



**ADTECH**  
Analog-Digital Technology, Inc.

The Adtech TCA series alarms accept standard ISA thermocouple input signals and provide relay contact outputs.

The basic input range is 0-1 mVDC to 0-80 mVDC input spans and output contacts are rated at 10 amps, 30 VDC, or 250 VAC resistive.

They provide a cost-effective way of protecting equipment for over- and/or undertemperature conditions.

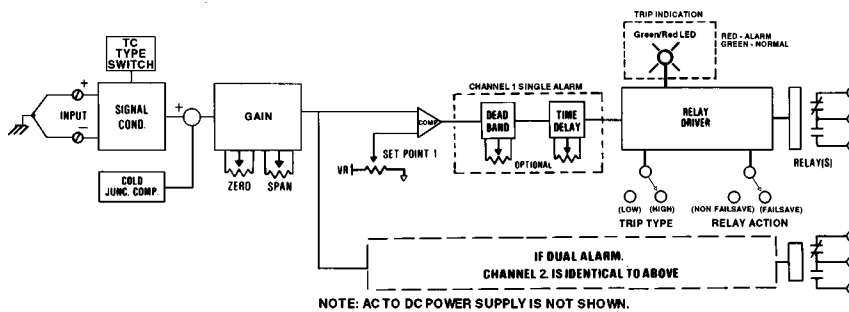
The TCA 104 single alarm has a DPDT output. The TCA 105 dual alarm has a SPDT output per each setpoint and an optional DPDT output per setpoint.

Integral dual color LEDs provide green indication for normal conditions and red indication on alarm per setpoint, independent of relay coil power.

The alarms are furnished as standard with the relay power fail-safe (i.e., relay coil energized) regardless of high- and/or low-alarm configurations. You may specify the relays to be non-fail-safe (i.e., relay coil de-energized) or any combination at no extra cost and are mounted in the "wide-line" (2.75" wide) enclosure.

The TCA 104 and TCA 105 are supplied with a fixed dead band of 0.5% of span as standard. They are optionally supplied with adjustable dead band of 1 to 100% of input span. Ten-turn calibrated dials are offered as an option for both the setpoint and dead band at a nominal extra cost.

An adjustable time delay of 1-30 seconds also may be provided as an option. This is useful to prevent false alarms due to signal transient noise-interference.



## Features

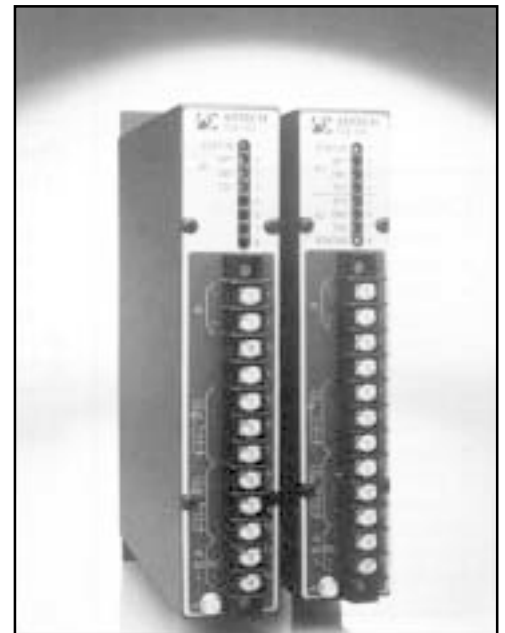
- **Direct Thermocouple Inputs:** ISA types B, E, J, K, N, R, S, & T
- **Cold Junction Compensation:** Automatic and field adjustable
- **Input Range:** 1-80 mV spans
- **Zero Suppression:**  $\pm 85\%$  of span
- **High Input Impedance:** 10 megohms minimum
- **Repeatability:**  $\pm 0.1\%$  of span
- **Universal Relay Action:** Fail-safe or non-fail-safe for high and low trip
- **Contact Status:** LED indication: green--normal; red--alarm
- **Adjustable Dead Band:** 1-100% of input span--optional
- **Adjustable Time Delay:** 1-30 seconds--optional
- **Calibrated Set Point and Dead Band:** Ten turn--optional

# Thermocouple Alarms

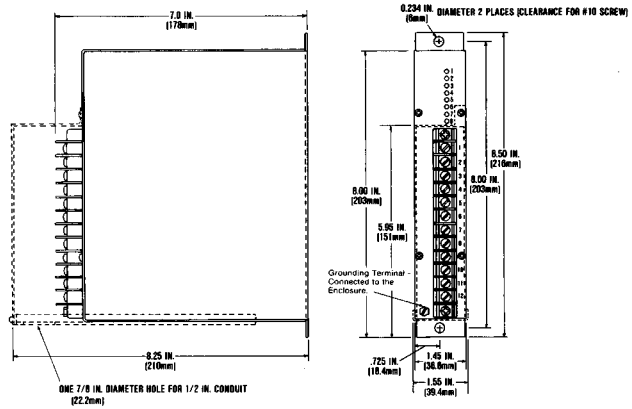
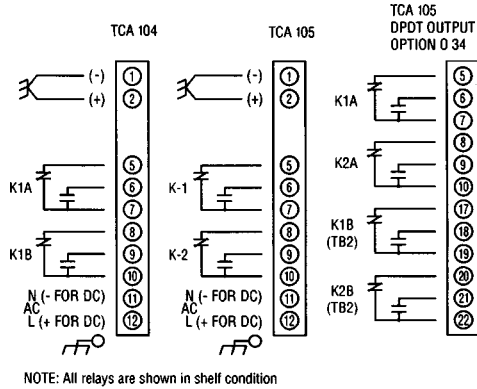
**Model No. TCA 104 Single,  
TCA 105 Dual**

## Typical Applications

- Machinery and process temperature alarm/protection
- Computer and programmable controller interface
- High/low temperature alarm
- On/off temperature control
- Annunciator/alarm horn drives
- HVAC applications
- Direct contact input to annunciator, light, horns, and control devices



# Connections/Dimensions



## Input/Output

### Input Signals

Thermocouple, all standard ISA calibration (13, E, J, K, N, R, S, & T), 1 mV to 80 mV spans (Z in greater than 10 megohms).

Zero suppression/elevation to 85% of span.

Upscale/downscale burnout protection—standard (100 na nominal). Upscale provided unless otherwise specified.

### Output Signals

**Standard:** TCA 104 one set DPDT contact" TCA 105 two SPDT contacts"

\*\* *Rated 10 amps at 30 VDC or 250 VAC resistive.*

**Optional:** DPDT dual alarms: (Option 0 34). Hermetically sealed 2 amp at 28 VDC or 115 VAC resistive: (Option O 40 single, Option O 41 dual).

*Note: With Option 0 34, the "wide-line" (2.75" wide) housing is supplied.*

## Performance

**Repeatability:**  $\pm 0.1\%$  of span

**Trip Point Stability:** Zero and span  $\pm 0.004\%/^{\circ}\text{F}$  typical,  $0.01\%/^{\circ}\text{F}$  maximum for a  $50^{\circ}\text{F}$  change from ambient

\* **Trip Adjustment:** 0-100% of span continuously adjustable; blind set: infinite resolution.

**Fixed Dead Band:** Factory set at 0.5% of span

**Adjustable Dead Band:** 1-100% of span continuously adjustable; blind set: infinite resolution.

**Power Supply Effect:**  $\pm 0.05\%$  for a  $\pm 10\%$  power variation

**Isolation:** Input/output/power 1,500 VAC, 50/60 Hz, for AC and isolated DC powered units

**Response Time:** Less than 200 milliseconds

**Temperature Range:**  $0^{\circ}$  to  $140^{\circ}\text{F}$  ( $-18^{\circ}$  to  $60^{\circ}\text{C}$ ) operating;  $-40^{\circ}$  to  $185^{\circ}\text{F}$  ( $40^{\circ}$  to  $85^{\circ}\text{C}$ ) storage

**Cold Junction Compensation Error:**  $\pm 2^{\circ}\text{F}$  max.

*All accuracies are given as a percentage of span. Ten-turn dials:  $\pm 0.5\%$  accuracy,  $\pm 0.05\%$  resolution*

## Power

**115VAC:** 50/60 Hz, 0.7 PF (Standard)

**12 VDC:** Isolated (Option P8)

**24 VDC:** Non-isolated (Option P1)

**24 VDC:** Isolated (Option P2)

**48 VDC:** Isolated (Option P3)

**125 VDC:** Isolated (105-140 VDC) (Option P4)

**230 VAC:** 50/60 Hz, 0.7 PF (Option P5)

*Note: All units 3 watts maximum, and a  $\pm 10\%$  power variation unless noted.*

## Mechanical

**Electrical Classification:** General purpose

**Connection:** Barrier terminal strip ( $3/8"$  spacing, No. 6 screws)

**Controls:** Multiturn, trip set controls, optional dead band and time delay controls, and internal zero and span controls

**Mounting:** Surface mounting standard. See Housings Section for options.

**Weight:** Net Unit: 2.6 pounds (1.18 kilograms); Shipping: 3.0 pounds (1.36 kilograms)

## Options

**Option Number**

**O 26 & O 28**

**O 27 & O 29**

**O 30 & O 31**

**O 34**

**O 40 & O 41**

**O 46S & O 46D**

**H 10 & H 11**

**H 13B, H 14B, H 15B**

**Description**

Setpoint ten-turn calibrated dials: single and dual

Dead band ten-turn calibrated dials: single and dual

Adjustable time delay: single and dual

DPDT output: dual

Hermetically sealed relays: single and dual

Adjustable dead band: single and dual

Thin- and wide-line conduit mounting plate and terminal cover

NEMA 4, 7, and 12 enclosures

### Ordering Information

- Model number
- Input thermocouple type
- Input temperature range (Degrees "F" or "C")
- Upscale/downscale burnout, protection
- High and/or low relay action
- Prime power with option no.
- Input/output control(s) options
- Housing and miscellaneous options

*Please refer to the Housing and/or Option Section for more specific and detailed information.*

**Represented by:**



**ADTECH**

**Analog-Digital Technology, Inc.**

3750 Monroe Avenue  
Pittsford, New York 14534-1302

Phone: (716) 383-8280

Fax: (716) 383-8386

E Mail: adtech@adtech-inst.com

Web site: <http://www.adtech-inst.com>

Information subject to change without notice.

Printed in U.S.A.

A060