAL OUTPUT VOLTAGE	48 (36-72)	5/3.3	20/25	87	MWA100-48S5S33	H
		5/2.5	20/25	85	MWA100-48S5S2.5	H
		3.3/2.5	25/25	85	MWA100-48S33S2.5	H

Mechanical Specifications / Single Output

PIN CONNECTION		
PIN	DEFINE	Diameter
1	-INPUT	0.04 Inches
2	CASE	0.04 Inches
3	CTRL	0.04 Inches
4	+INPUT	0.04 Inches
5	-OUTPUT	0.08 Inches
6	-SENSE	0.04 Inches
7	TRIM	0.04 Inches
8	+SENSE	0.04 Inches
9	+OUTPUT	0.08 Inches



PRODUCT OPTIONS TABLE
OPTION
Negative remote ON/OFF logic, 0.20" pin length (standard)
Negative remote ON/OFF logic, 0.145" pin length
Negative remote ON/OFF logic, 0.11" pin length
Positive remote ON/OFF logic, 0.20" pin length
Positive remote ON/OFF logic, 0.145" pin length
Positive remote ON/OFF logic, 0.11" pin length

NOTE:

- Maximum output deviation is 10% inclusive of remote sense. If remote sense is not being used, the +Vsense should be connected to its corresponding +OUTPUT and likewise the- sense should be connected to its corresponding -OUTPUT.
- Single: Measured with a 1µF M/C and a 10µF T/C. Dual: For each outputs.
- An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V models. Suggest: Nippon chemi-con KMF series, 220µ F/100V, ESR 90mΩ.
- Single: The negative / positive logic and pin length are optional (see table). The pin voltage is referenced to negative input. Dual: The ON/OFF control function. There are positive logic (standard) and negative logic (option). The pin voltage is referenced to negative input. To order negative logic ON/OFF control add the suffix RE.
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
- Heat sink is optional.
- The MWA100 meets level A & level B conducted emissions only with external components connected before the input pin to the converter.
- Maximum value at nominal input voltage and full load.
- Typical value at nominal input voltage and full load. The dual efficiency test condition: MWA100-48S5S33 @5V/12A and 3.3V/12A, MWA100-48S5S33 @5V/12A and 2.5V/16A, MWA100-48S5S33 @3.3V/18A and 2.5V/16A
- BASEPLATE GROUNDING: Base-plate should be grounded at one of the four screw bolts prior to operation.
- The converter is provided with basic insulation.



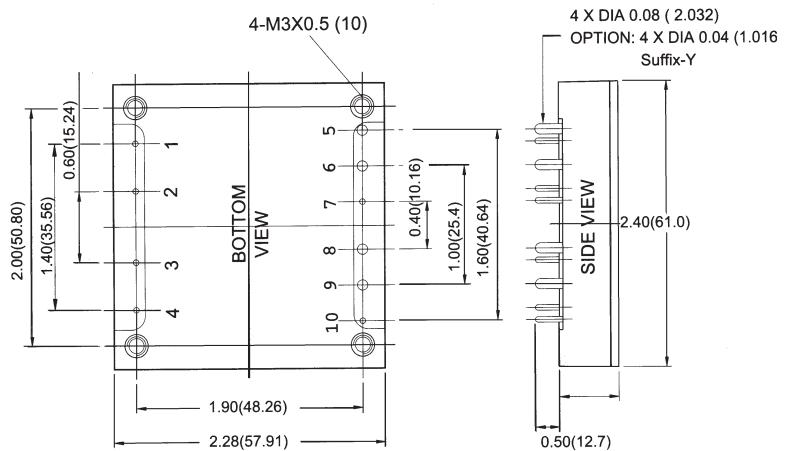
POLYTRON DEVICES, Inc.

P.O. Box 398, Paterson, New Jersey 07544 U.S.A.  
 Tel: (973)345-5885 Fax: (973)345-1264 • Email: sales@polytrondevices.com • www.polytrondevices.com

Mechanical Specifications / Dual Output

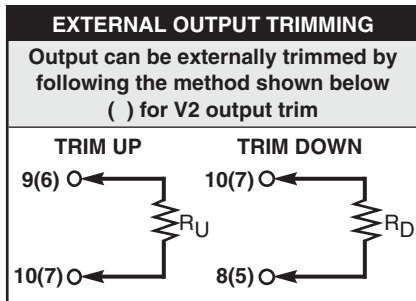
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PIN CONNECTION		
PIN	DEFINE	Diameter
1	-INPUT	0.04 Inches
2	CASE	0.04 Inches
3	CTRL	0.04 Inches
4	+INPUT	0.04 Inches
5	+V2	0.08 Inches
6	-V2 (COM)	0.08 Inches
7	V2 TRIM	0.04 Inches
8	+V1	0.08 Inches
9	-V1 (COM)	0.08 Inches
10	V1 TRIM	0.04 Inches



PIN 1,2,3,4,7,10. DIM. 0.04(1.016mm)  
 PIN 6,8,9. DIM. 0.08(2.032mm)  
 Tolerance: x.xxx±0.02(x.xx±0.5)  
 x.xxx±0.01(x.xx±0.25)  
 Dimensions: inches(mm)  
 Pin pitch tolerance ± 0.014(0.35)

1. All Dimensions are in inches (mm)



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