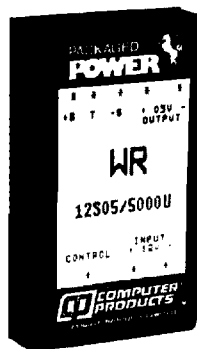


# WR-U SERIES

## Single and dual output

For new design-ins see the BXA30 Series instead

- 30 Watts output power
- UL approved (48V input models)
- 2:1 input range
- Efficiency to 86%
- Isolated outputs



### 2 YEAR WARRANTY

The WR-U series DC/DC converters accept a wide input voltage range of 9 to 18VDC, 18 to 36VDC, and 36 to 72VDC. A 100kHz switching regulator produces operating efficiencies as high as 86% with output loads as light as 25% of full load. These 30 Watt models provide for remote sensing, input/output isolation of 500VDC minimum, and short circuit protection. The WRU Series incorporates six sided continuous EMI/RFI

shielding. The "U" package measures 2.56 x 4.56 x 0.83 inches and is PCB mountable. Other pertinent specifications include: overvoltage protection on all outputs, operating temperature range of -25°C to 71°C with no derating required and all models are free-air convection cooled.

### SPECIFICATION

ALL SPECIFICATIONS ARE TYPICAL AT NOMINAL INPUT, FULL LOAD AND 25 °C UNLESS OTHERWISE STATED

OUTPUT SPECIFICATIONS			
Voltage accuracy			±1.0%
Voltage adjustability	Singles		±10%, max.
Remote sense	Singles		Yes
Line regulation	LL-HL, all outputs		±0.2%, max.
Load regulation	FL-NL FL-0.25%FL		±5.0%, max. ±1.0%, max.
Voltage balance	Duals		±2.0%
Ripple and noise	5Hz to 20MHz		75mV pk-pk 10mV rms, max.
Transient response	25% step load change		±1.0% error band 500µs rec.
Temperature coefficient			±0.02%/°C, max.
Overvoltage protection	Single +5V output Single +12 and +15V Duals		6.8V ±10% 18.0V ±10% No
Short circuit protection			Continuous automatic recovery
INPUT SPECIFICATIONS			
Input voltage range	12VDC 24VDC 48VDC	9 to 18VDC 18 to 36VDC 36 to 72VDC	
No load input current	12VDC 24VDC 48VDC		30mA 25mA 20mA
Input filter	Single outputs Dual outputs		Pi filter Low ESR cap
Reverse voltage protection			Internal shunt diode (Use external fuse)

INPUT SPECIFICATIONS CONTINUED			
Remote ON/OFF			CMOS or open collector TTL
Logic compatibility			+5.5VDC min. or open-circuit
E <sub>c</sub> -ON			max. 1.8VDC
E <sub>c</sub> -OFF			5mA
Shutdown idle current			0VDC < E <sub>in</sub> < 9VDC; 100kΩ
Input resistance			Referenced to input minus
Control common			
GENERAL SPECIFICATIONS			
Efficiency	Typical		75% to 86%
Isolation voltage	Input/Output		500VDC
See Note 5	Input/Case		250VDC
Switching frequency	Fixed		100kHz
Approvals and standards	Safety		UL1950
Case material			Black coated copper with non-conductive base
Material flammability			UL94V-0
Weight			390g (13.77oz)
MTBF	See Note 6		840,000 hours
ENVIRONMENTAL SPECIFICATIONS			
Thermal performance	Operating ambient Non-operating amb. Case, temp. rise Derating Cooling		-25°C to +71°C -55°C to +105°C +30°C at FL max. None required Free-air convection
Relative humidity	Non-condensing		5% to 95% RH
Altitude	Operating Non operating		10,000 feet max. 40,000 feet max.
Vibration	Pressure		2.5G rms (approx.) 5Hz to 500Hz

## 30 Watt Wide input DC/DC converters

INPUT VOLTAGE <sup>(1)</sup>	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT <sup>(2)</sup>	TYPICAL EFFICIENCY	REGULATION		MODEL NUMBER
					LINE <sup>(3)</sup>	LOAD <sup>(4)</sup>	
18-36VDC	5VDC	5.0A	1.35A	77%	±0.2%	±1.0%	WR24S05/5000U
36-72VDC	5VDC	5.0A	0.68A	77%	±0.2%	±1.0%	WR48S05/5000U
36-72VDC	15VDC	2.0A	0.78A	80%	±0.2%	±1.0%	WR48S15/2000U
9-18VDC	±12VDC	±1.25A	3.05A	82%	±0.2%	±1.0%	WR12D12/1250U
18-36VDC	±12VDC	±1.25A	1.5A	84%	±0.2%	±1.0%	WR24D12/1250U
18-36VDC	±15VDC	±1.0A	1.5A	84%	±0.2%	±1.0%	WR24D15/1000U
36-72VDC	±12VDC	±1.25A	0.73A	86%	±0.2%	±1.0%	WR48D12/1250U

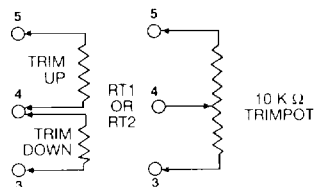
## Notes

- 1 Nominal input 12, 24 or 48VDC.
- 2 Maximum at full load.
- 3 Measured from high line to low line.
- 4 Measured from full load to 0.25% full load.
- 5 In many cases, the isolation specification may be upgraded. Consult factory for details.
- 6 MTBF figures are based on actual product performance. Consult factory for details.
- 7 Fixed frequency design provides for easier input filtering and better noise performance.
- 8 Standard specifications are conservative and can be optimized for specific applications. In particular, converter start-up at lower than specified temperature, wider input voltage range and output voltage adjustment are all relatively simple modifications to the standard product. Consult factory for details.

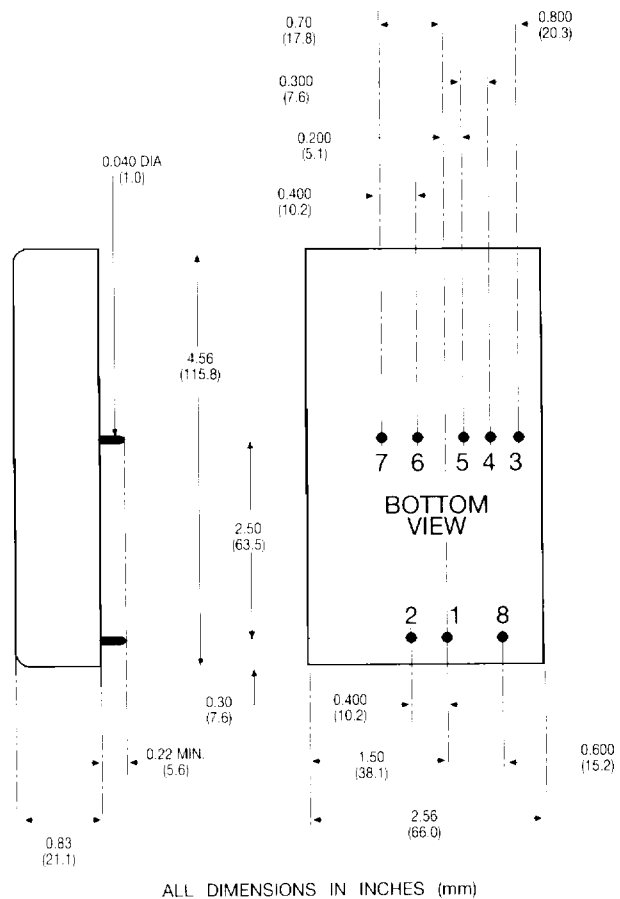
PIN NUMBER	SINGLE OUTPUT	DUAL OUTPUT
1	+ Input	+ Input
2	– Input	– Input
3	+ Sense/Trim Down	+ Output
4	Trim	Common
5	– Sense/Trim Up	– Output
6	+ Output	No Pin
7	– Output	No Pin
8	Remote On/Off Control	

## EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed  
by  $\pm 10\%$  using either method shown below.



## CASE U



ALL DIMENSIONS IN INCHES (mm)

### International Safety Standard Approvals



 UL1950 File Numbers E136005 and E131987



**Call Toll-Free: (East) 800-733-9288 • (West) 800-769-7274**