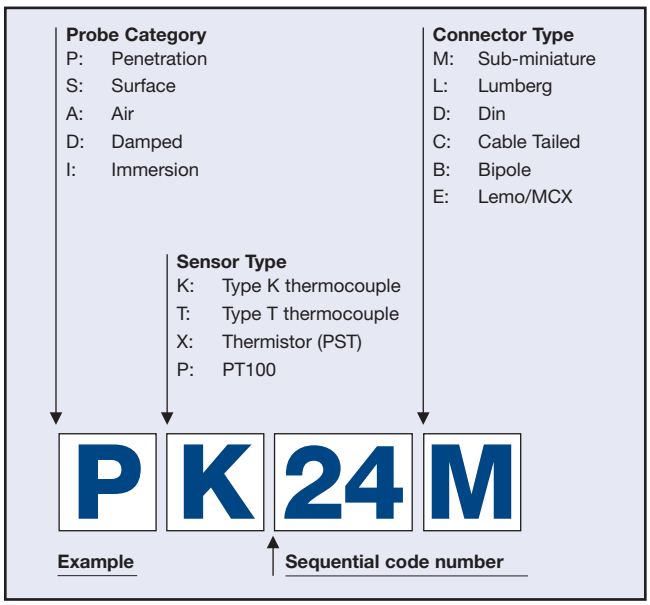
CHOOSING YOUR COMARK PROBES

PROBE IDENTIFICATION CODES

Comark has a simple order code for each probe which identifies the key characteristics.
These are set out in the diagram below.



PROBE CATEGORY

Choose a probe suitable for the material to be measured e.g. a low mass flexible air probe would be a better choice for fast, accurate air temperature measurement than a penetration probe which would take too long to stabilise.

Also the application should be considered:-

Solid and semi-solid materials - use surface probes for surface measurement. Surface probes include angled head models for restricted areas, patch probes for permanent measurement points and velcro or clamp probes for pipes.

Use penetration or immersion probes for internal temperatures. Where holes have to be drilled into solids, use a thermocouple or thermistor probe inserted to a depth 6 times the probe diameter or a PT100 probe inserted to a depth 10 times its diameter.

Use a thermal transfer compound for improved accuracy and response time (the speed at which the probe adjusts from its current temperature to that of the measured materials).

Liquids - use immersion or some penetration probes, but check the possible corrosive effects of the liquid on the sensor first. Agitate the liquid for faster response.

Air and other Gases - check the possible corrosive effects of the gas on the sensor first.

Response times are affected by heat transfer from or into the sensor and the smaller the sensor area of the probe, the faster the response time.

Response is also affected by air/gas movement.

Food simulant and damped sensor probes have a large mass surrounding the sensor to slow down response times, essential in food applications where fridge or freezer doors being opened or defrost cycles can trigger temperature alarms.

SENSOR TYPE

Choose a sensor best suited to your needs for measurement range, accuracy and response time. Some accuracy levels are set by legislation, such as the United Kingdom Food Safety Act, or by local Quality Assurance standards.

The sensor must also match the instrument.
Comark standard probes use three basic sensor types:-

1. Thermocouples - two wires of dissimilar metals joined together at the measurement tip (the hot junction) and joined at the other end to the input terminals of the instrument (the cold junction).

Comark thermocouple material is monitored to exceed the international standards (BS4937:1983, BS EN60584-2:1993 and other related standards).
Two main thermocouple types are used:-

Type K Thermocouple *- Ni-Cr/Ni-AL- a general purpose thermocouple with a wide measurement range and a fast response to temperature changes.*

Type T thermocouple *- Cu/Cu-Ni - particularly suited to low and sub-zero temperatures such as those found in autoclaves and health applications.*

Also has a fast response to temperature changes and high accuracy, useful for food applications.

2. Thermistor (PST) - used for precision measurements using a semi-conductor sensor.

Provides high accuracy over a narrow temperature range and good performance over long lead runs. Suitable for food and cold store applications.

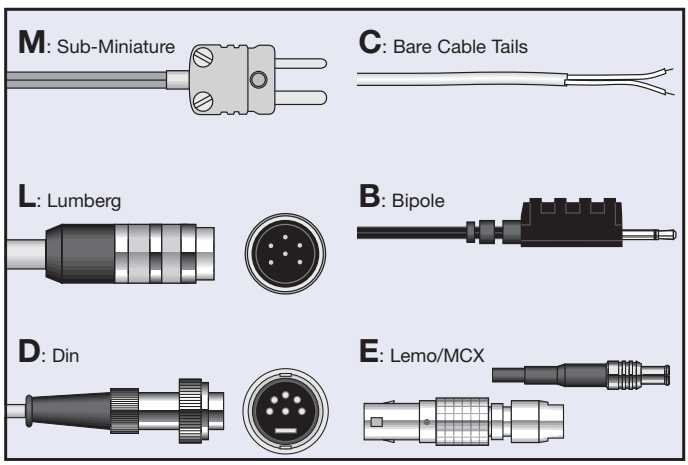
3. Platinum Resistance Thermometers - the electrical resistance of these sensors changes with temperature and this is measured to give the most accurate temperature measurements.

Comark uses PT100 sensors with a resistance of 100 ohms at 0˚C which meet the tolerances set out in BS EN60751 (1996), Class A.

PROBE CONNECTOR TYPES

Choose a probe to match the connector type of the instrument. A range of adaptors is available for use where a non matching probe has to be specified.

Connector details for all Comark and Kane-May instruments and adaptors are given in the compatibility charts.



OTHER ESSENTIALS FOR PROBE SELECTION

Check that the probe measurement range matches your instrument specification and your application.

Check that the probe tip design is suitable for your application e.g. do not use an air probe with an exposed sensor to measure internal temperatures of solids. The main tip designs are shown opposite and the numbers are listed in the probe selection charts:-

Check the probe lead material. Comark temperature probe leads are matched to the intended applications for the probe. Materials used are:-

PVC - PVC coiled leads provide ease of use in ambient temperatures of up to 70˚C and are specified for standard and heavy duty industrial probes.

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

Fibre Glass (FG) - Fibre glass insulated leads are used for special application probes where the lead could be subjected to very high ambient temperatures of up to 600˚C.

Check Intrinsic Safety requirements - some applications and industries are covered by the Intrinsic Safety Regulations including fuel refining, chemical production and mining.

Most Comark probes can be used with Intrinsically Safe instruments, but those not suitable are marked * in the probe selection charts.

Always check for Intrinsic Safety requirements before selecting probes.

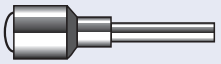
PROBE TIPS

1: Damped Sensor

2: Air probe tip with thermistor

3: Air probe tip

4: Heavy duty surface spring tip



5: Ribbon surface tip

6: Rounded immersion tip

7: Pointed penetration tip

8: Tarmac probe tip

9: Plastic sheathed food surface probe tip

10: Pallet probe tip

PROBE ACCESSORIES

Description		Sensor type	Code
Sub miniature thermocouple socket (in pack of 5)		Type K	**B25**
Sub miniature thermocouple plug (in pack of 5)		Type K	**B26**
Standard thermocouple plug		Type K	**CSPK**
Standard thermocouple socket		Type K	**CSSK**
Standard socket for panel mounting		Type K	**CSSK/P**
Type B thermocouple sub-miniature plug for micro-volt input on M8600/K module		Type B	**CMPC**
Lumberg plug		-	**4187**
3-way screwblock connector for M8600/X module		-	**16720**
50m reel of PVC probe extension lead		Type K	**B27**
2m extension lead with sub-miniature connectors		Type K	**EK21M**
10m extension lead with sub-miniature connectors		Type K	**EK22M**
20m extension lead with sub-miniature connectors		Thermistor (PST)	**EX21M**
40m extension lead with sub-miniature connectors		Thermistor (PST)	**EX22M**
60m extension lead with sub-miniature connectors		Thermistor (PST)	**EX23M**
80m extension lead with sub-miniature connectors		Thermistor (PST)	**EX24M**
10 way switch box with 350mm lead to enable up to 10 probes to be measured by a single thermometer, see page 8		Type K	**LK22M**
1m coiled connecting lead for PT29L corkscrew probe, see page 5		Type T	**ADP34**
1m coiled connecting lead for PT29M corkscrew probe, see page 5		Type T	**ADP35**
1.5mm stainless steel olive gland adaptor*		-	**B22**
3mm stainless steel olive gland adaptor*		-	**B23**
6mm stainless steel olive gland adaptor*		-	**B24**
Thermal transfer compound		-	**CSG12**
Pack of 10 Tempatch indicators. Available in ranges:	37 to 65°C	-	**CTMP/A**
	71 to 110°C	-	**CTMP/B**
	116 to 154°C	-	**CTMP/C**
	160 to 199°C	-	**CTMP/D**
	204 to 260°C	-	**CTMP/E**
Cable ties in pack of 50		-	**T50**

SPECIAL ORDER PROBE EXTENSION LEADS

Most Comark thermocouple probes can be manufactured to special order with leads in non-standard lengths. Full details can be provided by Comark Customer Support or your local distributor.

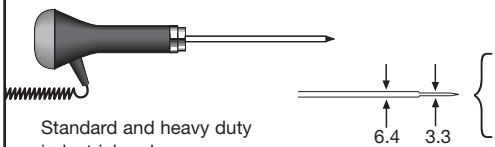
*Olive gland adaptors are used as compression sealing joints for probes used in measuring internal temperatures in pipes.

PROBE SELECTION CHART

Penetration Probes

All drawing dimensions shown in mm.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
K	M	–50°C to +250°C	2.0	100	3.3	1.0	PVC	7	**PK24M**
K	M	–50°C to +250°C	2.0	300	3.3	1.0	PVC	7	**PK29M**
K	M	–50°C to +250°C	4.0	100	6.0	1.0	PVC	7	**PK26M**
K	M	–50°C to +250°C	4.0	300	6.4/3.3	1.0	PVC	7	**PK27M**
T	L	–100°C to +250°C	4.0	150	6.4/3.3	1.0	FEP	7	**PT28L**
PST	L	–40°C to +150°C	10.0	150	6.4/3.3	1.0	FEP	7	**PX30L**
T	M	–100°C to +250°C	2.0	100	3.3	1.0	PVC	7	**PT22M**
PT100	L	–200°C to +250°C	8.0	100	3.3	1.0	PVC	7	***PP23L**



Standard and heavy duty industrial probes.

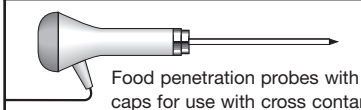
T	M	–100°C to +250°C	0.5	50	1.6	1.0	PVC	7	**PT21M**
K	M	–50°C to +250°C	0.5	50	1.6	1.0	PVC	7	**PK21M**

Short Stem Probe for very fast response.

K	M	–50°C to +250°C	1.5	100	2.5	1.0	PVC	7	**PK31M**

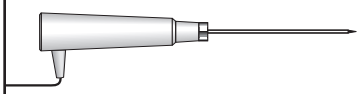
Binder probe for use with "Binder" test plugs for internal measurements in pipes and ducting.

PST	L	–40°C to +150°C	5.0	100	3.3	0.7	FEP	7	***PX22L**
PST	L	–40°C to +150°C	5.0	100	3.3	0.7	FEP	7	***PX23L**
PST	L	–40°C to +150°C	5.0	100	3.3	0.7	FEP	7	***PX24L**
PST	L	–40°C to +150°C	5.0	100	3.3	0.7	FEP	7	***PX25L**
T	L	–100°C to +250°C	2.0	100	3.3	0.7	PTFE	7	***PT24L**
T	L	–100°C to +250°C	2.0	100	3.3	1.0	PVC	7	***PT24L/C**
PST	M	–40°C to +70°C	5.0	100	3.3	3.0	FEP	7	***PX29M**



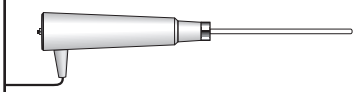
Food penetration probes with coloured end caps for use with cross contamination prevention colour coding systems. PX22L White, PX23L Red, PX24L Green, PX25L Blue.
PT24L - Type T sensor food probe with steel braided lead. PT24L/C - Version of PT24L with coiled lead.
PX29M - Thermistor probe for use with C8800 monitoring systems.

PST	L	–40°C to +150°C	0.5	100	1.6	0.7	FEP	7	***PX16L**
T	L	–100°C to +250°C	0.5	100	1.6	0.7	PTFE	7	***PT23L**



PX16L - Fast response thermistor food probe.
PT23L - Fast response Type T food probe with steel braided lead.

PST	L	–40°C to +150°C	5.0	100	3.3	3.0	FEP	7	***PX27L**



Probe with print start switch for KM1223DTR.

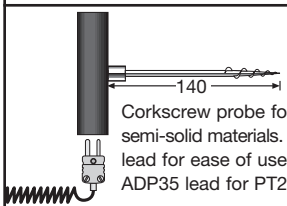
K	M	–50°C to +250°C	2.0	100	3.3	2.5	PTFE	7	**PK23M**
T	L	–100°C to +250°C	2.0	100	3.3	2.5	PTFE	7	**PT26L**

Oven meat probe for checking meat and food temperatures during cooking.

T	L	–100°C to +250°C	2.0	100	2.4	-	-	7	***PT25L**
PST	L	–40°C to +150°C	5.0	100	3.3	-	-	7	***PX33L**

Integral plug probe.

T	L	–100°C to +250°C	4.0	140	8.0	1.0	PVC	-	**PT29L**
T	M	–100°C to +250°C	4.0	140	8.0	1.0	PVC	-	**PT29M**

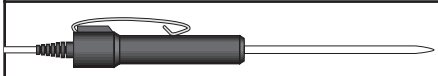


Corkscrew probe for frozen foods and other semi-solid materials. Complete with detachable lead for ease of use, ADP34 lead for PT29L, ADP35 lead for PT29M. See page 4.

PST	E	–40°C to +100°C	5.0	-	-	1.0	PVC	-	***PX31E**

Probe for use with C1742, C1744, C1752, C1754 loggers only.

PST	B	–40°C to +150°C	5.0	80	3.3	0.4	PVC	7	***PX21B**



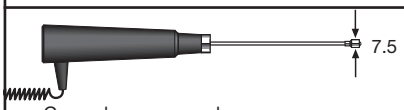
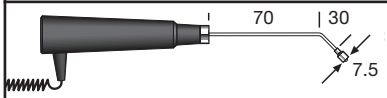
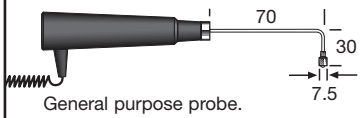
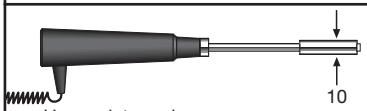
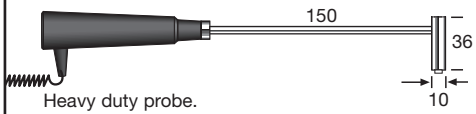
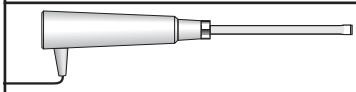
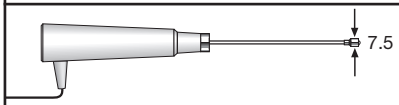
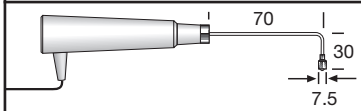
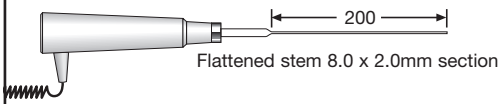
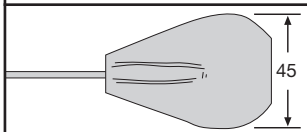
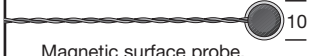
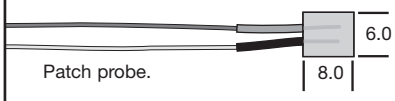
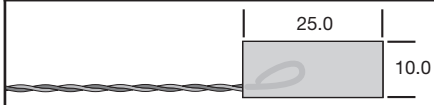
KM220/KM221 probe.

†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%.
Thermocouples:- Tolerances relate to BS EN60584-2 (1993), Class A. *Not suitable for Intrinsically Safe applications.

PROBE SELECTION CHART

Surface Probes

All drawing dimensions shown in mm.

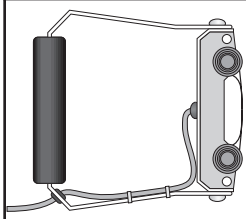
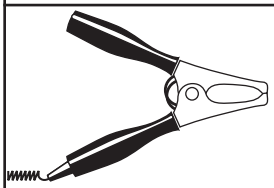
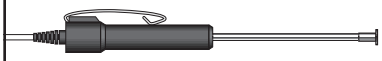
	Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
 General purpose probe.	K	M	–50°C to +250°C	0.2	100	7.5	1.0	PVC	5	**SK21M**
 General purpose probe.	K	M	–50°C to +250°C	0.2	70/30	7.5	1.0	PVC	5	**SK22M**
 General purpose probe.	K	M	–50°C to +250°C	0.2	70/30	7.5	1.0	PVC	5	**SK23M**
 Heavy duty probe.	K	M	–50°C to +650°C	0.4	100	10.0	1.0	PVC	4	**SK24M**
 Heavy duty probe.	K	M	–50°C to +650°C	0.4	150/36	10.0	1.0	PVC	4	**SK25M**
 Surface probe for food applications.	PST	L	–40°C to +150°C	12.0	100	6.0	0.7	FEP	9	***SX22L**
 Ribbon type surface probe with steel braided leads for food applications.	T	L	–100°C to +250°C	0.2	100	7.5	0.7	PTFE	5	***ST21L**
 Ribbon type surface probe with steel braided leads for food applications.	T	L	–100°C to +250°C	0.2	70/30	7.5	0.7	PTFE	5	***ST22L**
 Heavy duty pallet probes.	K	M	–50°C to +250°C	4.0	250	8 x 2	1.0	PVC	-	**SK38M**
	T	M	–100°C to +250°C	4.0	250	8 x 2	1.0	PVC	-	**ST38M**
	T	L	–100°C to +250°C	4.0	250	8 x 2	1.0	PVC	-	**ST38L**
 Between pack temperature probes. ST23L and ST24L with steel braided leads.	T	L	–40°C to +70°C	5.0	-	-	1.0	PTFE	-	***ST23L**
	PST	L	–40°C to +70°C	15.0	-	-	1.0	FEP	-	***SX23L**
	T	L	–40°C to +70°C	5.0	-	-	3.0	PTFE	-	***ST24L**
	PST	L	–40°C to +70°C	15.0	-	-	3.0	FEP	-	***SX24L**
 Magnetic surface probe.	K	M	–50°C to +150°C	2.0	-	-	2.0	PTFE	-	***SK27M**
 Patch probe.	K	M	–50°C to +250°C	0.5	-	-	1.0	PTFE	-	**SK32M**
 Self adhesive patch probes.	K	M	–50°C to +250°C	0.5	-	-	1.0	PTFE	-	**SK31M**
	T	M	–50°C to +250°C	0.5	-	-	1.0	PTFE	-	**ST21M**

†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%.
Thermocouples:- Tolerances relate to BS EN60584-2 (1993), Class A. *Not suitable for Intrinsically Safe applications.

PROBE SELECTION CHART

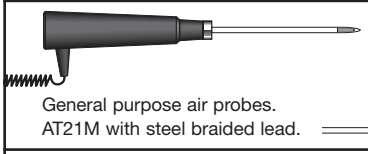
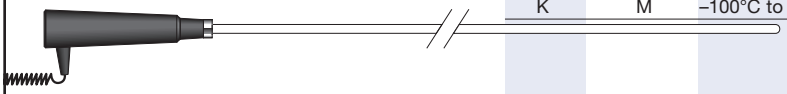
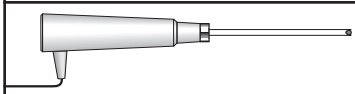
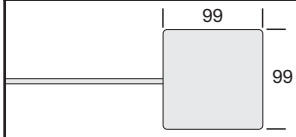
Surface Probes

All drawing dimensions shown in mm.

	Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
 Roller probe for stationary or moving surfaces including cylinders and flat surfaces. Measures at up to 600m/min surface speed and from 125mm diameter curved to flat surfaces.	K	M	–50°C to +250°C	2.0	148	-	2.0	PVC	-	***SK28M**
 Pipe probe for heating, ventilating and air conditioning applications with 500mm Velcro strap.	K	M	–50°C to +100°C	10.0	-	-	2.5	PVC	-	***SK29M**
 Pipe clamp probe for use in heating, ventilating and air conditioning applications, for pipes 15 to 38mm diameter.	K	M	–50°C to +100°C	5.0	-	-	1.0	PVC	-	***SK35M**
 KM220/KM221 probe.	PST	B	–40°C to +150°C	12.0	80	7.5	0.4	PVC	-	***SX21B**

Air Probes

All drawing dimensions shown in mm.

	Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
 General purpose air probes. AT21M with steel braided lead.	K	M	–100°C to +850°C	0.5	100	3.3	1.0	PVC	3	**AK21M**
	K	M	–100°C to +850°C	0.5	300	3.3	1.0	PVC	3	**AK22M**
	K	M	–100°C to +250°C	0.4	100	3.3	1.0	PVC	3	**AK27M**
	T	M	–50°C to +250°C	0.4	100	3.3	1.0	PTFE	3	**AT21M**
	K	M	–100°C to +850°C	1.0	300	6.0/3.0	1.0	PVC	-	**AK23M**
 Semi flexible high temperature air probes.	K	M	–100°C to +1100°C	3.0	700	6.0	1.0	PVC	6	**AK24M**
	K	M	–100°C to +1100°C	3.0	1000	6.0	1.0	PVC	6	**AK25M**
 Rigid air probe.	PST	L	–40°C to +70°C	10.0	100	3.3	0.7	FEP	2	***AX23L**
Flexible thermocouples.	K	M	–100°C to +250°C	0.5	-	-	1.0	PTFE	-	**AK28M**
	T	M	–100°C to +250°C	2.0	-	-	1.0	PTFE	-	**AT26M**
	T	M	–100°C to +400°C	2.0	-	-	1.0	FG	-	**AT27M**
	K	M	–100°C to +250°C	0.5	-	-	5.0	PTFE	-	**AK29M**
	K	M	–100°C to +250°C	0.5	-	-	10.0	PTFE	-	**AK31M**
	K	M	–100°C to +250°C	0.5	-	-	25.0	PTFE	-	**AK32M**
	K	M	–100°C to +400°C	0.5	-	-	1.0	FG	-	**AK33M**
	T	L	–100°C to +250°C	0.4	-	-	1.0	PTFE	-	**AT26L**
Fast response flexible probe with steel braided lead.	T	L	–100°C to +250°C	2.0	-	-	1.0	PTFE	-	***AT22L**
Flexible probes.	PST	L	–40°C to +70°C	10	-	-	1.0	FEP	-	***AX24L**
	PST	L	–40°C to +70°C	10	-	-	3.0	FEP	-	***AX25L**
	PST	M	–40°C to +70°C	10	-	-	5.0	FEP	-	***AX28M**
	PST	M	–40°C to +70°C	10	-	-	10.0	FEP	-	***AX29M**
	PST	B	–40°C to +70°C	10	-	-	1.0	FEP	-	***AX22B**
 Food simulant probes for long term measurements of food in fridges and freezers.	PST	M	–40°C to +70°C	100	-	-	2.0	FEP	-	***DX29M**
	PST	L	–40°C to +70°C	100	-	-	2.0	FEP	-	***DX31L**
	PST	M	–40°C to +70°C	100	-	-	5.0	FEP	-	***DX32M**
	PST	M	–40°C to +70°C	100	-	-	10.0	FEP	-	***DX33M**

†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%.
Thermocouples:- Tolerances relate to BS EN60584-2 (1993)), Class A. *Not suitable for Intrinsically Safe applications.

PROBE SELECTION CHART

Air Probes

All drawing dimensions shown in mm.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
PST	L	–40°C to +70°C	30.0	-	8.0	2.0	FEP	1	***DX28L**
PST	M	–40°C to +70°C	30.0	-	8.0	2.0	FEP	1	***DX43M**
PST	M	–40°C to +70°C	30.0	-	8.0	5.0	FEP	1	***DX34M**
PST	M	–40°C to +70°C	30.0	-	8.0	10.0	FEP	1	***DX35M**
PST	M	–40°C to +70°C	30.0	-	8.0	20.0	FEP	1	***DX36M**
PST	M	–40°C to +70°C	30.0	-	8.0	30.0	FEP	1	***DX37M**
PST	M	–40°C to +70°C	30.0	-	8.0	40.0	FEP	1	***DX38M**
PST	M	–40°C to +70°C	30.0	-	8.0	60.0	FEP	1	***DX39M**
PST	M	–40°C to +70°C	30.0	-	8.0	80.0	FEP	1	***DX41M**
PST	M	–40°C to +70°C	30.0	-	8.0	100.0	FEP	1	***DX42M**
PST	C	–40°C to +70°C	30.0	-	8.0	10.0	FEP	1	***DX44C**
PST	C	–40°C to +70°C	30.0	-	8.0	15.0	FEP	1	***DX45C**

Damped sensor probes to slow down response times in applications where air temperatures change faster than the product temperatures, eg. food in fridges and freezers.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
PST	E	–40°C to +70°C	10.0	-	-	2	PVC	-	***AX31E**

Air probe for use with C1742, C1744, C1752, C1754 loggers only.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
T	L	–100°C to +250°C	0.4	75	3.3	-	-	3	***AT25L**

Integral plug probe.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
PST	B	–40°C to +70°C	10	75	3.3	0.4	PVC	2	**AX21B**

KM220/KM221 probe.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
PST	E	–40°C to +40°C	10.0	-	-	1.0	PVC	-	***DX46E**
PST	E	–40°C to +40°C	10.0	-	-	3.0	PVC	-	***DX47E**
PST	E	–40°C to +40°C	10.0	-	-	6.0	PVC	-	***DX48E**
PST	E	–40°C to +40°C	10.0	-	-	16.0	PVC	-	***DX51E**
PST	E	–20°C to +100°C	10.0	-	-	3.0	PTFE	-	***DX52E**

Probes for C1702 and C1704 loggers.
DX52E for C1712 logger only.

Immersion Probes

All drawing dimensions shown in mm.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
K	M	–100°C to +850°C	0.4	100	1.5	1.0	PVC	6	**IK21M**
K	M	–100°C to +850°C	0.4	300	1.5	1.0	PVC	6	**IK23M**
K	M	–100°C to +1100°C	1.0	300	3.0	1.0	PVC	6	**IK24M**
K	M	–100°C to +1100°C	1.0	100	3.0	1.0	PVC	6	**IK22M**
T	M	–200°C to +400°C	1.0	300	3.0	1.0	PVC	6	**IT22M**
T	M	–200°C to +400°C	0.4	300	1.5	1.0	PVC	6	**IT24M**
PT100	L	–200°C to +500°C	8.0	200	4.0	1.0	PVC	6	***IP22L**
PT100	L	–200°C to +500°C	15.0	300	6.0	1.0	PVC	6	***IP23L**

Probes with type K and T thermocouple sensors also have mineral insulated. semi-flexible stems.

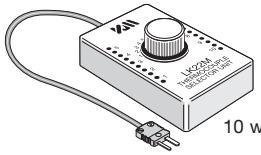
Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
K	M	–100°C to +1100°C	12.0	1000	12.5/8.0	1.0	PVC	6	***IK25M**

Heavy duty melt probe.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
T	L	–200°C to +400°C	1.0	500	3.0	0.7	PTFE	6	***IT21L**

Deep fat probe for food applications.

Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
K	M	-	-	-	-	0.35	PVC	-	**LK22M**



10 way switchbox, see page 4

†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%.
Thermocouples:- Tolerances relate to BS EN60584-2 (1993), Class A. *Not suitable for Intrinsically Safe applications.

INSTRUMENT COMPATIBILITY
Check your instrument connectors before selecting probes.

Instrument	Sensor Type	Connector
COMARK		
C550	Thermistor (PST)	C
C1700 Series	Thermistor (PST)	E (DX46E to DX52E only)
C1740/C1750 Series	Thermistor (PST)	E (PX31E and AX31E only)
C8510	Type K or Thermistor (PST)	M
C8600	Type K,N,T,J,R,S,E,B, PT100, Thermistor (PST)	M/L/C
C8800	Thermistor (PST)	C
C9001/C90061S/C9008	Type K,N,T,J,R,S	M
C9003/C9007	Type K	M
C9009	Type T	M
C9011	PT100	L
C9050	Type K,J,T	M
C9091	Thermistor (PST)	L
C9092	Thermistor (PST) and Type T	L
N9001/N9008	Type K, N, T, J, R, S	M
N9003	Type K	M
N9009	Type T	M
N9092	Thermistor (PST) and Type T	L
N1001	Type K, N, T, J, R, S, E, B	M
N1092	Thermistor (PST) and Type T	L
KM20REF	PT100	Integral Probe
KM21	Thermistor (PST)	L
KM22	Thermistor (PST) and Type T	L
KM25	Type T	L
KM26	Type T	M
KM42/KM43/KM44/KM450S/KM450IS/KM450MQ	Type K	M
KM45	Type K,J,T	M
KM220/KM221	Thermistor (PST)	B
KM250	Type K	Integral Probe
KM330/KM340	Type K	M
KM1203	Thermistor (PST)	Integral Probe
KM1223DTR	Thermistor (PST) and Type T	L
KM1225	Thermistor (PST)	M
KM1241/KM1441 with T41 module/KM1242/KM1420	Type K	M
KM1250	Type K or T	M
KM1448	Thermistor (PST)	M
KM4003	Type K	M
KM8004	Type K	M

ADAPTOR COMPATIBILITY

Adaptor	Sensor Type	Connections	
		From	To
ADP2 connects food simulant and damped sensor probes with sub-miniature connectors to KM1241/ KM1441	Thermistor (PST)	M	phone
ADP4 connects food simulant and damped sensor probes with sub-miniature connectors to KM20/KM21/KM22	Thermistor (PST)	M	L
ADP5 connects food probes and test caps with Lumberg connectors to KM1225/KM1448/C8510PST	Thermistor (PST)	L	M
ADP7 connects 2 food probes with sub-miniature connectors to KM1441	Thermistor (PST)	M	phone
ADP8 connects food probes and test caps with Lumberg connectors to C9090 and C8500	Thermistor (PST)	L	D
ADP9 connects old food probes with Din connectors to C9091 and C9092	Thermistor (PST)	D	L
ADP10 connects PT100 probes with Lumberg connectors to C9010	PT100	L	D
ADP11 connects old PT100 probes with Din connectors to C9011	PT100	D	L
ADP12 Type T compensating cable, connects C9092 to C9050	Type T	L	M

COMARK SPECIALIST PROBES AND SENSORS

Although the Comark range of handheld probes is the most comprehensive available, there are specialist temperature measurement applications where non-standard probes are needed.

The Comark probe design and production team have many years experience in solving measurement problems for individual customers and can offer expert advice.

The wide range of specialist probe solutions available from Comark includes modified standard probes, special industrial probe assemblies and a bespoke design and build service which is described on the facing page. All Comark manufactured probes utilise the finest components and are produced in line with the Comark ISO 9001 quality system.

SPECIALIST MODIFICATIONS TO STANDARD PROBES

Almost every one of the extensive range of Comark standard probes can be developed or modified to customer requirements. This can be a simple matter of adding a longer lead or a different stem length or it can encompass an application led redesign.

The Comark milk dip probe is a typical example, developed from a type T thermocouple immersion probe to check milk in large tanks during storage or transportation, and now available in three versions. These and other specially developed probes have proved popular enough to warrant volume production and are shown in the chart below.

SPECIALIST INDUSTRIAL PROBES

Comark can supply a broad range of industrial probe assemblies and accessories suitable for permanent installation into all types of process and production machinery. These can be fitted with sensors to specific customer specifications, including thermocouple types K, J, T, R, S, N and E (others available on request), platinum resistance thermometers of all types and thermistors. The range includes:-

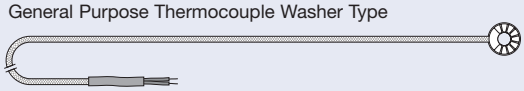
General Purpose Thermocouple Sensors for liquid or gas measurement

General Purpose Thermocouple Sensors for low pressure bulkhead fittings

General Purpose Thermocouple Sensors with plug or socket fittings

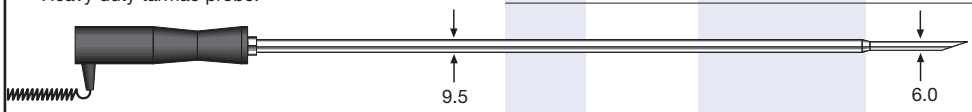
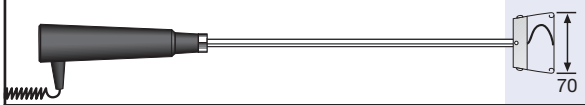
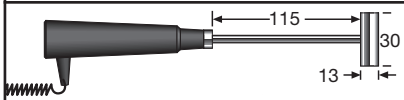
General Purpose 4 Wire Resistance Thermometer

General Purpose Thermocouple Washer Type



Heavy Duty Thermocouples and Resistance Thermometers

Thermopockets

Modified Standard Probes	Sensor	Connector	Temp Range °C	Response Time (secs)†	Stem Length (mm)	Stem Dia (mm)	Lead Length (m)	Lead Material	Probe Tip	Code
Heavy duty tarmac probe. 	K	M	–50°C to +250°C	10.0	500	9.5/6.0	2.0	PVC	8	**PK32M**
Bow surface probe for larger surface contact area. 	K	M	–50°C to +500°C	2.0	250	70	1.0	PVC	-	***SK26M**
 Shrouded air probe for use in air currents.	K	M	–30°C to +120°C	0.5	115/30	13	1.0	PVC	-	**AK26M**
 Weighted sinker probe for deep tanks and containers.	K	M	–100°C to +150°C	2.0	120	-	20.0	PTFE	-	**IK26M**
 Weighted milk dip probe for dairy hygiene applications, also suitable for other liquid dip applications	T	M	–40°C to +150°C	2.0	90	-	2.0	PTFE	-	**IT23M**
	T	L	–40°C to +150°C	2.0	90	-	2.0	PTFE	-	**IT23L**
	PST	L	–40°C to +150°C	5.0	90	-	2.0	FEP	-	**IX23L**

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