

WP SERIES

Single output



[2 YEAR WARRANTY]

- **Ultra wide input 4:1**
- **Direct output paralleling**
- **Efficiency to 85%**
- **Remote on/off control**
- **Remote sensing**
- **Low noise**

The WP Series DC/DC converters offer two unique features. Amp-Reg™ is an innovative design that permits paralleling of outputs. The ultra wide input voltage range of 9VDC to 36VDC or 20VDC to 72VDC covers the standard inputs of 12VDC, 15VDC, 18VDC, 24VDC, 28VDC, 36VDC, and 48VDC with two models. The WP Series DC/DC converters employ 100kHz switching regulator techniques to provide operating efficiencies as high as 85% at full load. Short circuit current limiting and overvoltage protection are standard on all models. The output of all WP Series DC/DC converters may be remotely controlled with a logic compatible signal or relay contact closure. When turned off, the idle current is only 5mA. All models have 500VDC minimum isolation and no derating is required.

SPECIFICATION

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

OUTPUT SPECIFICATIONS		
Voltage accuracy		±1.0%
Voltage adjustability	See Note 6	±10%
Remote sense	Protected against disconnection, See Note 5	Yes
Line regulation	LL to HL Remote sense connected	±0.5% max. ±0.1% typ.
Load regulation	FL to NL FL to 20% FL Remote sense connected	±2.0% max. ±0.5% max. ±0.1% typ.
Ripple and noise	5Hz to 20MHz	50mV pk-pk, max. 5mV rms, max.
Transient response	25% step load change	200µs recovery max.
Temperature coefficient		±0.02%/°C
Overvoltage protection	Zener clamp	See table
Short circuit protection	Current limit	110% Iout
Current regulation	AMP-REG™, See Note 8	5%, max.
INPUT SPECIFICATIONS		
Input voltage range	24VDC 48VDC	9-36VDC 20-72VDC
Input filter	See Note 9	Pi type
Reverse voltage protection		Internal shunt diode (use external fuse)
Idle current	Remote OFF	5mA
Remote ON/OFF		See Note 7
Logic compatibility		CMOS or open collector TTL
E _c -ON		min 1.8VDC to 100VDC max.
E _c -OFF		or open-circuit 1.2VDC max.
Control common		Referenced to input minus

GENERAL SPECIFICATIONS		
Efficiency	20% to 100%, Full load	See table 85% max.
Isolation voltage	See Note 10	500VDC, min.
Switching frequency	Fixed	100kHz
Case material		Black coated copper with non-conductive base
Material flammability		UL94V-0
Weight		454g (16.03oz)
MTBF	MIL-HDBK-217E	850,000 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating ambient Non-operating Case Derating Cooling	-25°C to +71°C -55°C to +105°C +25°C @ FL, nom. Vin None required Free-air convection cooled

OVERVOLTAGE PROTECTION	
OUTPUT VOLTAGE	OVP
5VDC	6.8V
12VDC	15.0V
15VDC	18.0V

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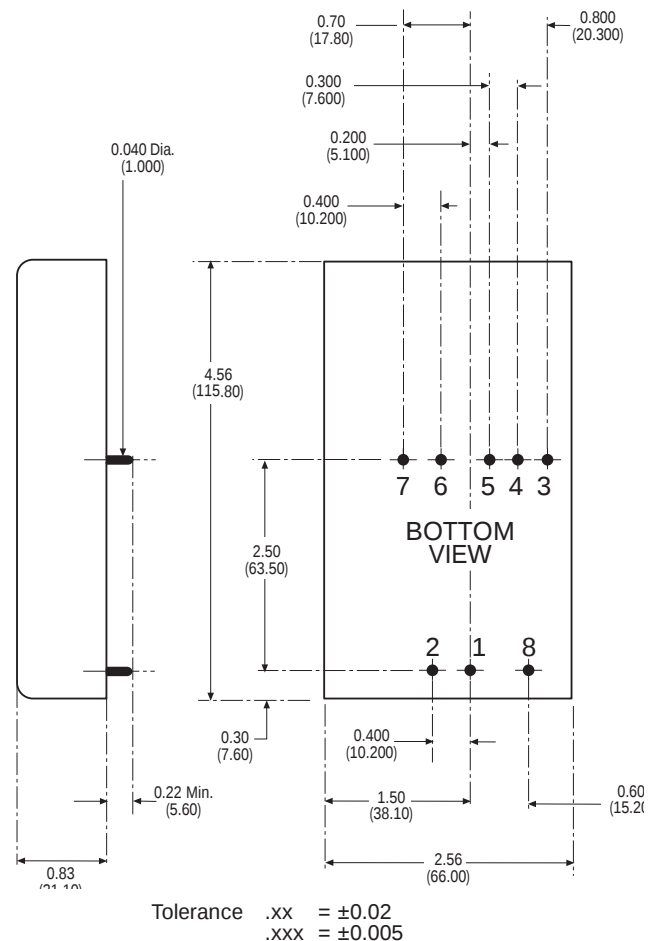
25 to 30 Watt Wide input DC/DC converters

INPUT VOLTAGE ⁽¹⁾	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT ⁽²⁾		TYPICAL EFFICIENCY	REGULATION		MODEL NUMBER
			NO LOAD	FULL LOAD		LINE ⁽³⁾	LOAD ⁽⁴⁾	
9-36VDC	5VDC	5000mA	20mA	1370mA	76%	±0.5%	±0.5%	WP24S05/5000U
9-36VDC	12VDC	2500mA	20mA	1520mA	82%	±0.5%	±0.5%	WP24S12/2500U
9-36VDC	15VDC	2000mA	20mA	1500mA	83%	±0.5%	±0.5%	WP24S15/2000U
20-72VDC	5VDC	5000mA	20mA	680mA	77%	±0.5%	±0.5%	WP48S05/5000U
20-72VDC	12VDC	2500mA	20mA	750mA	84%	±0.5%	±0.5%	WP48S12/2500U
20-72VDC	15VDC	2000mA	20mA	740mA	85%	±0.5%	±0.5%	WP48S15/2000U

Notes

- Nominal inputs are 24VDC and 48VDC.
- Maximum figure at full load.
- Measured from high line to low line.
- Measured as load changes from 20% to 100% full load.
- Remote sense will compensate for a load line voltage drop of up to 400mV per leg. If the remote sense facility is not utilised, output sense pins must be jumpered to the respective output power pins. For normal operation connect pin 3 to pin 6 and pin 5 to pin 7.
- To trim the output voltage, connect a resistor from pin 4 to pin 3 (trim down) or pin 4 to pin 5 (trim up). A trim resistor value of zero ohms yields the maximum output change of approximately 10%.
- The remote on/off control can be used as undervoltage shutdown signal for the converter. A user-provided input undervoltage circuit can start the converter by toggling the remote on/off control when the input voltage is within proper limits.
- The WP series includes a special AMP-REG circuit that allows paralleling multiple converters, either directly or with isolation diodes. The circuit is essentially an output current limit set at 105% of stated maximum output. When multiple converters are paralleled, the converter with the highest output voltage will provide all the output current until it reaches current limit. Then its output voltage begins to drop and the converter with the next highest output voltage starts to contribute current. The WP series are designed to operate reliably in current limit indefinitely.
- Fixed frequency design provides for easier input filtering and better noise performance.
- In many cases, the isolation specification may be upgraded. Consult factory for details.
- 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.

PIN CONNECTIONS (5,6,7)	
PIN	FUNCTION
1	+ Input
2	- Input
3	+ Sense/Trim Down
4	Output Trim
5	- Sense/Trim Up
6	+ Output
7	- Output
8	Remote On/Off



EXTERNAL OUTPUT TRIMMING ⁽⁶⁾

Output can be externally trimmed by ±10% using either method shown below.

