

WR-XC and WR-MP SERIES

Single and dual output

[2 YEAR WARRANTY]

• 2:1 input range

- WR-XC UL approved
- Efficiency to 86%
- Isolated outputs
- Six sided shield
- Remote on/off control on XC models
- 100kHz switching frequency
- Two package sizes available

The WR series DC/DC converters accept a wide input voltage range of 9-18VDC, 18-36VDC or 36-72VDC. A 100kHz switching regulator produces operating efficiencies up to 86% at full load and as high as 80% at light load. In the case of duals, full power may be taken from either output. All models will tolerate a short circuit between positive and negative outputs or between either output and common indefinitely. Load regulation of $\pm 1\%$, line regulation of $\pm 0.2\%$, Pi input filtering and remote on/off control (XC package only) which can be improvised as an undervoltage shutdown signal, are featured on all models. Six-sided continuous EMI/RFI shielding is provided in both XC and MP packages. The operating temperature range is -25° C to $+71^{\circ}$ C convection cooled, with no derating required.

SPECIFICATION All specifications are typical at nominal input, full load at 25°C unless otherwise stated

OUTPUT SPECIFICATI	ONS	
Voltage accuracy		±1.0%
Voltage balance	Dual outputs ±2.0	
Voltage adjustability	WR/XC, single output	ut ±10% max.
Line regulation	HL-LL	±0.2%
Load regulation	FL-NL FL-0.25% FL	±5.0%, max. ±1.0%, max.
Ripple and noise	5Hz to 20MHz	75mV pk-pk, 10mV rms max.
Transient response	25% step load change	±1.0% error band 500µs recovery
Temperature coefficient		±0.02%/°C, max.
Overvoltage protection (Zener clamp)	5V single output 12 and 15V singles	6.8V ±10% 18.0V ±10%
Short circuit protection		Continuous automatic recovery
INPUT SPECIFICATION	IS	
Input voltage range	12VDC 24VDC 48VDC	9-18VDC 18-36VDC 36-72VDC
No load input current	12VDC 24VDC and 48VDC	30mA 20mA
Input filter		Pi type
Remote ON/OFF Logic compatibility Ec-ON Ec-OFF Shutdown idle current Input resistance Control common	CMOS or +5.5\ 0VDC	o XC package only open collector TTL /DC or open-circuit 1.8VDC 5mA <ein< 100kω<br="" 9vdc;="">heed to input minus</ein<>

GENERAL SPECIFICA	TIONS	
GENERAL SPECIFICA		
Efficiency	Full load. See table	75%, min.
Isolation voltage See Note 4	WR/MP, Input/output WR/XC, Input/output WR/XC, output/case	
Switching frequency	Fixed	100kHz
Approvals and standards	Safety (WR-XC)	UL478
Case material		Black coated metal n-conductive base Non-conductive
Material flammability		black plastic
Weight	XC case MP case	170g (6.0oz.) 200g (7.06oz.)
MTBF	See Note 6	840,000 Hours
ENVIRONMENTAL SPI	ECIFICATIONS	
Thermal performance	Operating ambient Non-operating amb. Case temp. rise Derating Cooling Free air	+30°C at FL max. None required
Relative humidity	Non-condensing	5% to 95% RH
Altitude	Operating Non operating	10,000 feet max. 40,000 feet max.
Vibration	5Hz to 500Hz	2.5G rms (approx.)

International Safety Standard Approvals

RL UL478 File No. E131987 (WR-XC)

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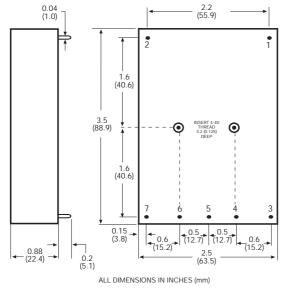
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15 Watt Wide input DC/DC converters

INPUT	OUTPUT	OUTPUT	INPUT	TYPICAL	REGUL	ATION	MODEL
VOLTAGE	VOLTAGE	CURRENT	CURRENT	EFFICIENCY	LINE	LOAD ⁽¹⁾	NUMBER
9-18VDC	5VDC	3000mA	1700mA	75%	±0.2%	±1.0%	WR12S05/3000XC
9-18VDC	12VDC	1250mA	1600mA	78%	±0.2%	±1.0%	WR12S12/1250XC
9-18VDC	12VDC	1250mA	1600mA	78%	±0.2%	±1.0%	WR12S12/1250MP
18-36VDC	5VDC	3000mA	810mA	77%	±0.2%	±1.0%	WR24S05/3000XC
18-36VDC	5VDC	3000mA	810mA	77%	±0.2%	±1.0%	WR24S05/3000MP
18-36VDC	12VDC	1250mA	780mA	80%	±0.2%	±1.0%	WR24S12/1250XC
36-72VDC	5VDC	3000mA	410mA	77%	±0.2%	±1.0%	WR48S05/3000XC
36-72VDC	12VDC	1250mA	390mA	80%	±0.2%	±1.0%	WR48S12/1250XC
9-18VDC	±12VDC	±625mA	1520mA	82%	±0.2%	±1.0%	WR12D12/625XC
9-18VDC	±15VDC	±500mA	1520mA	82%	±0.2%	±1.0%	WR12D15/500XC
9-18VDC	±12VDC	±625mA	1520mA	82%	±0.2%	±1.0%	WR12D12/625MP
18-36VDC	±12VDC	±625mA	750mA	84%	±0.2%	±1.0%	WR24D12/625XC
18-36VDC	±15VDC	±500mA	750mA	84%	±0.2%	±1.0%	WR24D15/500XC
18-36VDC	±12VDC	±625mA	750mA	84%	±0.2%	±1.0%	WR24D12/625MP
18-36VDC	±15VDC	±500mA	750mA	84%	±0.2%	±1.0%	WR24D15/500MP
36-72VDC	±12VDC	±625mA	390mA	86%	±0.2%	±1.0%	WR48D12/625XC
36-72VDC	±15VDC	±500mA	390mA	86%	±0.2%	±1.0%	WR48D15/500MP

Notes

- Load regulation is measured from full load to 25% full load. 1
- Standard specifications are conservative and can be optimised for specific 2 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
- 3 Fixed frequency design provides for easier input filtering and better noise performance. In many cases, the isolation specification may be upgraded. Consult
- 4 factory for details.
- XC case only (single output models): to trim up connect pin 4 to pin 7 through a $10k\Omega$ resistor, or pin 4 to pin 6 to trim down. 5
- MTBF figures are based on actual product performance. Consult factory 6 for details.



MP CASE

PIN CONNECTIONS					
PIN	MP SINGLES	MP DUALS	XC ⁽⁵⁾ SINGLES	XC DUALS	
1	+ Input	+ Input	+ Input	+ Input	
2	– Input	– Input	– Input	– Input	
3	+ Output	+ Output	No Pin	+ Output	
4	No Pin	No Pin	Trim	Common	
5	N/C	Common	No Pin	– Output	
6	No Pin	No Pin	+ Output	No Pin	
7	– Output	– Output	– Output	No Pin	
8	N/A	N/A	Remote On/Off Control	Remote On/Off Control	

