

## 48-VOLT TO 24-VOLT DC-DC CONVERTER



Model 1561-48-24-30

### FEATURES

- 30-AMPERE OUTPUT
- HEIGHT 3.45"  
(2 RACK SPACES)
- REGULATED, ADJUSTABLE  
OUTPUT VOLTAGE
- 84% EFFICIENCY
- INPUT-OUTPUT ISOLATION
- -30°C TO +50°C  
TEMPERATURE RANGE
- VERY LOW RIPPLE AND  
NOISE

Model 1561 dc-to-dc converters provide a well-regulated 24-Vdc output from 48-volt station batteries or other widely fluctuating 48-Vdc 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 microwave transceivers, rf amplifiers, and FDM carrier systems in central offices and remote telecommunications sites.

Designed for relay rack mounting, this state-of-the-art converter achieves superior electrical performance in a low profile enclosure. Conservatively rated and very efficient, the Model 1561 will operate continuously at any load within its rating over a wide ambient temperature range with simple convection cooling. Exceptionally effective noise suppression and filtering allow this converter 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.

## SPECIFICATIONS

### Input Voltage

42 Vdc to 58 Vdc (48 Vdc nominal)

### Input Current

17.8 Adc (typical current at full load, nominal input and output voltages)

### Output Voltage

24 Vdc nominal (adjustable  $\pm 5\%$ )

### Output Current

0 to 30 Adc

### Output Voltage Regulation

Versus line:  $\pm 0.1\%$

Versus load:  $\pm 0.5\%$

### Output Voltage Ripple and Noise

5 millivolts rms (typical)

50 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  $+50^{\circ}\text{C}$

(convection cooling)

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

### Efficiency

The efficiency reaches 84% at approximately 15% of full load and remains above 84% for most of the load range. The no-load input current is approximately 170 milliamperes. Heat dissipation is approximately 460 BTU/hour.

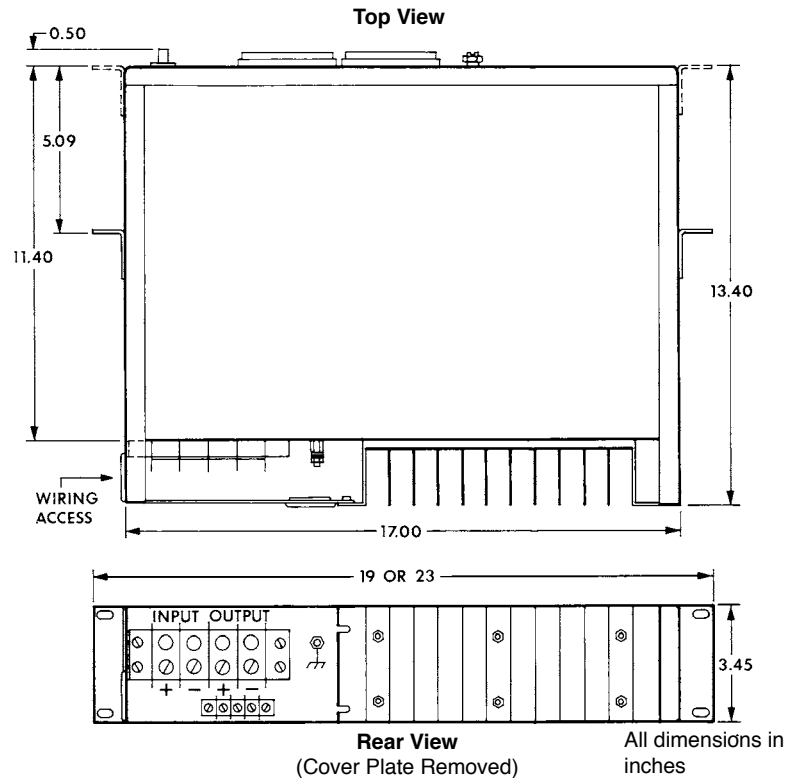


Fig. 1 Model 1561 overall dimensions

### Front-Panel Controls and Indicators

A combination circuit breaker and ON/OFF switch is provided for input power. A potentiometer shaft with locking nut is provided to adjust the output voltage level. A voltmeter and ammeter display the dc output.

### Physical Characteristics

Refer to Fig. 1 for overall dimensions. Weight is less than 18 pounds. Brackets are provided for 19-inch or 23-inch relay rack mounting. A cover panel protects the recessed rear-panel wiring connections.

### STANDARD OPTIONS<sup>1</sup>

- 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

<sup>1</sup>Some options may affect voltage regulation, ripple and noise, and efficiency specifications.

### MODEL NUMBERING INFORMATION

The Model 1561 converter is identified by four numbers. In sequence, these give the basic model number, the nominal input voltage, the nominal output voltage, and the maximum load current. Standard options 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 1561-48-24-30-M3 is a 48-volt to 24-volt converter with a 30-ampere maximum load rating. It is provided with 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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