

# Boost Converter Transients

## General Description

*Transient:* A transient is a momentary departure of a characteristic from its steady-state conditions as a result of a system disturbance. Normal transients occur as a result of normal disturbances such as line or load changes. Abnormal transients result from abnormal disturbances such as a power interruption or wire faults.

*Transient Response:* The way in which a device or system responds to a transient occurrence.

## MIL-STD704/1275 Transient Compliance:

Rantec's HDM-BT boost converters are designed to operate continuously with input voltages from 14VDC to their rated output voltage. The boost converters exceed the requirements for Normal, Abnormal, and Emergency operation as defined in MIL-STD-704 (Revision A: 5.2, Table II, Figures 8, 9 & 10; Revision B: 5.2, Figures 7 & 8; Revision C: 5.3, Table II, Figures 10 & 12; Revision D: 5.3, Table II, Figures 10 & 12; Revision E: 5.3.3, Table II, Figures 9 & 11; Revision F: 5.3.2, Table IV, Figures 13 & 14) and MIL-STD-1275 (Revisions A & B: 5.1 & 5.2, Figures 4 & 6).

## Low voltage transient reactions

For input transients between 6.5VDC and 14VDC, an internal timer is activated to allow the converter to operate for at least 50ms before activating the internal low voltage lock-out. This exceeds both the MIL-STD -704 & -1275 requirements.

Once in low voltage lock-out, the converter's output will follow the input voltage (not boosting) until the input returns to the steady state range. If the input voltage falls below 6.5VDC for any time, the boost converter will protect itself by immediately enabling the internal low voltage lock-out. The converter will soft start once the input voltage returns to the steady state range.

## High voltage transient reactions

For input transients above the rated output voltage, the boost converter's output will follow the input transient. Once the input recovers to the nominal range, the boost converter will continue to supply the rated output voltage.

## Additional Information

Please consult factory for more information.