

# Thermocouple Amplifier

OMNI-AMP I



May Be Used With CJ Series  
Cold Junction Compensator  
(See Section K)

Jumper Jack Enables Connectivity  
With Any Readout Device

The OMEGA® portable thermocouple signal amplifier is designed to multiply small voltage signals. The output can be used directly by most readouts, such as panel meters, strip chart and x-y recorders, multimeters, multiplexers, and for input to control systems.

Minute thermocouple output signals can be multiplied up to 100 times to drive meters or instruments which otherwise are not sensitive enough to be driven directly by the small output voltage of a thermocouple.

This small, compact, completely self-contained high gain amplifier can be instantly employed in a thermocouple circuit either at the thermocouple or at the readout device having 1000 Ω or greater input impedance.

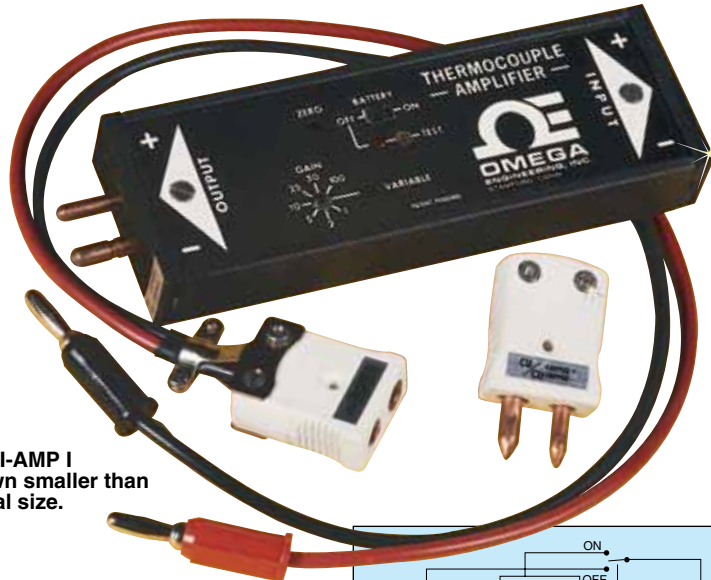
This small and powerful amplifier can be used with all thermocouple alloy combinations to boost output voltage. It can be placed directly at the thermocouple element output quick-disconnect jack or anywhere in the circuit between the thermocouple and the readout device. It is intended primarily for use with inexpensive moving coil meter devices.

Where cold junction compensation is required, the amplifier can be plugged directly into an OMEGA CJ (Cold Junction Compensator) which is housed in a similar companion package. Also see Section K of this catalog for more details on reference and cold junction compensators used with this amplifier. The amplifier is available in a laboratory version with built-in ice point compensation.

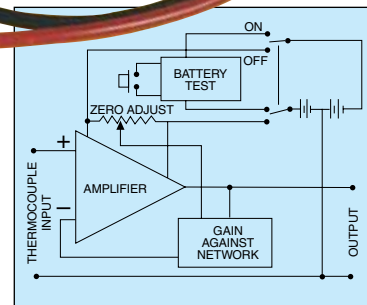
The amplifier is also designed to be used where thermocouple meter or pyrometer input impedance limits the thermocouple lead length or total circuit resistance of a thermocouple system. For example, many thermocouple readout meters or pyrometers require that the thermocouple circuit impedance be 10 Ω or less and matched to the meter. With this amplifier in the circuit set at unity gain, the input resistance of the thermocouple circuit is virtually independent of the readout device. Thus, with a 1 to 1 amplification setting, thermocouple leads up to ¼ mile long can be used where previously only short lead lengths were tolerated. Also, very fine gage thermocouples having fast response but high resistance can now be used with great ease.



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.



OMNI-AMP I shown smaller than actual size.



## Specifications

**Gain:** Choice of 7 fixed gains: 1, 2, 5, 10, 25, 50 or 100 V/V, settable by means of an externally accessible rotary selector switch; in addition, an eighth switch position connects a self-contained potentiometer for

continuously variable gains between 5 and 100 V/V

**Input Impedance:** 1 mΩ for any gain setting

**Frequency Response:** DC to 100 Hz at a gain setting of 100 with higher frequency response at lower gain settings

**Output:** -½ to + 1¼ Vdc into 1000 Ω (or greater) load (can be used with any CJ unit)

**Noise:** Equivalent noise input, 5 microvolts RMS (equals 500 microvolts RMS output at 100 gain setting)

**Zeroing:** Output may be offset up to ±1/10 V at all gain settings except unity; OMNI-AMP is factory-zeroed at unity gain

**Temperature Coefficient:** ±5 microvolts/°F as seen at input from 30 to 65°F; ±3 microvolts/°F as seen at input from 65 to 100°F

**Battery Life:** 100 hours or more at maximum output (72°F ambient)

**Battery Test:** Light emitting diode will glow to indicate good batteries when test button is pressed

**Batteries:** Two CJ-BATT-B (included)

**Size:** 19 x 44 x 133 mm (0.75 x 1.75 x 5.25")

**Weight:** 227 g (8 oz)

## Features

**Stability:** Assured through use of precision metal film resistors, integrated circuits and gold contact switching

**Feedback Gain Control:** Stability and accuracy are not compromised by the use of an input attenuator

**Output:** May be short circuited without damage

**Input:** Overloads up to ±2½ V can be tolerated without damage

To Order	
Model No.	Description
OMNI-AMP I	Thermocouple amplifier
CJ-BATT-B	Spare 3V lithium battery

Comes complete with quick disconnect male plug, banana jack adaptor, and two 3V lithium batteries.

**Ordering Example:** OMNI-AMP I, thermocouple amplifier.

OCW-3, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.