

MODULAR DC-TO-DC CONVERTERS

48-VOLT TO 24-VOLT



Model 1625-48-24-40 Converter Modules and
Model 1625-48-24-SH Power Shelf

FEATURES

- 40-AMPERE PLUG-IN MODULES WITH INPUT-TO-OUTPUT ISOLATION
- UP TO 4 KILOWATTS IN FOUR RACK SPACES (HEIGHT 7")
- EACH MODULE HAS INTEGRAL PARALLELING DIODE AND LOAD-SHARING CAPABILITY
- MODULES CAN BE INSERTED OR REMOVED WITHOUT SYSTEM SHUTDOWN
- 80%-86% EFFICIENCY
- FRONT-PANEL AMMETER, VOLTAGE ADJUSTMENT AND STATUS INDICATORS

This 48-Vdc-to-24-Vdc converter module/shelf system provides 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 and other critical electronic loads.

Front-access converter shelves for standard 19" or 23" equipment racks occupy only 7" of vertical rack space. The 23" shelf can be equipped with up to four 1,000-watt plug-in converter modules, providing a rated output current capacity of 160 Adc (120 Adc with n+1 redundancy). The 19" shelf can be equipped with up to three converter modules, providing a rated output current capacity of 120 Adc (80 Adc with n+1 redundancy).

Front-panel controls and indicators for each module include a combined input-power circuit breaker and ON/OFF switch, a green and a red LED to indicate the status of the module, an LED bar-graph ammeter for measuring output current, output-voltage test points, and a screwdriver adjustment for setting the output voltage. Contact points of an internal Form C relay are available for remote signaling of improper module output.

SPECIFICATIONS

Model 1625-48-24-40 Module

Input Voltage

42 Vdc to 58 Vdc (48 Vdc nominal)

Input Current

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

Output Voltage

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

Output Current

0 to 40 Adc

Output-Voltage Regulation

Versus line: $\pm 0.5\%$

Versus load: $\pm 5\%$

Output-Voltage Ripple and Noise

10 millivolts rms, 100 millivolts peak-to-peak (typical when installed in a Model 1625 Power Shelf)

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 0.3 Adc. Heat dissipation is approximately 820 BTU/hour.

Isolation

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

Protection

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

Ambient Temperature Range

Operating: 0°C to +50°C

(internal fan cooling)

Storage: -40°C to +95°C

Controls and Indicators

A combination circuit breaker and ON/OFF switch is provided for input power. A front-panel potentiometer is

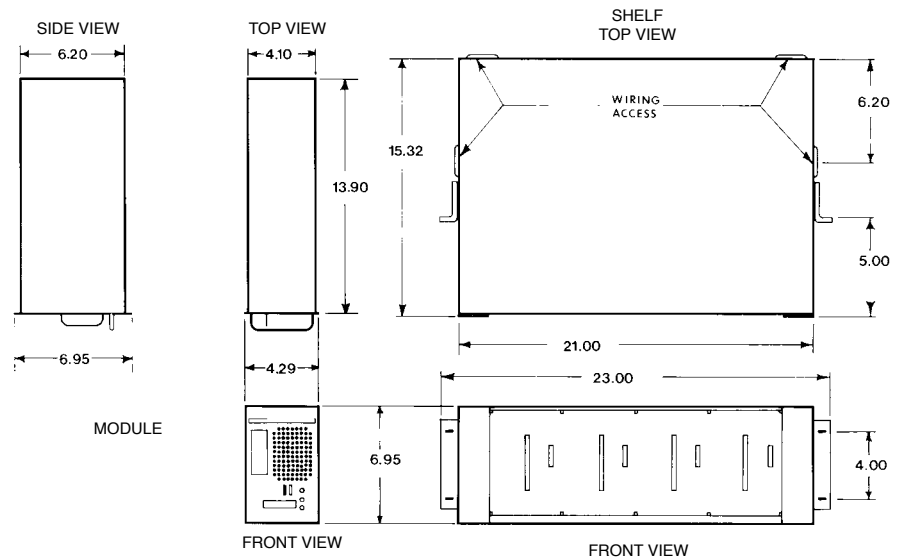


Fig. 1 Series 1625 Module/Shelf overall dimensions (inches)[†]

provided to adjust the output voltage of the module, which can be monitored using test points adjacent to the potentiometer. The output current is displayed on a 20-segment LED bar graph. A green LED labeled "INPUT POWER" indicates that the input circuit breaker/switch is in the "ON" position and input power is present. A red LED, labeled "ALARM CONDITION", indicates that the module's output voltage is low or not present. This LED will indicate module or system alarm conditions including output overload or short circuit, input voltage too low or not present (including circuit breaker in "OFF" position), and problems within the module circuitry itself. The alarm condition of any module can be remotely signaled through a set of Form C contacts provided by each module. These contacts are rated for 0.5A at 48 Vdc and 1.0A at 24 Vdc.

PHYSICAL CHARACTERISTICS

Model 1625-48-24-40 Module and Model 1625-48-24-SH (or S19) Shelf

The Model 1625-48-24-SH shelf is designed to be mounted in a standard 23" equipment rack and can accommodate up to four Model 1625-48-24-40 converter modules. The Model 1625-24-48-S19 shelf is designed for 19" equipment racks and can accommodate up to three converter modules. Blank front panels are provided for covering unused converter bays when the shelf is not fully equipped with modules. Standard paint color is light gray (ANSI-61).

Size and Weight

See Fig. 1 for overall dimensions

Module weight: 11 pounds (each)

Shelf weight: 28 pounds (23")

24 pounds (19")

Shelf Wiring Connections

Power cables and remote alarm wiring enter and exit the Model 1625 Power Shelves through knock-outs in the rear and side panels of the shelf enclosure. Termination of all power cables and alarm-status wires is through high-quality compression terminals which accept copper wire of appropriate gauge. Separate input power connections are provided for each converter bay in the shelf (i.e. four sets for the 23" shelf or three sets for the 19" shelf). The outputs of all converter bays are paralleled and terminated to provide one set of output terminals in the shelf. This wiring scheme helps to prevent a fault in one converter module from affecting others in the shelf.

Additional Information

For additional information about these and other Wilmore Electronics Company dc-to-dc converters, dc-to-ac inverters and uninterruptible power systems, please contact our Sales Department at (919) 732-9351 or FAX (919) 732-9359.

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

[†]Shelf dimensions shown for Model 1625-48-24-SH (23" shelf). For Model 1625-48-24-S19 (19" shelf), reduce overall shelf width dimension by 4 inches.

WILMORE ELECTRONICS COMPANY, INC.

P. O. Box 1329, Hillsborough, N. C. 27278 • Telephone (919) 732-9351 • FAX (919) 732-9359

www.wilmoreelectronics.com