

# 24-VOLT INPUT DC-DC CONVERTERS



Model 1502-24-13-30

## FEATURES

- 400-WATT and 200-WATT MODELS
- HEIGHT 3.45" (2 RACK SPACES)
- REGULATED, ADJUSTABLE OUTPUT VOLTAGE
- 80%-85% EFFICIENCY
- INPUT-OUTPUT ISOLATION
- -30°C TO +60°C TEMPERATURE RANGE
- VERY LOW RIPPLE AND NOISE

Series 1500 dc-to-dc converters provide a well-regulated dc output voltage from station batteries or other widely fluctuating dc sources. This output is galvanically isolated from the source and chassis and, therefore, may be connected either as a positive or a negative output. Applications include powering radio transceivers, telecommunications equipment, supervisory control systems and other critical electronic loads.

Designed for relay rack mounting, these state-of-the-art converters achieve superior electrical performance in a low profile enclosure. Conservatively rated and very efficient, Series 1500 converters will operate continuously at any load within their rating over a wide ambient temperature range with simple convection cooling. Exceptionally effective noise suppression and filtering allow these converters to be used in many applications considered too noise-sensitive for other transistor-switching power converters. Standard options let users adapt converters to specific system requirements, including paralleling for redundancy and for additional power.

Eight 24-volt input versions are available with different combinations of dc output voltage and output power.

Table 1

Input Voltage Range (VDC)	Input Current <sup>1</sup> (ADC)	Output Voltage Adjustment Range (VDC)	Output Current (ADC)	Model Number <sup>2</sup>
20-29	10.4	12-14 (13 nominal)	0-15	15xx-24-13-15
	20.6		0-30	15xx-24-13-30
	9.8	22-26 (24 nominal)	0-8	15xx-24-24-8
	19.3		0-16	15xx-24-24-16
	9.7	44-52 (48 nominal)	0-4	15xx-24-48-4
	19.2		0-8	15xx-24-48-8
	9.6		123.5-136.5 (130 nominal)	0-1.5
	18.9		0-3	15xx-24-130-3

<sup>1</sup>Typical current at full load, nominal input and output voltages

<sup>2</sup>See reverse side for complete model numbering information

## SPECIFICATIONS

### Input Voltage

20 Vdc to 29 Vdc (24 Vdc nominal)

### Output Voltage and Current

The nominal output voltage, the adjustable output voltage range and output current for standard models are shown in Table 1.

### Output Voltage Regulation

Versus line:  $\pm 0.1\%$

Versus load:  $\pm 0.5\%$

### Output Voltage Ripple and Noise

3 millivolts rms (typical)

30 millivolts peak-to-peak (typical)

### Isolation and Grounding

Mutual electrical isolation is provided between the input circuit, the output circuit and chassis ground.

### Protection

Protection against overloads, short-circuits and output overvoltages is provided electronically. Recovery to normal operating conditions is automatic upon removal of the overload or short-circuit fault. Following an overvoltage shutdown, input power to the converter must be removed and reapplied to resume converter operation. Protection against accidental reversal of the dc input-voltage polarity during installation is provided by a shunt diode working in conjunction with the front-panel circuit breaker.

### Ambient Temperature Range

Operating:  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  (convection cooling)

Storage:  $-40^{\circ}\text{C}$  to  $+95^{\circ}\text{C}$

### Efficiency

The efficiency reaches 80% at approximately 15% of full load and remains above 80% for most of the load range. The no-load input current is approximately 200 milliamperes. Heat dissipation is approximately 340 BTU/hour for 400-watt models and 170 BTU/hour for 200-watt models.

### Front-Panel Controls and Indicators

A combination circuit breaker and ON/OFF switch is provided for input power. A potentiometer shaft with locking

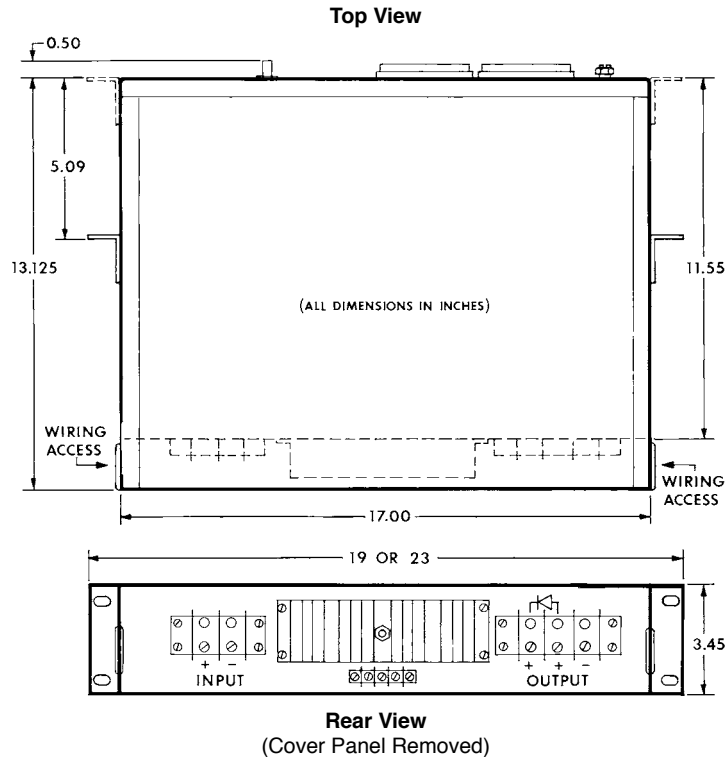


Fig. 1 Converter shown with optional meters, auxiliary contacts and paralleling diode with heatsink.

nut is provided to adjust the output voltage level. An optional voltmeter and ammeter display the dc output.

### Physical Characteristics

Refer to Fig. 1 for overall dimensions. Weight is less than 15 pounds. Brackets are provided for 19-inch or 23-inch relay rack mounting. A cover panel protects the recessed rear panel and wiring connections

### STANDARD OPTIONS

- Output voltmeter and output ammeter
- Output series diode for parallel-redundant operation of multiple converters
- Auxiliary Form C contacts for remote indication of improper output (converter fail)
- Balanced load sharing between converters being paralleled for additional power

### MODEL NUMBERING INFORMATION

Series 1500 converters are identified by four numbers. In sequence, these

give the basic model number (**1501** for plain front panel, **1502** for output meter option), the nominal input voltage, the nominal output voltage and the maximum load current. Standard options other than meters are specified by an additional suffix: **M1** designates paralleling diode plus auxiliary contacts, **M2** designates load sharing and **M3** combines paralleling diode, auxiliary contacts and load sharing. For example, **Model 1502-24-13-30-M3** is a 24-volt to 13-volt converter with a 30-ampere maximum load rating. It is provided with output meters, paralleling diode, auxiliary contacts and load sharing capability.

### OTHER WILMORE PRODUCTS

For information about other Wilmore dc-to-dc converters or for information about other power-conditioning products such as switching power supplies, dc-to-ac inverters and uninterruptible power systems, please contact our sales department.

Information provided in this bulletin is subject to change without notice.

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