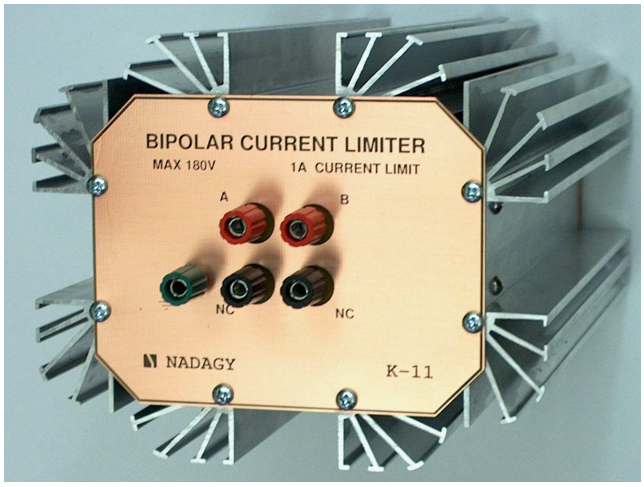
K-11 Bipolar 1A Current Limiter

Nadagy Corporation



K-11 is a laboratory protection device for limiting current in AC or DC circuits. It can be used to neutralize over-current or short-circuit conditions in systems involving standard outlet power or batteries. Contrary to a circuit breaker, K-11 limits the current by inserting extra resistance without opening the circuit. This action is instantaneous so that current in the circuit never overshoots beyond the limit value. The limiting action is identical for positive and negative currents.

SPECIFICATIONS

Parameter	Value
Current limit ($\|V\| > 5\,\mathrm{V}$)	$0.9\,\mathrm{A}$ to $1.3\,\mathrm{A}$
Voltage range	$-180\,\mathrm{V}$ to $180\,\mathrm{V}$
Small-signal resistance	$4.5\,\Omega$
Small-signal inductance	$0.8\,\mu\mathrm{H}$
Dimensions (in)	$6.5 \times 5.25 \times 10.25$
Weight	$4.2\,\mathrm{lb}$

DESCRIPTION

The current limiter is esentially an electrical element with a nonlinear i(v) characteristic. Posts A and B (red) in the front panel are the limiter terminals. They should be inserted in series in the circuit whose current is to be limited. Two more terminals, labeled as NC, are also provided for convenience. They are not connected internally and may be used as additional binding posts.

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The enclosure is electrically connected to the green post indicated by the symbol of ground. It should be used in systems where proper grounding is required. The other terminals are completely isolated from the devise enclosure.

K-11 offers excellent reliability since no fan or any other moving mechanical parts are used in the design. The K-11 device should be used in upright position, standing on its rubber feet, so that the fins of the heat-sinks remain vertical. This will ensure proper air circulation while the device needs to dissipate power. This is especially important should the device be used in a short-circuit condition with full voltage for indefinite amount of time.

APPLICATIONS

Microinverter Testing: When bringing up a microinverter system, it is frequently convenient to try the setup first in a safe, current-protected environment. Accidental error in setting up reactive power level may cause excessive current absorbed into the inverter output. Using K-11 for initial tests can eliminate costly faults in the deployment phase.

Battery Hookup: Accidental short-circuit in a system powered with batteries oftentimes results in a complete destruction of electrical circuitry. K-11 can be used to test a system before final deployment. Normally, current limiter is removed after test proves successful.

Capacitor Precharge: Battery-powered motor drives which employ large electrolytic capacitors may have a substantial inrush current when reconnected. To prolong the life of capacitors and switches, K-11 can be used as a pre-charge device, connected in parallel to the main switch.

I(V) CHARACTERISTIC