# ICTD Temperature Probes

## Features

> Choose immersion or non-immersion probes

> Use with Opto 22 ICTD analog input modules (SNAP, G4, and Standard G1)

> Factory calibrated



**ICTD-P3 Temperature Probe**

## Description

ICTD temperature probes are temperature sensors used with Opto 22 ICTD analog input modules, including:

- SNAP-AICTD (2 channels)
- SNAP-AICTD-4 (4 channels)
- SNAP-AICTD-8 (8 channels)
- G4AD4 (single channel)
- AD4 (single channel)

Each temperature probe includes lead wires (see "Specifications" on page 2 for lengths). To extend leads, use minimum 26-gauge twisted pair wire.



**ICTD Temperature Probe**

### Immersion Probe

The **ICTD-P3** immersion probe is waterproof and is designed for use in liquid applications, for example thermowells within pipes. It can also be used to measure air temperature.

The stainless-steel shell on this probe is isolated from the temperature element.

*NOTE: The ICTD-P3 can be used as a replacement for the older ICTD-P2 immersion probe, which is obsolete.*

### Non-immersion Probe

The **ICTD** temperature probe is suited for air temperature measurement, for example in energy management, freezer control, and similar applications.

## Part Numbers

| Part | Description |
|------|-------------|
| ICTD | Non-immersion ICTD Temperature Probe |
| ICTD-P3 | Immersion ICTD Temperature Probe, 1/4-inch Diameter |

## Specifications

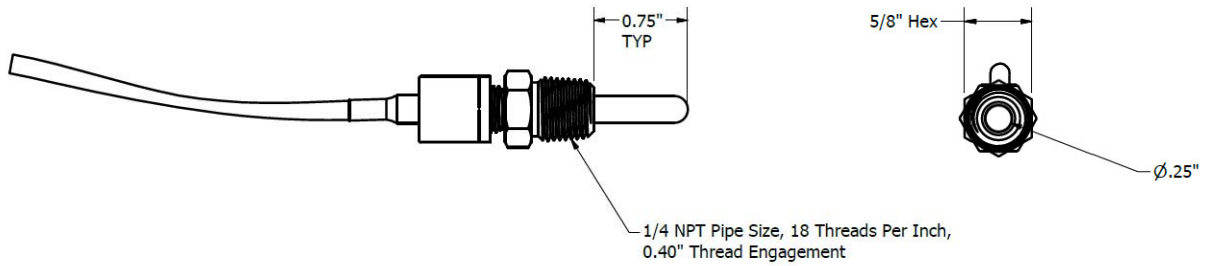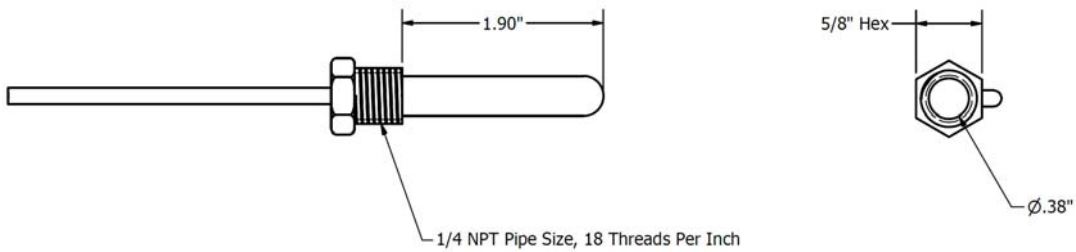| | ICTD | ICTD-P3 | ICTD-P2 (Obsolete) |
|---|---|---|---|
| Features | Epoxy probe, non-immersion Suited for air temperature | Stainless steel probe, waterproof Suited for air or liquid temperatures | Stainless steel probe, waterproof Suited for air or liquid temperatures |
| Input Temperature Range | - 40 °C to 100 °C | - 40 °C to 100 °C | - 40 °C to 100 °C |
| Output | 233 µA @ -40 °C 373 µA @ 100 °C | 233 µA @ -40 °C 373 µA @ 100 °C | 233 µA @ -40 °C 373 µA @ 100 °C |
| Sensitivity | 1 µA/°K | 1 µA/°K | 1 µA/°K |
| Input Response Time (% of Span/Δ °C/ΔTime) | 5 %/7 °C/7.8 seconds 20 %/28 °C/33.6 seconds 63.2 %/88.48 °C/150 seconds | 5 %/7 °C/7.8 seconds 20 %/28 °C/33.6 seconds 63.2 %/88.48 °C/150 seconds | 5 %/7 °C/7.8 seconds 20 %/28 °C/33.6 seconds 63.2 %/88.48 °C/150 seconds |
| Output Accuracy | ±0.5 °C @ 25 °C. Factory calibrated. | ±0.5 °C @ 25 °C. Factory calibrated. | ±0.5 °C @ 25 °C. Factory calibrated. |
| Repeatability | ±0.25 °C | ±0.25 °C | ±0.25 °C |
| Thermal Time Constant | 2.5 minutes typical (still air) | 2.5 minutes typical (still air) | 2.5 minutes typical (still air) |
| Isolation | -- n/a -- | 500 V between metal shell and temperature element | 500 V between metal shell and temperature element |
| Pipe Fitting Thread Type | -- n/a -- | 1/4" NPT | 1/4" NPT |
| Maximum Liquid Pressure | -- n/a -- | 200 psi | 250 psi |
| Maximum Cable Length | >2,000 ft. (610 m.) | >2,000 ft. (610 m.) | >2,000 ft. (610 m.) |
| Dimensions (nominal) | Overall length: 39 in. (1 m.) Cylinder tip: 0.7" (1.78 cm) L, 0.375" (0.95 cm) D | Lead wires: 6 ft. (1.83 m.) Probe diameter: 1/4 in. Probe length: 2.75 in. (6.99 cm) | Lead wires: 5 ft. (1.52 m.) Probe diameter: 3/8 in. Probe length: 2 in. (5.08 cm.) |

# ICTD Temperature Probes

## Dimensional Drawings

### ICTD

.65" TYP

Ø.38"

### ICTD-P3

0.75" TYP

5/8" Hex

Ø.25"

1/4 NPT Pipe Size, 18 Threads Per Inch,
0.40" Thread Engagement

### ICTD-P2 (Obsolete)

1.90"

5/8" Hex

Ø.38"

1/4 NPT Pipe Size, 18 Threads Per Inch
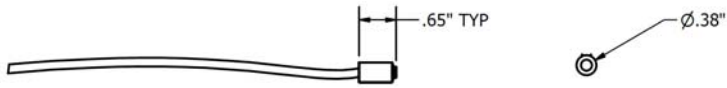
# More About Opto 22

## Products

Opto 22 develops and manufactures reliable, flexible, easy-to-use hardware and software products for industrial automation, energy management, remote monitoring, and data acquisition applications.

### *groov*

*groov* puts your system on your mobile device. With zero programming, you can build mobile operator interfaces to monitor and control systems from Allen-Bradley, Siemens, Schneider Electric, Modicon, and many more. Web-based *groov* puts mobile-ready gadgets at your fingertips. Tag them from your existing tag database, and they automatically scale for use on any device with a modern web browser. See groov.com for more information and your free trial.

### SNAP PAC System

Designed to simplify the typically complex process of selecting and applying an automation system, the SNAP PAC System consists of four integrated components:

- SNAP PAC controllers
- PAC Project™ Software Suite
- SNAP PAC brains
- SNAP I/O™

### SNAP PAC Controllers

Programmable automation controllers (PACs) are multifunctional, modular controllers based on open standards.

Opto 22 has been manufacturing PACs for over two decades. The standalone SNAP PAC S-series, the rack-mounted SNAP PAC R-series, and the software-based SoftPAC™ all handle a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

SNAP PACs are based on open Ethernet and Internet Protocol (IP) standards, so you can build or extend a system easily, without the expense and limitations of proprietary networks and protocols. Wired+Wireless™ models are also available.

### PAC Project Software Suite

Opto 22's PAC Project Software Suite provides full-featured, cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software for your SNAP PAC System.

Control programming includes both easy-to-learn flowcharts and optional scripting. Commands are in plain English; variables and I/O point names are fully descriptive.

PAC Project Basic offers control and HMI tools and is free for download on our website, www.opto22.com. PAC Project

Professional, available for separate purchase, adds one SoftPAC, OptoOPCServer, OptoDataLink, options for controller redundancy or segmented networking, and support for legacy Opto 22 serial *mistic*™ I/O units.

### SNAP PAC Brains

While SNAP PAC controllers provide central control and data distribution, SNAP PAC brains provide distributed intelligence for I/O processing and communications. Brains offer analog, digital, and serial functions, including thermocouple linearization; PID loop control; and optional high-speed digital counting (up to 20 kHz), quadrature counting, TPO, and pulse generation and measurement.

### SNAP I/O

I/O provides the local connection to sensors and equipment. Opto 22 SNAP I/O offers 1 to 32 points of reliable I/O per module, depending on the type of module and your needs. Analog, digital, and serial modules are all mixed on the same mounting rack and controlled by the same processor (SNAP PAC brain or rack-mounted controller).

## Quality

Founded in 1974, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California. Because we test each product twice before it leaves our factory, rather than only testing a sample of each batch, we can guarantee most solid-state relays and optically isolated I/O modules for life.

## Free Product Support

Opto 22's California-based Product Support Group offers free, comprehensive technical support for Opto 22 products. Our staff of support engineers represents decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

Additional support is always available on our website: how-to videos, OptoKnowledgeBase, self-training guide, troubleshooting and user's guides, and OptoForums.

In addition, hands-on training is available for free at our Temecula, California headquarters, and you can register online.

## Purchasing Opto 22 Products

Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at 800-321-6786 or 951-695-3000, or visit our website at www.opto22.com.