

## INTRODUCTION

The **N450D** is a low cost digital temperature controller in 1/16 DIN size with 2 outputs for control and alarm.

The dual four digit displays are used for process and setpoint temperature indication and for parameter configuration.

Easy to configure, the **N450D** is intended for use in heating or cooling applications, delivering accurate temperature measurements with excellent immunity to electromagnetic fields.

A large variety of sensor types are available (J, K, T, Pt100, mV and V).



A

TEMPERATURE CONTROLLERS

## FEATURES

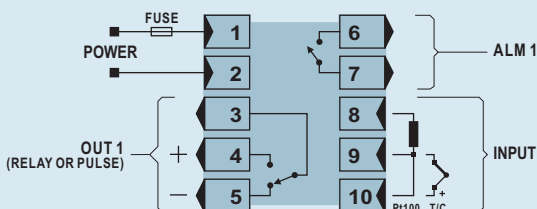
- Low cost temperature controller
- Power: 100-240Vac ( $\pm 10\%$ ), 50/60 Hz
- Universal input, accepts thermocouples J, K, T, R, S, B, E, N, T; Pt100; mV and V.
- Standard outputs: 1 pulse and 1 relay SPST (3A/250V)
- Optional: 1 relays SPDT (3A/250V) and 1 relay SPST (3A/250V)
- Sensor offset correction
- °C and °F configurable
- Alarm with 10 distinct functions
- 0.1 °C resolution for Pt100 sensor and T type thermocouple
- Auto-tuning PID
- Parameter protection prevents unauthorized changes
- Circuitry can be removed via front panel

## INPUTS AND RANGES

TYPE	FEATURES
T/C K	0.0 to 400.0 °C / 0 to 1372 °C (0.0 to 752.0 °F / 0 to 2501 °F)
T/C J	0.0 to 400.0 °C / 0 to 1200 °C (0.0 to 752.0 °F / 0 to 2192 °F)
T/C R	0 to 1768 °C (0 to 3214 °F)
T/C S	0 to 1768 °C (0 to 3214 °F)
T/C B	0 to 1800 °C (0 to 3272 °F)
T/C E	0 to 800 °C (0 to 1472 °F)
T/C N	0 to 1200 °C (0 to 2192 °F)
T/C T	-199.9 to 400.0 °C / -200 to 400 °C (-328.0 to 752.0 °F / 328 to 752 °F)
Pt100	-199.9 to 400.0 °C / -200 to 600 °C (-328.0 to 752.0 °F / 328 to 1112 °F)
0-50 mV	-1999 to 9999 (input and display range can be set arbitrarily by software)
0-5 V	-1999 to 9999 (input and display range can be set arbitrarily by software)

Table 1

## ELECTRICAL CONNECTIONS



## SPECIFICATIONS

- Power: 100 to 240 Vac/dc ( $\pm 10\%$ ), 50/60 Hz. Transient overvoltage:  $\pm 2$  kV
  - Optional: 24 Vac/dc  $\pm 10$
  - Max. Consumption: < 4 VA
- Input: Keyboard selection of input type (refer to table 1)
  - Internal resolution: 14 bits
  - Display resolution: 12000 levels (from -1999 to 9999)
  - Input sample rate: 2 per second
  - Accuracy: Thermocouples: 0.5 % of span,  $\pm 1$  °C  
Others: 0.5 % of span
  - Input impedance: 0-50 mV, Pt100 and thermocouples: >10 M and 0-5 V: >1 M
  - Pt100 measurement: standard (=0.00385)
  - Excitation current: 0.170 mA. 3-wire circuit, cable resistance compensation. All input types are factory calibrated according to IEC-584 for thermocouples and IEC-751 for Pt100.
- Outputs:
  - (OUT1-RR): Relays SPDT: 3 A / 250 Vac
  - (OUT1-PR): Logic pulse for SSR drive: 12 V max / 20 mA
  - (ALM1): Relays SPST: 3 A / 250 Vac
- Environmental Conditions: -10 to +50 °C
  - Relative humidity (maximum): 80 % up to 30 °C. For temperature above 30 °C, decrease. 3 % per °C. Installation category II. Pollution degree 2. Altitude < 2000 m
- EMC: EN 61326-1 (1997) and EN 61326-1/A1 (1998)
- Safety: EN61010-1 (1993) and EN61010-1/A2 (1995)
- Dimensions: 48 x 48 x 110 mm (1/16 DIN).
- Approximate weight: 150 g
- Panel cut-out: 45 x 45 mm (+0.5 -0.0 mm)
- Terminal Connection: 10 screws accepting 6.3 mm fork lugs
- Programmable PWM cycle: from 0.0 sec. to 100 sec.
- Start up 7.5 sec. after power up

## HOW TO SPECIFY

The label attached to the controller case identifies the model and the included options as described below:

MODEL: **N450D - A - B**, where:

<b>A:</b> Outputs	<b>RR:</b> (OUT 1 = Relay, ALM1 = Pulse) <b>PR:</b> (OUT 1 = Pulse, ALM1 = Relay)
<b>B:</b> Voltage rating	blank (100-240 Vac/dc) or <b>24V</b> (24 Vac/dc)