



Digital Controllers

4000A Series

\$398

Basic Unit



- ✓ J or K Thermocouple
- ✓ Accuracy: $\pm 0.5\%$ Full Scale
- ✓ 1° Resolution
- ✓ Adjustable Proportional Band
- ✓ Single and Dual Setpoint Models
- ✓ Relay, Triac, or 4 to 20 mA Output
- ✓ 1/4 DIN Metal Case
- ✓ Full Plug-In Construction

The OMEGA® 4000A Series digital controller distinguishes itself by features, construction, and operation one would expect to find only in controllers costing much, much more. Bright, easy-to-read LED digits yield an unambiguous temperature indication which is not achievable with an analog controller. The standard unit includes adjustable proportional band, manual reset, plus a

metal case with full plug-in construction, allowing front removal of the entire control unit without disturbing the case and its rear wiring. Series 4000A controllers are available in single and dual setpoint models with relay outputs as a standard. Triac or 4 to 20 mA optional outputs are offered on the first point at no additional cost. Models 4001A and 4002A lend themselves to a broad spectrum of control applications: single point control, dual setpoint control, and single point control with either high or low limit alarm. Truly a quality-built controller at a remarkably low price.

Model 4001A Single Setpoint Proportional Controller

This versatile digital controller can be operated as a proportional controller with the bandwidth adjustable up to 5% of full scale. The setpoint temperature is always available. Simply push the spring-loaded setpoint switch to the right and the setpoint is digitally displayed. To change the setpoint, with the switch deflected to the right, adjust the knob to the right of the switch until you get the desired reading.

The standard model 4001A has an internal SPDT relay (7 amp resistive at 120 Vac). This model is also available with optional Triac or 4 to 20 mA output in place of the relay. See Options and Specifications. Replacement relay module, Model R, \$35.

Model 4002A Dual Setpoint Controller

The first setpoint of the Model 4002A incorporates the same features as the 4001A and can also be ordered with the optional Triac or 4 to 20 mA output.

The second setpoint may be set at any value within the full span of the controller. It energizes the SPDT internal relay (3 amp resistive, 120 Vac) which can be used either as an on-off control, a high limit alarm, or a low limit alarm. For an alarm with latching features an external latching relay and push button to reset are suggested.

The second setpoint is set and displayed using the same procedure as for the model 4001A, except the switch is deflected to the left and the left adjustment knob is used.

Option "T" Triac Output

Option "T" replaces the relay output on the first setpoint with a solid state plug-in Triac which yields time-proportional switching. The Triac is rated at 1 amp continuous and 10 amps in rush for both 120 and 240 Vac service. For higher amperage loads the Triac may be used to drive higher rating solid state relays or mechanical contractors. Specify option "T" after the model number when



Specifications Thermocouple Input

Thermocouples: Types J and K

Max. T/C Lead Resistance: 100 ohm for rated accuracy

Cold Junction Compensation: Automatic – electric

T/C Break Protection: Built in, upscale on open sensor

Calibration Accuracy:

Type J: $\pm 0.4\%$ of span over 10 to 90% of range; Type K: $\pm 0.5\%$ of span over 10 to 90% of range

Common Mode Rejection: Max error $+1^\circ$ with series mode signal of 100 mV PK-to-PK at 60 Hz

Control Output

1st Setpoint:

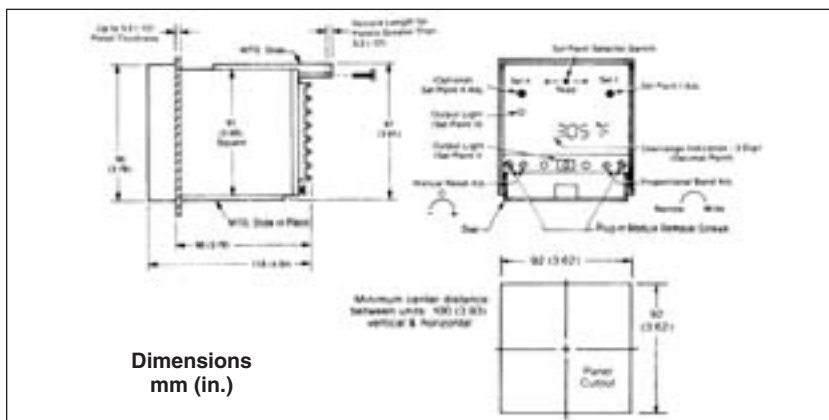
Relay (Standard Model): SPDT relay 7 amps resistive at 120 Vac, 5 amps resistive at 240 Vac

ordering, no additional charge. Replacement Triac, model T, \$35.

Option "F" (4 to 20 mA Output)

This option is applicable to the first setpoint only and is used to drive proportioning devices such as SCR power controller, motor positioners, or electropneumatic actuators. The 4 to 20 mA dc output signal can be connected to a maximum of 1000 ohm resistance load. This signal is 20 mA at the low

temperature end of the proportional band and is decreased linearly through the band to 4 mA at the high temperature end. If the driven device is not isolated (ungrounded) an ungrounded thermocouple must be used with the Series 4000A which is designed for only one ground in the system. Specify option "F" after the model number when ordering, no additional charge. Replacement module, model 4001-F1, \$37.



Dimensions
mm (in.)

Option "T" (Triac): Solid state plug-in triac rated 1 amp holding and 10 amps in-rush

Option "F" (current proportional): 4 to 20 mA (dc) into 1000 ohm max

2nd Setpoint:

Relay (on-off only): SPDT, rated 3 amps at 120 Vac

Adjustments

Proportional Band (gain): Up to 5% of span, or on-off; selectable

Manual Reset (off-set): Adjustable

Cycle Time: Automatically adjusts with load requirement to give least wear with minimum ripple (selectable min. total time: 0.5, 1, 1.5, 5, 10, 15 sec)

Display and Indications

Temperature: Filtered LED, 3 or 3½ digits, 2 readings per second update; readability is 1°C for 1°F

Setpoint: By spring loaded switch, first or second setpoint is displayed in place of temperature; Setpoint adjusted by 25 turn pot.; 1°F or °C setability

Outputs: LED indication for both first and second setpoints; LED are "on" when output drive signal present; "On-off" indication on relay and triac model; proportional intensity for option "F."

Temperature Overrange:

Red LED indication

Setpoint

Resolution: 1°C or 1°F

Repeatability: $\pm 0.1\%$ to $\pm 0.2\%$ of span

Adjustment: By 25 turn pot.; see "Setpoint" under "Display and Indication" section.

Power: 120/240 Vac (+10%, -15%, 50/60 Hz). Power consumption less than 5 watts

Environmental & Physical

Operating Temperature: 30 to 130°F

Weight: 2 lb

¼ DIN Case: Metal, full plug-in with screw terminal on rear. Adjustable brackets for panel mounting; panel cutout is 3.622" x 3.622"

MOST POPULAR MODELS HIGHLIGHTED!

Model No.	Price	Sensor Type	Material Type	Range	Resolution	Number of Setpoints
4001AJF 4001AJC	\$398	J	Iron/Constantan (Iron vs. Copper-Nickel)	0 to 999°F 0 to 500°C	1°F 1°C	Single
4002AJF 4002AJC	433			0 to 999°F 0 to 500°C	1°F 1°C	Dual
4001AKF 4001AKC	398	K	CHROMEGLA®- ALOMEGA® (Nickel/Chromium vs. Nickel/Aluminum)	0 to 1999°F 0 to 999°C	1°F 1°C	Single
4002AKF 4002AKC	433			0 to 1999°F 0 to 999°C	1°F 1°C	Dual

Accessory

Model No.	Price	Description
OP-SET1/2	\$35	Reference Book: Temperature Meas Eng Vol 1 & 2

Ordering Example: 4001AJF, digital controller, \$398.

OCW-3 OMEGACARE™ extends standard 2-year warranty to a total of 5 years (\$99), \$398 + 99= \$497.



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