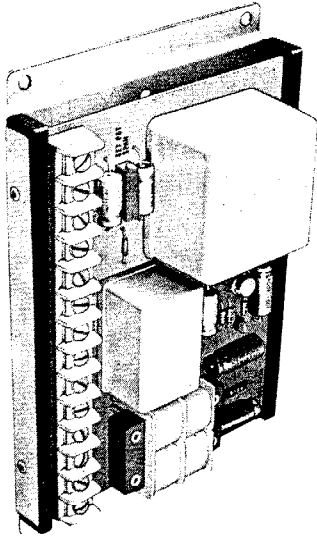


Temperature Controller



FEATURES

- Sub-panel mounted
- Direct digital temperature set
Set in $.1^{\circ}\text{C}$ increments
- Output to drive external triacs or contactors
- Proportional control
- Linearized output to drive external meters

GENERAL DESCRIPTION

The Model 28-03-02 temperature controller is a sub-panel mounted unit that operates with thermistor sensors. The unit features a remote 3-digit switch assembly that allows the operator to directly dial the desired temperature in 0.1°C increments throughout the calibrated range of -20.0 to $+69.9^{\circ}\text{C}$ or 0 to 69.9°C . The proportional controller provides a fixed proportional band, fixed cycle time and a linearized 100 mv per degree output signal to drive external digital meters. The unit also has a zero switching output to fire external triacs or solid state contactors such as the Model 53-00-12.

DATA SHEET MODEL 28-03-02

Effective 5/1/78



SPECIFICATIONS:

OUTPUT:

Opto-coupled zero switch module output to fire external triac.

LINE VOLTAGE: 120 VAC $\pm 10\%$, $50/60$ Hz.

POWER CONSUMPTION: 5 VA (controller only).

OPERATING AMBIENT: 30 to 130°F .

CONTROL ACCURACY:

Typically $\pm 0.5^{\circ}\text{C}$, depending on design of thermal system.

INDICATION OUTPUT:

Linearized -2.00 to $+6.00$ V, corresponding to -20.0 to $+60.0^{\circ}\text{C}$.
 100 mv/ $^{\circ}\text{C}$ linear to ± 50 mv ($\pm .5^{\circ}\text{C}$).

SET POINT ADJUSTMENT:

3-digit set in 0.1°C increments (10K total resistance).

TEMPERATURE RANGE: -20 to $+69.9^{\circ}\text{C}$, 0 to 69.9°C .

PROPORTIONAL BAND: Fixed, 1°C maximum.

CYCLE TIME: Fixed, 2.5 seconds, nominal.

SET POINT SHIFT W/AMBIENT:

$\pm .005^{\circ}\text{C}$ drift/ $^{\circ}\text{C}$ change in ambient temperature.

SET POINT SHIFT W/LINE VOLTAGE

$\pm .005^{\circ}\text{C}$ maximum set point shift for $\pm 10\%$ change in line voltage.

ISOLATION:

Sensor and control circuitry are isolated from line and load.

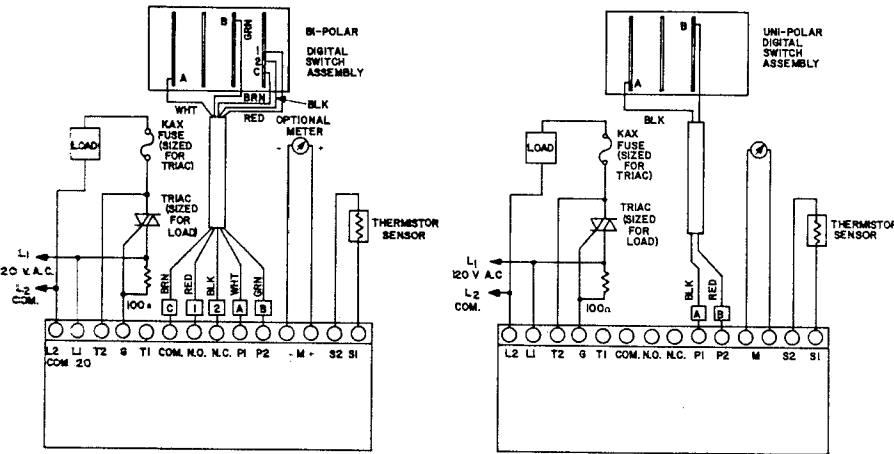
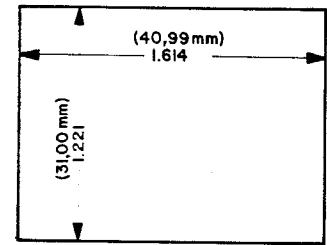
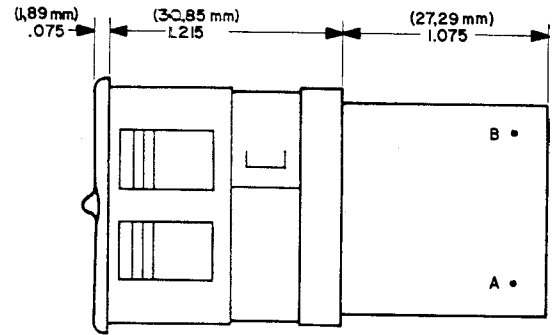
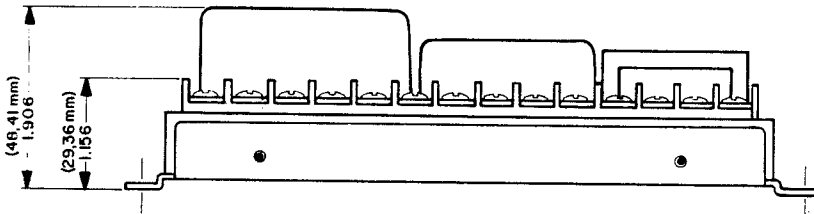
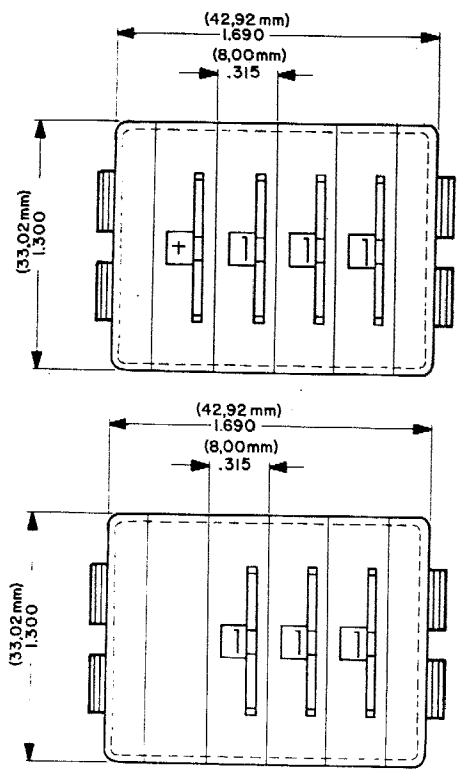
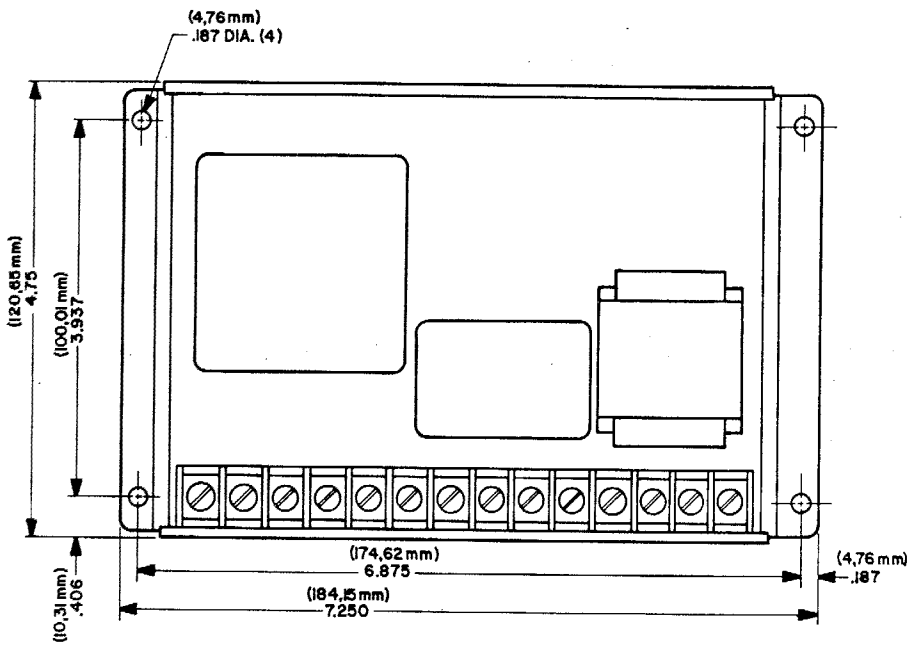
SENSOR: Thermistor.

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PHONE 507 454-5300



TEMPERATURE RANGE

0 to 69.9°C

-20 to +69.9°C

SET POINT ASSEMBLY NUMBER

A006-196

A006-185

THERMISTOR 800-011

ORDERING INFORMATION

Specify model number, temperature range, set point assembly number and sensor.

Model 28-03-02

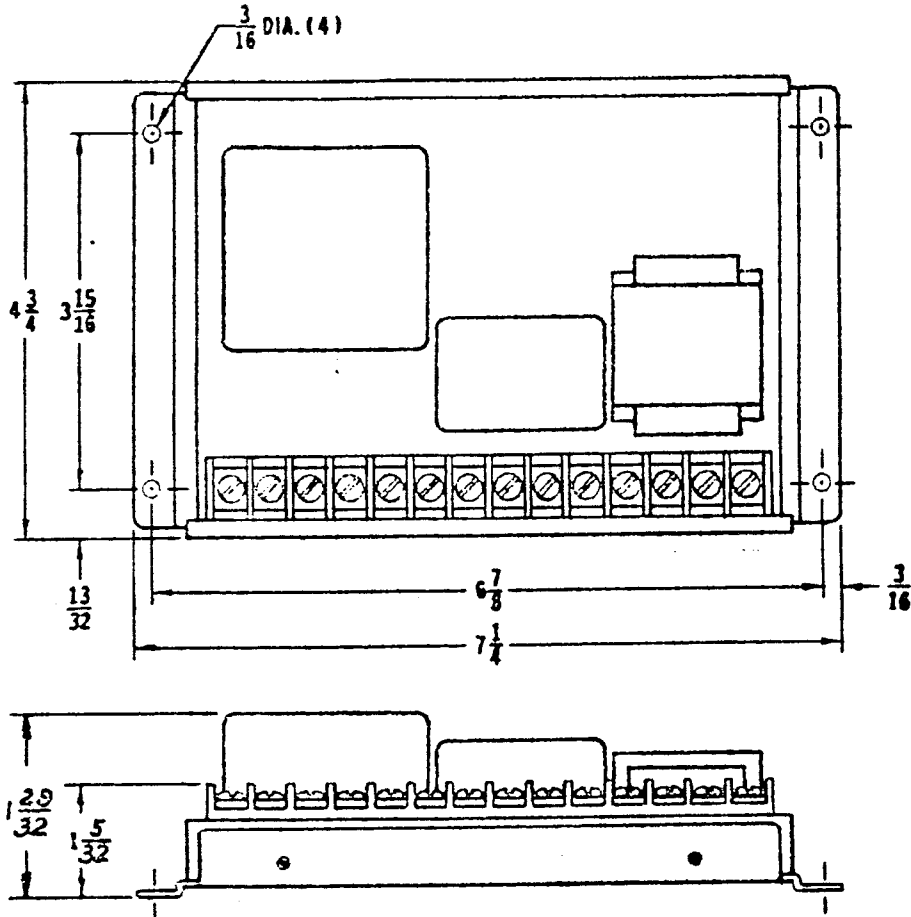
DATA SHEET

MODEL 28-03-03



THERMISTOR TEMPERATURE CONTROL

7-13-81



See Page 2 for Specifications.

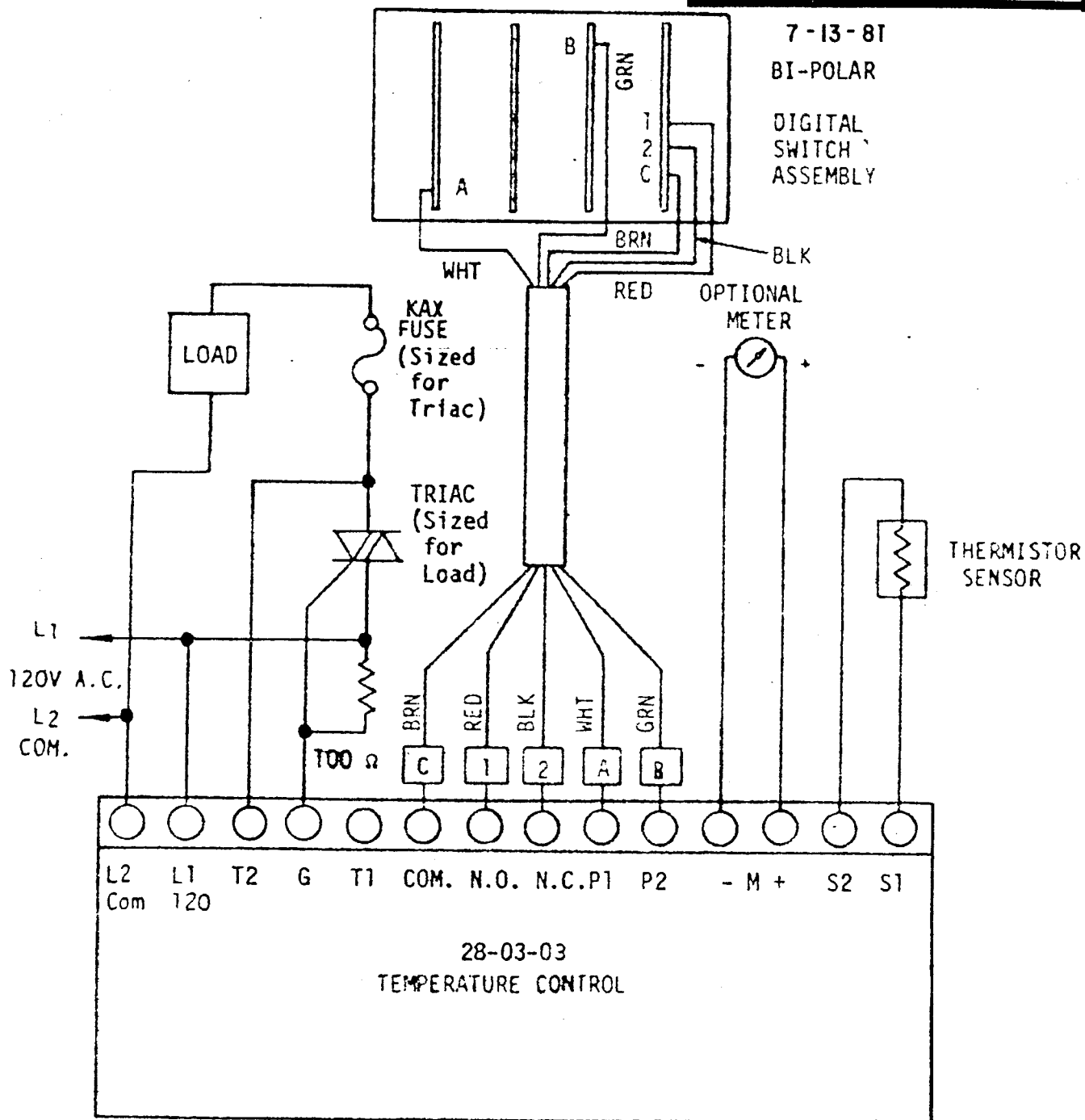
See Page 3 for External Wiring Diagram.

7-13-81

SPECIFICATIONS:LINE VOLTAGE: 115 VAC \pm 10%, 50/60 Hz.POWER REQUIREMENT: 5 VA.CONTROL: Time Proportioning.PROP. BAND: 1°C Maximum.OUTPUT: Zero crossing opto-isolator to fire external triac.CYCLE TIME: 2.5 Sec. Nominal.SENSOR: 1K thermistor.TEMPERATURE RANGE: -20.0°C to 69.9°C.SET POINT: 3 digit digital set in .1°C increments.ACCURACY: \pm .5°C from -20.0 to +60.0°C. \pm 1°C from -20.0 to +69.9°C.
At 50% Duty Cycle.AMBIENT TEMPERATURE RANGE: +50°F to +125°F.AMBIENT TEMPERATURE EFFECTS: \pm .005°C drift/°C change in ambient.LINE VOLTAGE EFFECTS: \pm .005°C maximum set point shift for \pm 10% change in line voltage.INDICATION OUTPUT: -2.00V to +6.00V corresponding to -20°C to +60°C.
100MV/°C linear to \pm .5°C (\pm 50MV)



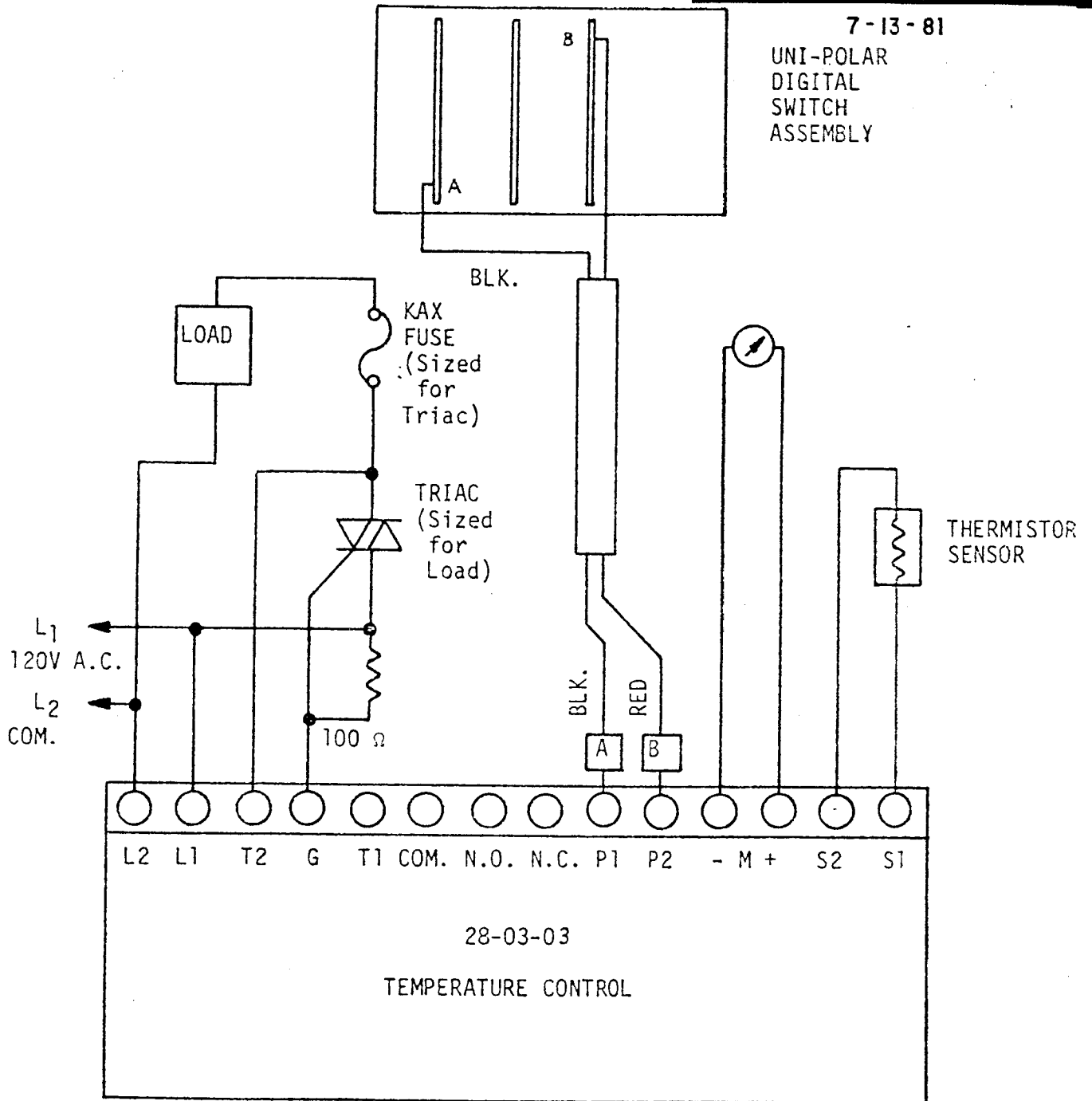
EXTERNAL WIRING DIAGRAM



EXTERNAL WIRING DIAGRAM

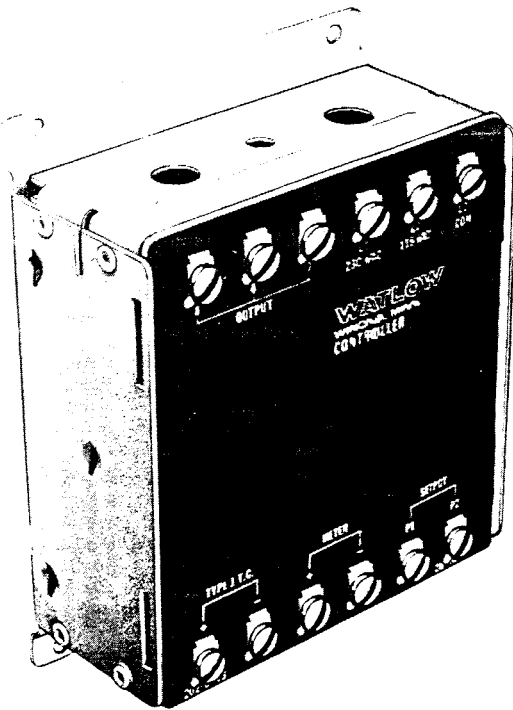
7-13-81

UNI-POLAR
DIGITAL
SWITCH
ASSEMBLY



Temperature Controller

DATA SHEET
MODEL 28-06-14



FEATURES

- Sub-panel mount
- 120/240 V operation
- Output to drive external solid state contactor
- 3 mode control
- Indicator output
- For use with thermocouple sensors
- Line isolated

GENERAL DESCRIPTION

The Model 28-06-14 temperature controller is designed for use with thermocouple sensors. The sub-panel unit offers 3-mode control of process temperature utilizing a fixed proportional band, fixed automatic reset and fixed rate action. The unit also provides a fixed cycle time of 15 seconds. The controller has a 0 to 1 milliamp output signal to drive an external meter and an optically coupled zero switching output to drive a solid state contactor, Model 53-00-12.

SPECIFICATIONS:

OUTPUT:

- (1) Optically coupled zero switching module output to drive Model 53-00-12 solid state contactor.
- (2) 0 to 1 milliamp signal to drive external meter, Model 70-07-01.

LINE VOLTAGE: 120/240 VAC \pm 10%, 50/60 Hz.

POWER CONSUMPTION: 4 VA (controller only).

OPERATING AMBIENT: 30 to 130°F.

CONTROL MODE:

- Time proportioning with fixed cycle rate of 15 seconds.
- Fixed automatic reset.
- Fixed rate action.
- Fixed proportional band of 15°F.

SENSOR PROTECTION:

In the event of an open sensor, load power will de-energize.

COLD JUNCTION COMPENSATION:

Automatic, thermocouple is connected directly to unit.

THERMOCOUPLE LEAD LENGTH:

An approximate error of 1°F is introduced for 60 ohms in thermocouple lead resistance.

SETPOINT POTENTIOMETER: Remote, 24" leads standard.

ISOLATION: T.C. input to load and line.

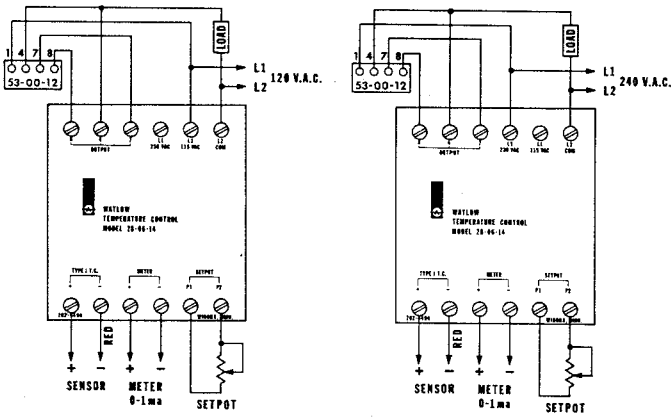
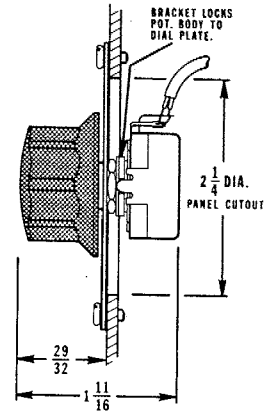
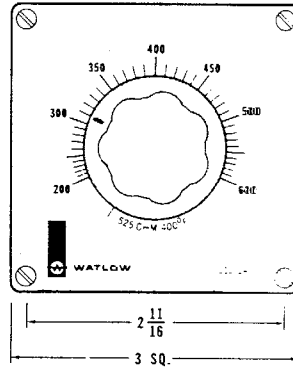
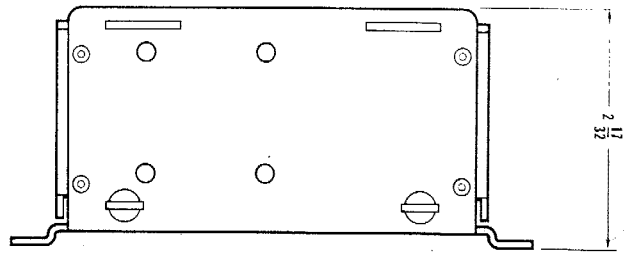
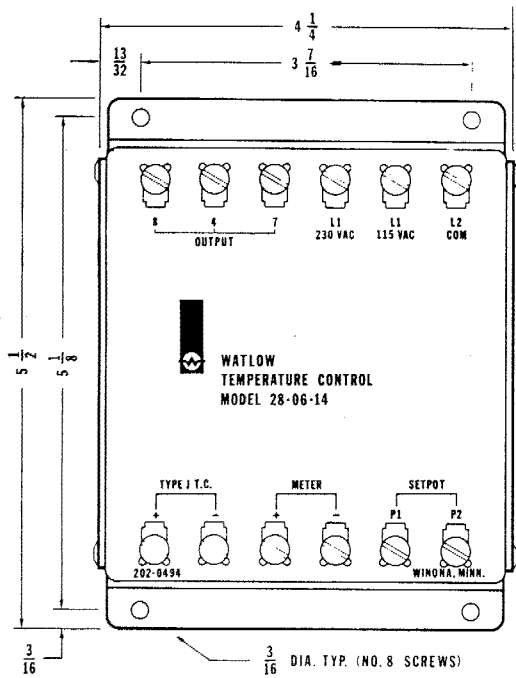
D. C. Resistance: 10^{11} ohms. Capacitance: 50 pf

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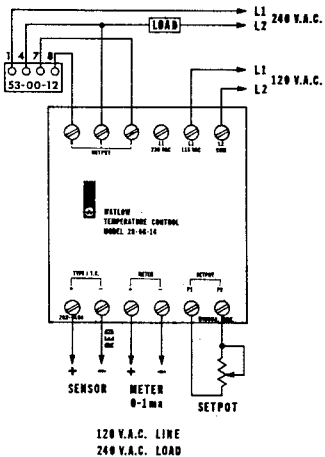
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TEMPERATURE RANGES

RANGE	THERMOCOUPLE TYPE	SET POINT ASSEMBLY #
0 to 400°F	J	A006-254
200 to 600°F	J	A006-255
0 to 750°F	J	A006-256
300 to 900°F	J	A006-257
0 to 2000°F	K	A006-258



ORDERING INFORMATION

Specify model number, temperature range, thermocouple type and set point assembly number.

Model 28-06-14