

# AMP-11

## for Thermogage™ Circular Foil Heat Flux Transducers



### AMP-11 ADVANTAGES

- Compact Size (1 1/4" x 1 1/2" x 4")
- Light Weight (5.6oz.)
- Self-contained Battery (9V NEDA Group 1604)
- 72 Hours Operating Time between Battery Changes
- High Common Mode Noise Rejection

Gain	Band Width (KHz)	Rise Time (msec)
10 to 20	60	0.04
16 to 32	20	0.05
25 to 50	12	0.06
40 to 80	7.5	0.07
60 to 120	5	0.10
95 to 190	2.9	0.12
150 to 300	1.8	0.15
230 to 460	1.3	0.25
360 to 720	1.0	0.5
550 to 1100	0.8	1.0

### Specifications

Input Impedance - 600 ohms

Output Impedance - 1ohm

Maximum Voltage Out -  $\pm 2.5$

### Limitation

Zero Temperature Stability

- 1/3 microvolt/F° (68-90F°)

## Principles of Operation:

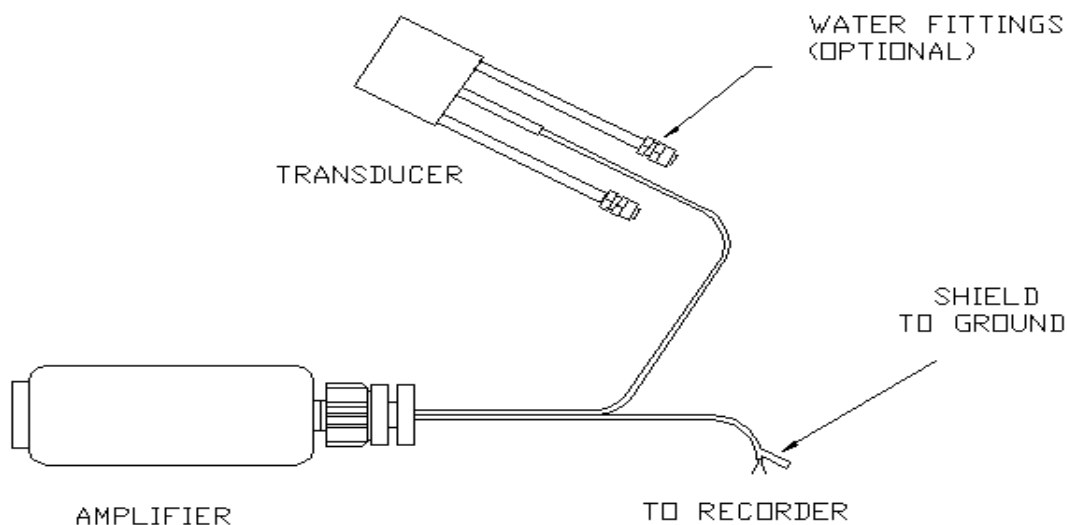
This amplifier can be used with many Thermogage™ Heat Flux Transducers to increase the transducer sensitivity. A frequent application is when fast response phenomena are to be measured. The fastest Thermogage™ Heat Flux Transducer has a response time of 0.003 seconds. However, such transducer has an extremely low sensitivity of 5,000 to 10,000 W/cm<sup>2</sup> for 10mV linear output. Measuring heat fluxes in lower ranges therefore requires use of the amplifier. For example, if we use such a transducer with a sensitivity of 5,000 W/cm<sup>2</sup> for 10mV output and connect it to the amplifier at 100 gain, the resulting sensitivity is 5W/cm<sup>2</sup> per millivolt output.

Going to the other extreme, the most sensitive Thermogage™ Heat Flux Transducer has a sensitivity of 5W/cm<sup>2</sup> for 10 millivolt output. This transducer can be used with the amplifier at 1,000 gain to produce a sensitivity of 0.0005W/cm<sup>2</sup> per millivolt and is sensitive enough to measure moonlight and other feeble heat sources such as the heat from the human body.

## Operating Instructions:

1. Gain step switch and gain trim screw are factory-set and should not be moved or calibration will be lost. Both are covered with silicone rubber to prevent tampering.
2. The zero balance screw is to be used only if necessary to line up the recorder zero with the amplifier zero.
3. The unit battery is activated when the nine-pin connector plug is connected. In order to conserve battery life, disconnect connector when not in service, or, activate and use the off-on switch. The off-on switch is only usable if the jumper between pins K and E is removed. The battery provided should run approximately 72 hours.
4. The battery bottom is exposed. It is held in place by the electrical connection snaps. Pull straight out to remove battery. The battery is very firmly held in place and may require pliers to facilitate removal.

## Pictorial View of Amplifier - Transducer Connection



Not drawn to scale