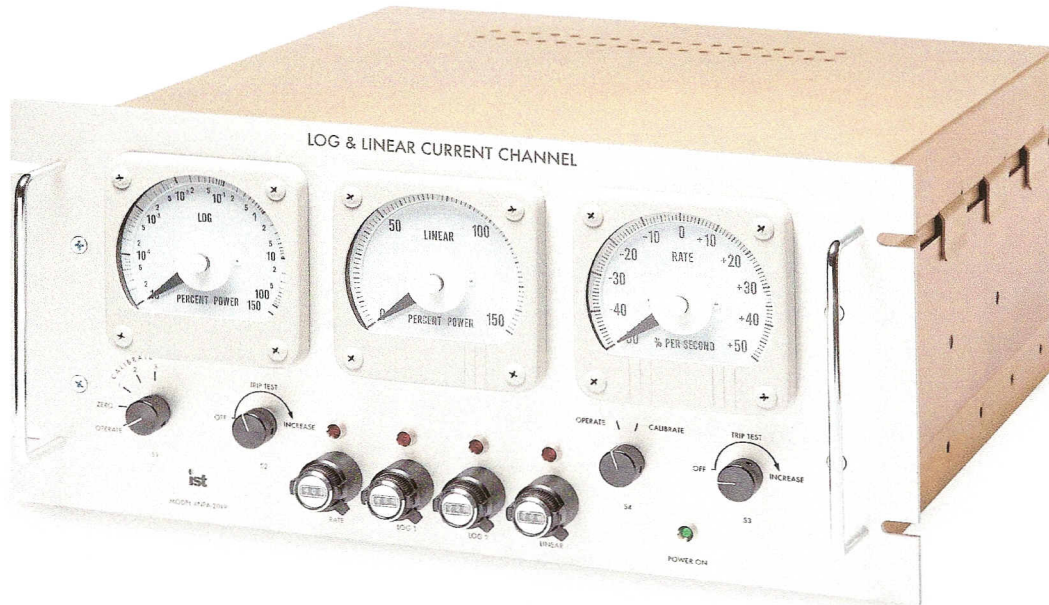




# Log & Linear Current Channel Ion Chamber Amplifier



The Model NPA-2019 is an Ion Chamber Amplifier designed for use in a nuclear power reactor. The device consists of a log and linear amplifier, a rate amplifier, buffer amplifiers, alarm trips, and a high-voltage tell-tale circuit, all housed in a nuclear safety qualified drawer. It is designed to mount in a standard 483 mm (19") mounting rack.

## Mean Time Between Failures:

- MTBF = 25, 697 hours (at 35°C)

## Class 1E Qualifications:

- EMI/EMC per IEC 61000-4-2
- 24 hours at 85% relative humidity
- seismic per IEEE 344

## Options:

- 220/230 VAC, 50/55 Hz power versions
- custom terminations available

## Applications:

- nuclear reactor control or safety shutdown systems using ion chambers
- excore neutron flux monitoring

## Features:

- good noise immunity
- selectable signal gains
- integral high voltage power supply for attached ion chamber
- adjustable log outputs
- rugged construction

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## Specifications:

<p><b>Power Input</b></p> <p>Voltage ..... 90 - 135 VAC            Frequency ..... 60 Hz <math>\pm</math> 3 Hz            Power ..... &lt; 30 W</p> <p><b>Operating Ranges (inputs)</b></p> <p>Linear power ..... 0 to <math>1.5 \times 10^{-4}</math> A            Log power ..... <math>10^{-11}</math> to <math>1.5 \times 10^{-4}</math> A            Log rate ..... -50 to 50% %/s</p> <p><b>RMS Noise</b></p> <p>Log power ..... &lt; 5 mV            Log rate (0.01 Hz - 400 MHz) ..... &lt; 5 mV            Linear power ..... &lt; 5 mV</p> <p><b>Alarm</b></p> <p>Input impedance ..... &gt; 240 k<math>\Omega</math>            Reproducibility error (10 - 55°C) ..... &lt; 0.5% FS            Thermal drift (10 - 55°C) ..... &lt; 0.01%/°C</p>	<p><b>Outputs</b></p> <p>Log power ..... 0.5 - 4.088 or 0 - 10 VDC            Log rate .. 0.5 (-50%/s) to 4.5 (50%/s) VDC or            -10 (-50%/s) to 10 (50%/s) VDC            Linear power ..... 0.5 - 4.5 or 0 - 10 VDC            Alarm (DPDT - 2 form C) ... 120 VAC @ 0.5 A</p> <p><b>Error</b></p> <p>Linear power ..... &lt; 1% FS            Log rate ..... &lt; 2% FS            Log power (<math>10^{-9}</math> - <math>1.5 \times 10^{-4}</math> A) ..... &lt; 1% FS            Log power (<math>10^{-11}</math> - <math>1.5 \times 10^{-9}</math> A) ..... &lt; 4% FS</p> <p><b>Response Times</b></p> <p>Log power (<math>10^{-10}</math> - <math>10^{-9}</math> A) ..... 1 s <math>\pm</math> 30%            Log power (<math>10^{-8}</math> - <math>10^{-7}</math> A) ..... 10 ms <math>\pm</math> 30%            Log power (<math>10^{-5}</math> - <math>10^{-4}</math> A) ..... 1 ms <math>\pm</math> 30%            Log rate (pole &amp; zero) ..... <math>\leq</math> 0.25 s            Linear power ..... <math>\leq</math> 5 ms</p>
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## Ordering Information

To order, contact Mirion Technologies (IST Canada).

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