

Definition of Parameters

Input Parameters

Efficiency

Efficiency is defined as:

$$\text{Efficiency(\%)} = \frac{\text{Output Power}}{\text{Input Power}} \times 100$$

Efficiency is measured at full load and nominal line input.

Fuse

The recommended fuse is specified for each series. External Fusing should be used for system protection. Proper fuse size will limit the input power and reduce the risk of fire should a catastrophic failure occur to either the user's circuit or the power converter.

Input Current

The typical current that the converter will draw from the power source at nominal line voltage under full load and no load conditions.

Input Over Voltage

The maximum voltage allowed at the converter's input terminals without damaging the converter. The specification is usually limited to 100 ms maximum duration and less than 0.05% duty cycle.

Reflected Ripple

Due to the switching nature of a DC/DC converter, noise is "reflected-back" into the input source. This noise is measured as a peak-to-peak current over a 0 to 20 MHz bandwidth. The largest part of this current is at the fundamental switching frequency (or twice the switching frequency for push-pull designs).

Short-Circuit Input Power

The maximum input power that a converter will source with its output shorted.

Switching Frequency

The fundamental frequency at which the DC/DC converter operates. In push-pull designs, the output ripple is actually at twice the switching frequency due to the push-pull nature of the power stage.

Under Voltage Protection

Some power converters have an under voltage shutdown circuit that shuts the converter off in the event of a low line voltage condition. The converter is usually placed in a low power condition to prevent excessive input current from the source. All ConTech power converters will survive a brownout condition without damage (the method of achieving this differs from series to series).

Voltage Range

The minimum to maximum input voltage for which the converter will meet its specifications. The nominal value listed is the voltage used for all other tests unless otherwise specified.

Output Parameters

Line Regulation

Is the change in output voltage when the input voltage is changed from minimum to maximum, expressed as a percentage of the output voltage.



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Load Regulation

The change in output voltage when the the output load is changed from minimum to maximum, expressed as a percentage of the output voltage.

Over Voltage Protection

A power supply protection feature that shuts down the supply, crowbars or clamps the output when its output voltage exceeds a preset level.

Rated Current

This is the rated load range for the output. Normally there is a minimum load required for proper operation. Operation below minimum load will not harm a ConTech converter in any way but load regulation may suffer. Operation above the maximum rated load is not recommended as it may degrade specifications or the converter's life. All ConTech DC/DC converters are designed to be reliable in operation at the full rated load provided that the case temperature does not exceed specifications.

Ripple and Noise

The magnitude of AC voltage on the output of a DC/DC converter expressed in millivolts peak-to-peak or RMS at a specified band width. DC/DC converter output noise consists of two components. A frequency component at the switching frequency of the converter and a high frequency component due to the fast edges of the switching transitions. Ripple and noise should always be measured directly at the output terminals with a scope probe having an extremely short grounding lead. See Application Note: Test Configurations.

Short Circuit Protection

Most ConTech converters are designed to withstand a direct short on the output pins and will recover to normal operation when the short condition is removed. Under some conditions, the long term life of the converter will be degraded unless the short is removed within a small period of time. Each specification lists the specific time and the protection technique used.

Temperature Coefficient

The average percentage change in output voltage per degree centigrade change in ambient temperature over a specified temperature range.

Transient Recovery Time

The time required for the output voltage of a power supply to settle within specified output accuracy limits following a step change in output load current or a step change in input voltage.

Transient Response Deviation

The output voltage overshoot due to the application of a step change in load. The output voltage momentarily deviates from its final regulated value.

Voltage Balance

The voltage balance is specified on dual converters. It is the difference in absolute terms between the positive output and the negative output expressed as a percentage. For example, if the positive output is at 15.00 Volts and the negative output is at -15.15 volts the balance would be 1.0%.

Voltage Range

The allowed variation in output voltage for a nominal line input and full load condition. This might also be considered an initial accuracy specification of the output voltage.



Definition of Parameters

General Parameters

Derating

A reduction in an operating specification to improve reliability. For ConTech power supplies, it is a specified reduction in output power to facilitate operation at higher temperature.

Isolation

The electrical separation between input and output of a power supply by means of the power transformer. The isolation resistance (normally in megaohms) and the isolation capacitance (normally in picofarads) are specified and are a function of materials and spacing employed throughout the power supply.

Isolation Capacitance

The measured capacitance from the input pins to the output pins. This measurement is done with a 100 kHz, 1 V RMS capacitance bridge.

Isolation Voltage

The maximum AC or DC voltage that may be continuously applied from input to output and/or chassis or a power supply.

Output Trim

Output voltage trimming allows the user to change the output voltage of the module. The output trim can be either a fixed resistor or a trimpot. Any value from zero ohm to infinity may be used to trim the output voltage when fixed resistors are used. A 10 K, 1 or 10 Turn trimpot is usually specified for continuous trimming. This pin may be safely left floating if it is not used.

Remote On/Off

Enables power supply to be remotely turned on or off. Turn-on is typically performed by open circuit or TTL logic "1" and turn-off by switch closure or TTL logic "0".

Operating Temperature Range (Ambient)

The temperature range of the environment in which the converter will operate to specified parameters with no derating. The temperature of the environment is defined as the still-air temperature in the immediate vicinity of a power supply, measured a minimum of 4 inches from the supply.

Storage Temperature

The range of ambient temperature in which a power supply may be safely stored, while not operating, with no degradation in its subsequent operation.

Over Temperature Protection

The case temperature above which the converter will shut down operation. Thermal shutdown halts the PWM operation placing the converter in a low current drain mode until the case temperature decreases.

Unit Weight

The weight of the converter in grams.
1 ounce = 28.3 grams

