

Temperature and measurement instrument performance is vital in almost every application, especially in the food industry.

Performance can be affected by many factors including use and abuse and the age of the instrument. Regular, professional calibration checks are recommended, with certification as required, especially for companies with HACCP procedures and other quality systems. In the meantime, calibration can be monitored with Comark simulators, reference thermometers.



### KM20REF Kit

Use this high-accuracy reference thermometer for checking the calibration of all types of thermometer and probe combinations.

- PT100 sensor and permanently attached probe for highest system accuracy
- Complete with 5-Point UKAS Certificate of Calibration
- Auto switch off
- Supplied with hard carrying case
- Can be used with the KM820/VAL Validator

# Calibration Equipment

## C22REF Kit Reference Thermometer Kit



Kit includes:

- C22 Thermometer
- PX22L Thermistor Probe
- TX27L +32°F Temperature Test Cap with UKAS (NIST) certificate
- MC28 Hard Carrying Case

## KM20REF Reference Thermometer



Use this high-accuracy reference thermometer for checking the calibration of all types of thermometer and probe combinations.

- Displays temperature in centigrade
- Supplied with 5-point UKAS Calibration Certificate with points at -18°C, 0°C, +8°C, +70°C, +100°C.
- Auto switch-off feature
- Supplied with carrying case

## KM820/VAL Temperature Validation Cup



Use this heavy duty aluminum cup to check the calibration of infrared or contact thermometers.

## TX27L Test Cap



The TX27L Thermometer Test Cap (+32°F) with 6-pin Lumberg type connection.

- Temperature simulation on Thermometers
- 6-pin Lumberg Connector
- Sensor Type: Thermistor





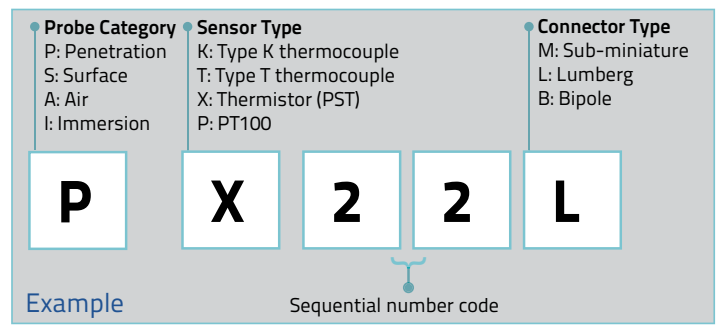
**Comark produces one of the largest available ranges of temperature probes, with a probe for almost every application.**

Comark can certify temperature probes, individually or, as recommended, with an instrument to record system accuracy.

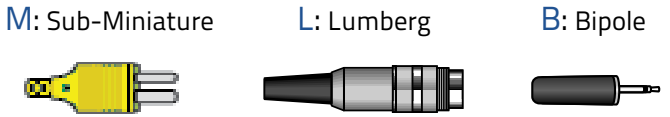
Certificates of calibration are supplied through the Comark in-house UKAS accredited temperature calibration laboratory and the in-house NPL traceable laboratory.

The Comark Service Team or your local distributor can offer advice on probes and certification and can provide detailed quotations.

### Comark Order Codes



### Connector Types



### Probe leads

Comark probe leads are matched to the intended applications for the probe. The materials used are:

**PVC** – PVC coiled leads provide ease of use in ambient temperatures of up to +158°F.


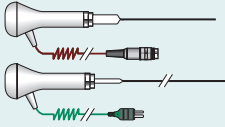
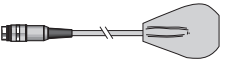
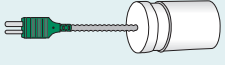
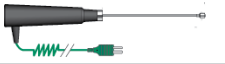
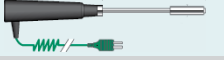
**FEP and PTFE** – These materials are especially suited to food probes and can be used in sub-zero temperatures. Steel braided PTFE leads provide greater strength.




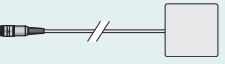

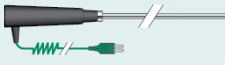
**Fibreglass (FG)** – Fibreglass insulated leads are used for special application probes where the lead could be subjected to very high ambient temperatures of up to +752°F.


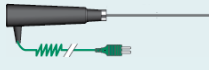


# Temperature Probes

	Sensor	Connector	Temp Range °F	Response Time (secs) †	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Name
<b>Penetration Probes</b>									
	PST	L	-40°F to +302°F	5.0	100	3.3	0.7	FEP	PX22L
	PST	L	-40°F to +302°F	5.0	100	3.3	0.7	FEP	PX23L
	PST	L	-40°F to +302°F	5.0	100	3.3	0.7	FEP	PX24L
	PST	L	-40°F to +302°F	5.0	100	3.3	0.7	FEP	PX25L
	T	L	-148°F to +482°F	2.0	100	3.3	0.7	PTFE	PT24L
For incorporating into your HACCP plan, these food penetration probes with coloured end caps minimise the risk of cross contamination. PX22L White, PX23L Red, PX24L Green, PX25L Blue. PT24L - Type T sensor food probe with steel braided lead. PX22L, PX23L, PX24L, PX25L, PT24L available with 1.0m PVC coiled lead, add /C to order code. PX23L PX24L PX25L eg PX22L/C.									
	PST	L	-40°F to +302°F	0.5	100	1.6	0.7	FEP	PX16L
	T	L	-148°F to +482°F	0.5	100	1.6	0.7	FEP	PT23L
PX16L - Fast response thermistor food probe. PT23L - Fast response Type T food probe with steel braided lead.									
	K	M	-58°F to +482°F	2.0	100	3.3	2.5	PTFE	PK23M
	T	L	-148°F to +482°F	2.0	100	3.3	2.5	PTFE	PT26L
Oven meat probe for checking meat and food temperatures during cooking.									
	T	L	-148°F to +482°F	2.0	100	2.4	-	-	PT25L
	PST	L	-40°F to +302°F	5.0	100	3.3	-	-	PX33L
Integral plug probe									
	PST	L	-40°F to +302°F	2.0	75	3.3	1.0	FEP	PX31L
	K	L	-148°F to +482°F	2.0	75	3.3	1.0	FEP	PK31L
Penetration probes for use with Diligence EV data loggers.									
	T	L	-148°F to +482°F	4.0	140	8.0	1.0	PVC	PT29L
	T	L	-148°F to +482°F	0.5	100	1.5	1.0	PVC	PT19L
Corkscrew probe for frozen foods.									
	K	M	-58°F to 482°F	0.2	100	1.5	1.0	PVC	PK19M
	K	M	-58°F to 482°F	0.2	70	1.1	1.0	PVC	PK15M
†The time constant is the time taken for the probe to reach 63% of the value of the temperature change. Multiply x 3 for the time taken to achieve 95% and by 5 for 99%.									

	Sensor	Connector	Temp Range °F	Response Time (secs) †	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Name
	T	L	-148°F to +482°F	0.2	100	7.5	0.7	PTFE	ST21L
	Ribbon type surface probe with steel braided leads for food applications.								
	K	M	-58°F to +482°F	4.0	250	8 X 2	1.0	PVC	SK38M
	T	L	-148°F to +482°F	4.0	250	8 X 2	1.0	PVC	SK38L
Heavy duty pallet probe.									
	T	L	-40°F to +158°F	5.0	-	-	1.0	PTFE	ST23L
	PST	L	-40°F to +158°F	15.0	-	-	1.0	FEP	SX23L
Between pack temperature probes. ST23L and ST24L with steel braided leads.									
	K	M	to +500°F	0.4	-	-	1.0	PTFE	SK40M
Griddle Probe.									
	K	M	-58°F to +482°F	0.2	100	7.5	1.0	PVC	SK21M
General purpose probe.									
	K	M	-58°F to +1202°F	0.4	100	10.0	1.0	PVC	SK24M
General purpose probe.									

Air Probes									
	K	M	-148°F to +482°F	0.5	-	-	1.0	PTFE	AK28M
	T	M	-148°F to +482°F	2.0	-	-	1.0	PTFE	AT26M
	K	M	-148°F to +482°F	0.5	-	-	5.0	PTFE	AK29M
	K	M	-148°F to +482°F	0.5	-	-	10.0	PTFE	AK31M
	K	M	-148°F to +482°F	0.5	-	-	1.0	FG	AK33M
	T	L	-148°F to +482°F	0.4	-	-	1.0	PTFE	AT26L
Flexible thermocouple probes.									
	T	L	-148°F to +482°F	2.0	-	-	1.0	PTFE	AT22L
Fast response flexible probe with steel braided lead									
	PST	L	-40°F to +158°F	10.0	-	-	1.0	FEP	AX24L
Flexible termistor probe.									
	PST	L	-40°F to +158°F	100	-	-	2.0	FEP	DX31L
Food simulant probe.									
	T	L	-148°F to +482°F	0.4	75	3.3	-	-	AT25L
Integral plug probe.									
	K	M	-148°F to +2012°F	3.0	70	6.0	1.0	PVC	AK24M
	K	M	-148°F to +2012°F	3.0	1000	6.0	1.0	PVC	AK25M
Semi-flexible high temperature air probes									

	Sensor	Connector	Temp Range °F	Response Time (secs) †	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Name
	T	L	-328°F to 752°F	1.0	500	3.0	0.7	PTFE	IT21L
	Deep fat probe with flexible stem for food applications								
	K	M	-148°F to 1562°F	0.4	100	1.5	1.0	PVC	IK21M
	K	M	-148°F to 1562°F	0.4	300	1.5	1.0	PVC	IK23M
	K	M	-148°F to 2012°F	1.0	100	3.0	1.0	PVC	IK24M
Probes with type K and T thermocouple sensors also have mineral insulated, semi-flexible stems.									
†The time constant is the time taken for the probe to reach 63% of the value of the temperature change. Multiply x 3 for the time taken to achieve 95% and by 5 for 99%.									

## GLOSSARY OF TERMS

**HACCP:** Hazard Analysis and Critical Control Point. The quality system used throughout the food industry to ensure safe food.

**HVAC:** Heating, Ventilating and Air Conditioning.

**IP Rating:** Set of standards for dust and waterproof protection.

**Lumberg Connector** with locking screw, used to provide strong, secure probe-to-instrument connections with better prevention of liquid ingress.

**NPL:** The National Physical Laboratory.

**Operating Range:** Temperature and humidity limits within which an instrument will function correctly.

**Pt100:** Platinum resistance thermometer. High accuracy temperature sensor.

**Resolution:** Indicates the smallest difference in measurements that can be detected and displayed by the instrument, e.g. 0.1° indicates that the instrument can detect differences of one tenth of a degree. In some cases there can be a difference between the detected measurement change and the displayed change.

**Sub-miniature:** Two-pin industry standard connector.

**System Accuracy:** Temperature accuracy level for the instrument and probe combined. Instrument accuracy excludes the probe.

**Thermistor:** Type of temperature sensor offering accuracy suitable for food applications.

**Thermocouple:** Type of temperature sensor using bi-metal electrical properties. Eight types of bi-metal combinations are available: – K, N, T, J, R, S, E and B – with different measurement ranges and characteristics to suit different applications.

**UKAS:** The United Kingdom Accreditation Service.

### THERMOCOUPLE LIMITS

Type	Temperature Range	Type	Temperature Range
K	-328°F to +2500°F	R, S	-58°F to +3212°F
N	-328°F to +2372°F	E	-328°F to +1832°F
T	-328°F to +752°F	B	+ 32 °F to +3308°F
J	-328°F to +2192°F		



## Contact Us

We understand there are times when our customers may need guidance on the best solution for their requirements. If you would like further information or to discuss your temperature monitoring application, please contact our customer service department who will be pleased to assist.

We are here to help so please contact us on:

Telephone:  
**(800) 555 6658**

Email:  
**[sales@comarkUSA.com](mailto:sales@comarkUSA.com)**

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## Warranty

All Comark instruments have a minimum one year warranty unless otherwise stated. The warranty for temperature probes is six months and all other probes are unwarranted because the conditions of use are beyond our control. The Comark Warranty covers manufacturing defects and component failure and applies worldwide. In line with our policy of continuous development, we reserve the right to alter any product specification without notice. Comark has an accredited UKAS (NIST equivalent) calibration laboratory for temperature and humidity measurement and offers full service and recalibration facilities.

Comark products are designed and manufactured for commercial use by trained operators. Any reference to 'dishwasher safe' refers to commercial machines, not domestic or home model machines. Waterproof denotes that an item can be used in the wet environment of a commercial establishment. Comark thermometers are not designed for use underwater.

Comark Instruments is committed to providing quality and affordable products to the food service industry. Our thermometers and humidity testers bring speed, accuracy and reliability to the transport, testing and storing of food under HACCP guidelines. A large variety of products, well-trained staff, and a commitment to customer satisfaction mean you can come to us for answers to all your temperature measurement needs!

## BioCote®

Selected Comark thermometers, probes and data loggers have BioCote's silver technology incorporated into instrument cases and probe handles at the time of manufacture. The antimicrobial finish inhibits the growth of bacteria, reducing the risk of cross-contamination and infection in the environment. BioCote® has been officially recognised for its benefits within the food industry with HACCP International Certification. HACCP International Certification supports organisations that demonstrate food safety excellence in non-food products that are designed for, or are commonly used in, the food industry. BioCote® is the only antimicrobial solution to be awarded HACCP International Certification.

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