



Optimizing Thermocouple Performance

Welding Sensor Tips Improves Accuracy

Thermocouples formed by twisting wire or soldering are prone to instability, inaccuracy and measurement uncertainty. Twisted wire tips can become separated due to the different expansion rates, causing erratic or open readings. Likewise, the use of solder introduces additional metals to the thermocouple hot junction that will induce measurement errors. For consistency and optimum accuracy, we recommend Argon welding for forming sensor tips. Argon welding is an easy technique that produces reliable and accurate sensors. We recommend the Unitek welder listed in the chart below.

Unitek Equipment Inc.	
Model	Description
TCW	Thermocouple Welder with hand piece*
TCWCS22	Wire clamp for 7 strand 22 AWG wire
TCWCS31	Wire clamp for 3 strand 27 AWG wire
* Requires Argon gas cylinder with regulator	

Supplier: Miyachi Unitek Equipment Inc.
 Monrovia, CA USA
 Tel: 626.303.5676
www.unitekequipment.com



PTFE Sheathing Protects Thermocouple Sensor

Extend the life of your PTFE thermocouples by encapsulating the measurement end of the sensor in a sealed PTFE sleeve. The PTFE sheathing protects the sensor from physical stresses and prevents grounding errors should the bare tip contact a conductive surface. In addition, the sealed tip minimizes moisture being pulled through the wire, reducing oxidation and extending the life of your probes.

Amphenol Advanced Sensors offers thermocouple tip kits for our 3- and 7-strand Type T thermocouple wire. Each kit provides material to make between 45 and 60 sensor tips.

Amphenol Advanced Sensors	
Model	Description
V1770	Tip Kit for Type T, 22 AWG 7 strand thermocouples. Includes 8 ft (2.4m) dual PTFE shrink tubing, 1 ft (0.3m)
V1775	Tip Kit for Type T, 27 AWG 3 strand thermocouples. Includes 8 ft (2.4m) dual PTFE shrink tubing (FEP not required).*
*A heat gun is required for shrinking the PTFE sheathing over the sensor tip. We recommend the Master Appliance heat gun below.	

Master Appliance Corp.	
Model	Description
PH1200-1	Heat Gun Kit, includes reducer attachment, solder sleeve connector attachment and bench stand. Variable temperature, electronically controlled from ambient to 1050°F with airflow of 15CFM; 120VAC, 3 wire cordset.
	
Supplier: Master Appliance Corp. Tel: 800.558.9413 www.masterappliance.com	

Amphenol
Advanced Sensors

www.amphenol-sensors.com

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