

DC-TO-DC REGULATED CONVERTER
+24 VOLT 30 AMPERE OUTPUT
-48 VOLT INPUT
EQUIPMENT DESIGN REQUIREMENTS
POWER SYSTEMS

1. GENERAL

SCOPE

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the engineering, manufacture, and installation of the J87461A converter as used in the power conversion distribution frame, J5A007C.

1.02 Whenever this section is reissued, the reason for reissue will be specified in this paragraph.

DESCRIPTION

General Circuit Features

1.03 The J87461A dc-to-dc regulated converter, designed to operate with the J85543A converter control panel, provides an isolated +24 volt output at a current range of 0 to 30 amperes from a -48 volt source. The output can be controlled by an external master regulator, with 1 percent regulation from 0 to 30 amperes within a ± 2 percent band established by internal guard regulators.

1.04 The converter can momentarily (with a 1-second time constant) provide up to 45 amperes of output current at the rated output voltage during an overload condition. The static output overload characteristics are controlled to be free from fold back and flare-out even with short-circuit conditions. The converter will start-up into any load even including a short circuit.

1.05 A selective high voltage shutdown, 27.5 ± 0.3 volts, turns off the converter and sends a signal to open an external circuit breaker if the converter continues to provide output during a bus overload condition.

1.06 The converter will issue an alarm if any of the following conditions are present: high voltage shutdown, when either high- or low-guard regulator becomes active; abnormally low output current compared to the regulator command signal; and rear heat sink temperatures exceed 95°C .

1.07 The converter will neither start-up nor continue working if the input voltage drops below -38 ± 2.0 volts, but will recover automatically when the input voltage increases and exceeds -41 volts. A soft start-up feature limits the rate of output current build up, with a 0.2 second time constant.

General Equipment Features

1.08 The J87461A converter assembly measures 9 inches high, 23.5 inches wide, 12 inches deep and weighs approximately 60 pounds. Input power, control, and alarm functions are provided through a single multipin receptacle connector. Output power is obtained from a two-position terminal board.

1.09 A mechanical interlock switch allows electrical operation of the converter only when it is completely inserted into the converter frame.

1.10 The voltage and current test jacks, used for measuring the converter output, and the alarm LEDs are located on the front panel of the assembly.

1.11 The input connector has an arrangement of short and long terminal pins that provide for precharging the input filter with controlled inrush current when electrically connected to a -48 volt source.

1.12 A thermal switch, attached to the rear heat sink, activates an alarm when the switching transistors operate at excessive temperature. The converter is designed to operate in an ambient temperature range of from 0 to 50°C .

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

1.13 The converter is fastened in the framework using the hanger assemblies that are provided with the framework.

2. SUPPLEMENTARY INFORMATION

802-000-000 — Numerical Index — Power Systems
 800-020-001 — Cross Reference List — J, NJ, IS and X Specifications to BSP Numbers
 800-600-000 — Checking List — General Equipment Requirements
 254-201-072 — Power Conversion and Distribution Frame Description
 254-201-073 — Power Conversion and Distribution Frame Theory
 J5A007 — 820-701-156 — Power Conversion and Distribution Frame for use with No. 1A ESS* 2 Wire and No. 4 ESS 1A Processor
 J85543 — 802-035-151 — DC-to-DC Converter Plant Control Panel
 SD-5A015-03 — 1A Processor Power Conversion and Distribution Frame Circuit
 SD-5A022-02 — +24 Volt DC, -48 Volt DC, 110 Volt AC Power Distribution and Grounding Circuit and Current Drain Data
 SD-82601-01 — DC-to-DC Converter Plant Control Panel
 X-79892 — Manufacturing Testing Requirements
 Floor Plan Data — FPD 820-700-150-1
 Floor Plan Data — FPD 820-701-156-2

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3. DRAWINGS

To order WE J drawings, refer to the prefix and base number and request the current dash (-) number.

SD-82600-01 — DC-to-DC Converter -48 Volt Input, +24 Volt 30 Ampere Output
 J87461A-() — DC-to-DC Converter +24 Volt 30 Ampere Output, -48 Volt Input
 ED-82997-() — Converter Control Printed Wiring Board (CP1)
 ED-82998-() — Converter Power Printed Wiring Board (CP2)

4. EQUIPMENT

J87461A — AT&T Co Std — DC-to-DC Regulated Converter +24 Volt 30 Ampere Output, -48 Volt Input

List 1 — Framework, assembly, equipment, and wiring for one +24 volt, 30 ampere dc-to-dc converter per SD-82600-01.

5. GENERAL NOTES AND INDEXES

5.01 The converter output is not internally grounded, but is grounded in the J5A007C power conversion distribution frame.

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