ARTESYN TECHNOLOGIES

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 ±1%, line regulation of ±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°C convection cooled, with no derating required.

SPECIFICATION

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

OUTPUT SPECIFICATIONS		
Voltage accuracy		±1.0%
Voltage balance	Dual outputs	±2.0%
Voltage adjustability	WR/XC, single output	±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 SPECIFICATIONS		
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		Refers to XC package only
Logic compatibility		CMOS or open collector TTL
Ec-ON		+5.5VDC or open-circuit
Ec-OFF		1.8VDC
Shutdown idle current		5mA
Input resistance		0VDC <Ein< 9VDC; 100kΩ
Control common		Referenced to input minus

GENERAL SPECIFICATIONS		
Efficiency	Full load. See table	75%, min.
Isolation voltage See Note 4	WR/MP, Input/output WR/XC, Input/output WR/XC, output/case	500VDC 500VDC 250VDC
Switching frequency	Fixed	100kHz
Approvals and standards	Safety (WR-XC)	UL478
Case material	XC case MP case	Black coated metal with non-conductive base Non-conductive black plastic
Material flammability		UL94V-0
Weight	XC case MP case	170g (6.0oz.) 200g (7.06oz.)
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 cooled
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

UL478 File No. E131987 (WR-XC)

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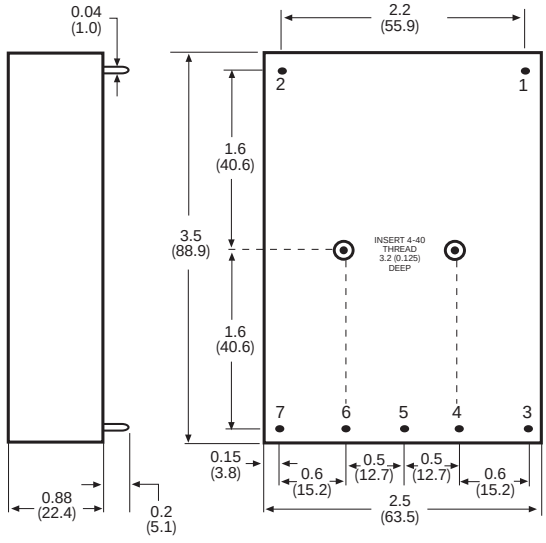
15 Watt
Wide input DC/DC converters

INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT	TYPICAL EFFICIENCY	REGULATION		MODEL NUMBER
					LINE	LOAD (1)	
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

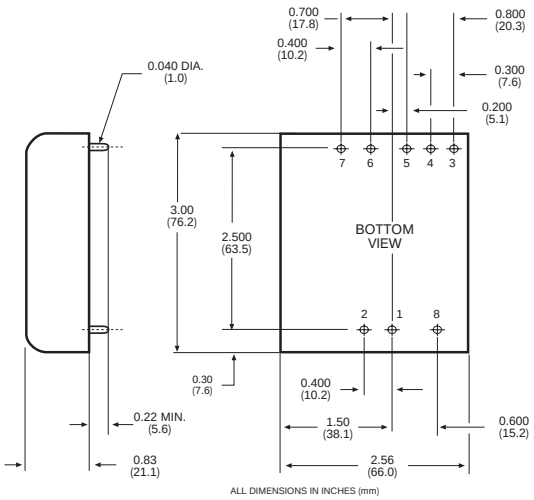
1 Load regulation is measured from full load to 25% full load.
2 Standard specifications are conservative and can be optimised for specific applications. In particular, converter start-up at lower than specified temperature, wider input voltage range and output voltage adjustment are all relatively simple modifications to the standard product. Consult factory for details.
3 Fixed frequency design provides for easier input filtering and better noise performance.
4 In many cases, the isolation specification may be upgraded. Consult factory for details.
5 XC case only (single output models): to trim up connect pin 4 to pin 7 through a 10kΩ resistor, or pin 4 to pin 6 to trim down.
6 MTBF figures are based on actual product performance. Consult factory for details.

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



ALL DIMENSIONS IN INCHES (mm)

MP CASE



ALL DIMENSIONS IN INCHES (mm)

XC CASE