ICTD TEMPERATURE PROBES

Features

> Choose immersion or non-immersion probes

> Use with Opto 22 ICTD analog input modules (*groov* EPIC, 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:

- GRV-IICTD-12 (12 channels)
- 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 (stainless-steel portion only) 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 that although the stainless-steel probe is liquid proof, it is possible that moisture could enter the probe via the connection between the wire and the probe. This connection should be protected from moisture, for example by using silicone.

NOTE: The older ICTD-P2 immersion probe is obsolete. Its specifications are shown on the following page for reference.

Non-immersion Probe

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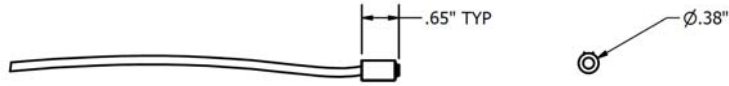
Part Numbers

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

MADE IN THE
USA

SPECIFICATIONS

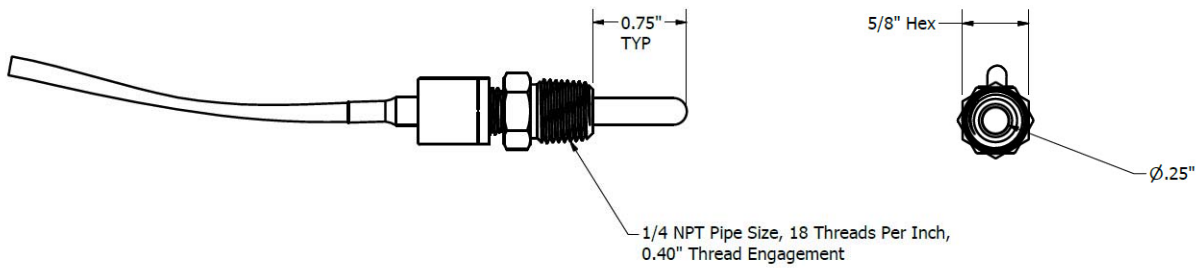|	ICTD	ICTD-P3	ICTD-P2 (Obsolete)
Features	Epoxy probe, non-immersion Suited for air temperature	Waterproof stainless steel probe Suited for air or liquid temperatures	Waterproof stainless steel probe Suited for air or liquid temperatures
Input Temperature Range	- 40 °C to 100 °C	- 40 °C to 100 °C	- 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.)
Agency Approvals	CE, UKCA	NA	NA
Warranty	30 months	30 months	30 months

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

OPTO 22 • www.opto22.com
43044 Business Park Dr. Temecula, CA 92590-3614

SALES • sales@opto22.com
800-321-6786 • 1-951-695-3000

SUPPORT • support@opto22.com
800-835-6786 • 1-951-695-3080

MADE IN THE USA

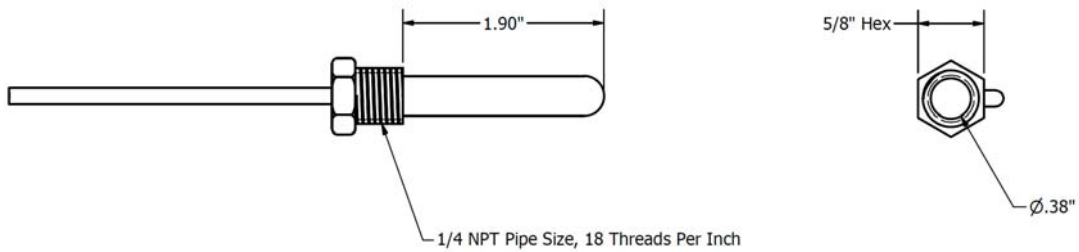**OPTO 22**

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov RIO®

groov RIO edge I/O offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov* RIO connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a RIO EMU energy monitoring unit that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can also use *groov* RIO with a Modbus/TCP master or as remote I/O for a *groov* EPIC system.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

groov EPIC Processor

The heart of the system is the *groov* EPIC processor. It handles a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

In addition, the EPIC provides secure data communications among physical assets, control systems, software applications, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

groov EPIC I/O

groov I/O connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Software

The *groov* EPIC processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- Multiple OPC UA server options
- HMI: *groov* View to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a Windows HMI; Node-RED dashboard UI
- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications

Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

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 testing a sample of each batch, we can afford to 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 technical support for Opto 22 products from engineers with 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.

Support is always available on our website, including free online training at OptoU, how-to videos, user's guides, the Opto 22 KnowledgeBase, and OptoForums.

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** (toll-free in the U.S. and Canada) or **+1-951-695-3000**, or visit our website at www.opto22.com.