

## FAULT-TOLERANT 200-WATT DC-DC CONVERTERS INTERNAL DUAL/REDUNDANT DESIGN

- TWO INDEPENDENT CONVERTERS INTERNALLY CONFIGURED AS A FAULT-TOLERANT/REDUNDANT UNIT
- 24, 48 OR 130 VDC INPUT WITH PROVISION FOR SEPARATE FEEDS FOR EACH CONVERTER
- ISOLATED, REGULATED OUTPUT
- HEIGHT 1.75" (1 RACK SPACE)



Series 1721

Designed for critical lower-power applications requiring the back-up/redundant features often found in larger dc power systems, Series 1721 dc-to-dc converters provide redundant-power reliability in a small, economical package. Two independent converters are housed in a single 1.75"-high rack-mount enclosure, with integral output OR-ing diodes for each converter to prevent faults within one converter from affecting the other. Although this dual-converter unit can be operated from a single dc source, provision is also made for dual input feeds, allowing users to provide truly redundant power to radio transceivers, telecommunications equipment, supervisory control systems and other critical electronic loads, all within a single vertical rack space.

These 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. Conservatively rated and very efficient, Series 1721 converters will operate continuously at any load within their rating over a wide ambient temperature range with simple convection cooling.

Nine single-output 200-watt models are available with different combinations of input and output voltages per the table below. Other voltage combinations are available - contact our sales department for more information.

Table 1

Input Voltage Range (VDC)	Input Current <sup>1</sup> (ADC)	Output Voltage (VDC)	Output Current (ADC)	Model Number
21-29 (24 nominal)	9.2	13.3	0-15	1721-24-13-15
	9.1	24	0-8	1721-24-24-8
	9.1	48	0-4	1721-24-48-4
42-58 (48 nominal)	4.6	13.3	0-15	1721-48-13-15
	4.5	24	0-8	1721-48-24-8
	4.5	48	0-4	1721-48-48-4
105-145 (130 nominal)	1.7	13.3	0-15	1721-130-13-15
	1.7	24	0-8	1721-130-24-8
	1.7	48	0-4	1721-130-48-4

<sup>1</sup> Typical current at full load and nominal input voltage

## SPECIFICATIONS

### Input Voltage and Current

The input voltage range, nominal input voltage and nominal input current at full rated output load for standard models are shown in Table 1. In order to provide a truly redundant converter configuration, two separate input line connections are provided (one for each internal converter), and the input current indicated in the table may be drawn by either line connection or by a combination of the two.

### Output Voltage and Current

The output voltage and rated output current for standard models are shown in Table 1 (other voltages available - contact our sales department).

### Output Voltage Regulation

Versus line:  $\pm 0.5\%$   
Versus load:  $\pm 3\%$

### Output Voltage Ripple

10 millivolts rms (typical)  
100 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  $+95^{\circ}\text{C}$

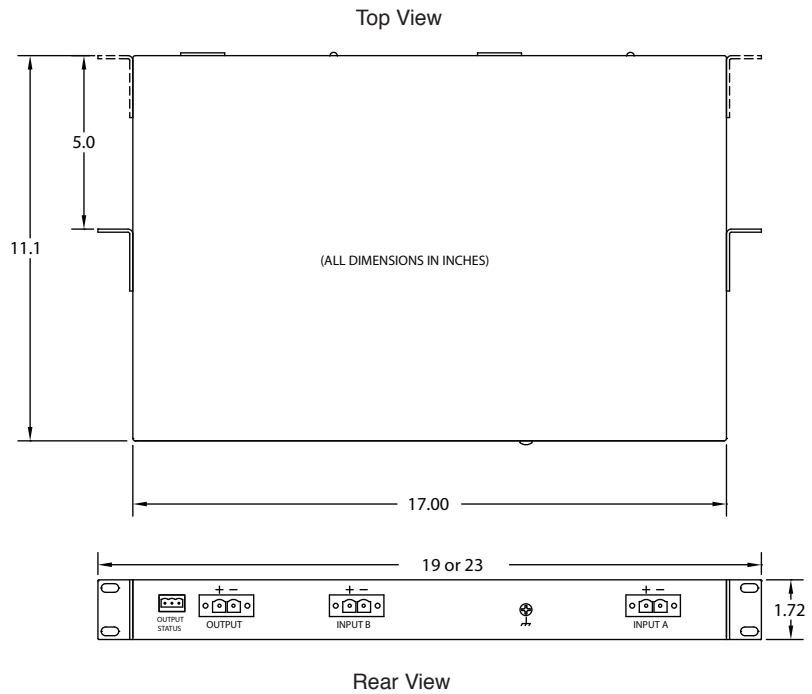


Fig. 1 Series 1721 Overall Dimensions

### Efficiency

The efficiency reaches 85% at approximately 20% of full load and remains above 85% for most of the load range. The no-load input power is approximately 8 watts. Heat dissipation is approximately 110 BTU/hour at full load.

### Controls and Indicators

Two combination circuit breaker/ON-OFF switches are provided on the front panel, one for each internal converter. Similarly, two green LED's indicate the presence (ON) of proper output voltage for each of the converters. A set of auxiliary Form C contacts is provided for remote indication of improper output from either (or both) internal converter(s) - often referred to as a "converter fail alarm".

### Rear-Panel Connections

Each of the two internal converters is provided with its own input power connector (see Figure 1). The converters' outputs are paralleled internally (through OR-ing diodes) and brought out to a single output connector.

The auxiliary Form C contacts (see Controls and Indicators) are

accessible via a separate connector. A #8-32 screw is provided for chassis-ground connection.

### Physical Characteristics

Refer to Fig. 1 for overall dimensions. Weight is approximately 10 pounds. Brackets are provided for 19-inch and 23-inch rack mounting.

### MODEL NUMBERING INFORMATION

Series 1721 converters are identified by four groups of numbers. In sequence, these give the basic series number (1721), the nominal input voltage, the nominal output voltage and the maximum rated load current. For example, **Model 1721-48-24-8** is a 48-volt to 24-volt dual/redundant converter with an 8-ampere maximum load rating.

### 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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