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YaliTech® INSTRUMENTS FOOD & WATER

THERMOMETERS FOR INDUSTRY

THE UK'S LEADING SPECIALIST IN THE DESIGN & MANUFACTURE
OF TEMPERATURE MEASURING EQUIPMENT FOR OVER 35 YEARS

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CATERING THERMOMETERS & ACCESSORIES

Selecting the correct thermometer for food and catering applications is very important in order to achieve maximum accuracy and repeatability of temperature.

The selection criteria for a digital thermometer should include:

- Measurement range
- Resolution of the reading 1 °C, 0.1 °C or 0.01 °C
- Desired accuracy
- Response time
- Extra features such as max/min, hold & backlight

We offer a range of catering thermometers and accessories that are ideal for busy restaurants, cafes, bars and food outlets where food safety is essential.

FRIDGE & FREEZER TEMPERATURES

Keeping fridges and freezers at the correct temperature is critical to ensure good food safety during storage.

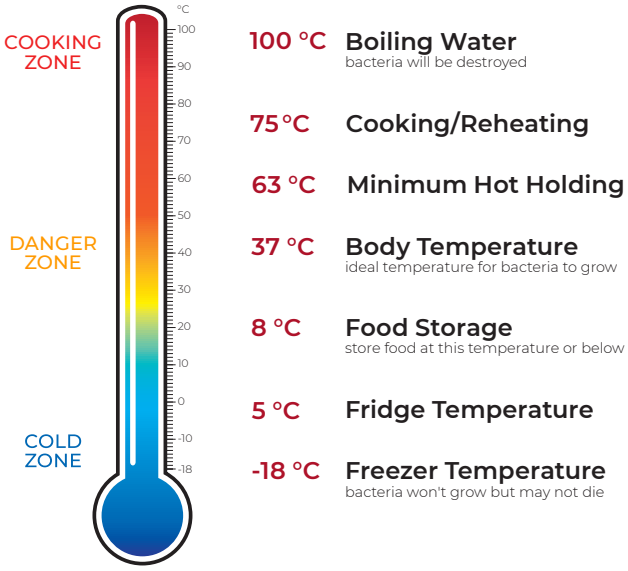
Food should be stored in a fridge between 1 °C and 5 °C to allow a margin of error below the legal standard of 8 °C.

Food stored in a freezer should be regularly rotated and stored below -18 °C as bacteria will not grow below this temperature.

SAFE FOOD TEMPERATURES & GUIDE

To prevent food poisoning, it is essential to kill bacteria. Most bacteria are killed quickly between 75 °C and 100 °C. The danger zone is between 8 °C and 63 °C where bacteria will grow rapidly. Therefore it is important when microwaving food that there are no cold spots in the food, likewise when reheating food or sauces that the food is reheated above 75 °C.

A safe temperature guide is available to download via our website.



All the above temperatures are guidelines only

THERMAPEN® PROFESSIONAL THERMOMETER

- SuperFast – reaches temperature in just 3 seconds
- FREE traceable certificate of calibration
- Patented, automatic 360° rotational display
- Waterproof to IP66/67

The Thermapen is the UK's number one selling food thermometer measuring temperature over the range of -49.9 to 299.9°C. Used by hundreds of thousands of people worldwide, it offers a combination of speed, accuracy and convenience of use.

Using advanced technology the Thermapen Professional includes a number of innovative features. The patented 360° self-rotating display can be used in any position, in either hand. The unit incorporates an intelligent backlit display sensing light levels, automatically turning the backlight on/off in varying light conditions. The motion-sensing sleep mode with user changeable time delay, automatically turns the Thermapen Professional on/off when set down or picked up, maximising battery life.

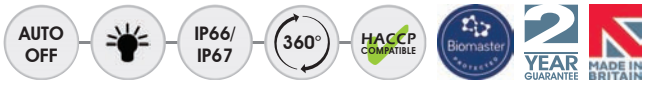
The casing is washable and includes Biomaster Antimicrobial Technology that reduces bacterial growth and the ergonomic rubber seal minimises the risk of the ingress of water, dust or food. As well as being waterproof to IP66/67, it is still 'probably' the fastest reading contact thermometer on the market today. The true temperature of a product can be tested in just three seconds. The Thermapen Professional incorporates a reduced tip, stainless steel, penetration probe (Ø3.3 x 110 mm) that conveniently folds back through 180° into the side of the instrument when not in use.

The Thermapen Professional is powered by a single AAA battery with a life expectancy of 3000 hours in normal use, without the backlight. Both low battery (icon) and open circuit indication are displayed, when applicable. Each Thermapen Professional is supplied with a FREE traceable certificate of calibration.

- **Truly ambidextrous**
  Automatic 360° rotational display
  UK Patent No. GB 2504936

- **Intelligent backlit LCD**

Order code	Description
234-407	Thermapen Professional - grey
234-417	Thermapen Professional - white
234-427	Thermapen Professional - yellow
234-437	Thermapen Professional - green
234-447	Thermapen Professional - red
234-457	Thermapen Professional - blue
234-477	Thermapen Professional - black
234-487	Thermapen Professional - orange
234-497	Thermapen Professional - pink
234-507	Thermapen Professional - purple
830-460	Protective silicone boot
830-465	Silicone boot - glow in dark
830-110	Protective wallet
830-001	Zip pouch
832-002	Stainless steel wall bracket



Specification	Thermapen Professional
Range	-49.9 to 299.9 °C
Resolution	0.1 °C or 1 °C - user selectable
Accuracy	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Battery	1 x 1.5 volt AAA
Battery life	3000 hours (normal use, without backlight)
Sensor type	K thermocouple
Display	14.5 mm (horizontal) & 12 mm (vertical) LCD
Dimensions	19 x 50 x 157 mm
Weight	120 grams
FREE traceable certificate of calibration included	

THERMAPEN® CLASSIC THERMOMETER

- SuperFast – reaches temperature in just 3 seconds
- Over 50 % faster than traditional probes
- FREE traceable certificate of calibration
- Simple & lightweight to use

The Thermapen Classic thermometer incorporates a large digital display with a precise read-out of temperature over the range of -49.9 to 299.9 °C with a 0.1 °C resolution and an accuracy of ±0.4 °C. The resolution can be switched to 1 °C, if required, via a switch in the battery compartment. The thermometer will power off automatically after ten minutes, maximising battery life. This feature can be disabled if not required.

The casing is washable and includes Biomaster Antimicrobial Technology that reduces bacterial growth and the ergonomic rubber seal minimises the risk of the ingress of water, dust or food. As well as being splashproof, it is still 'probably' the fastest reading contact thermometer on the market today. The true temperature of a product can be tested in just three seconds. The Thermapen Classic incorporates a reduced tip, stainless steel, food penetration probe (Ø3.3 x 115 mm) that conveniently folds back through 180° into the side of the instrument when not in use.

Both low battery (icon) and open circuit indication are displayed, when applicable. Each Thermapen is powered by two lithium coin cell batteries with a minimum life expectancy of 1500 hours.

OPTIONAL ACCESSORIES:

- Stainless steel wall bracket (832-002) screws not supplied
- Zip pouch with belt strap (830-001)
- Protective silicone boot (830-260)
- Glow-in-the-dark silicone boot with magnets (830-265)
- Protective PVC wallet with belt strap (830-110)

- **Stainless steel wall bracket (832-002)**
  Stores the Thermapen safely when not in use. Keyhole slot for hanging (screws not supplied) Measures 27 x 58 x 115 mm

Order code	Description
231-217	Thermapen Classic - white
231-227	Thermapen Classic - yellow
231-237	Thermapen Classic - green
231-247	Thermapen Classic - red
231-257	Thermapen Classic - blue
830-260	Protective silicone boot
830-265	Silicone boot - glow in dark
830-110	Protective wallet
830-001	Zip pouch
832-002	Stainless steel wall bracket

Specification	Thermapen Classic
Range	-49.9 to 299.9 °C
Resolution	0.1 °C or 1 °C - user selectable
Accuracy	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Battery	2 x 3 volt CR2032 lithium coin cell
Battery life	1500 hours
Sensor type	K thermocouple
Display	14.5 mm LCD
Dimensions	19 x 47 x 153 mm
Weight	97 grams
FREE traceable certificate of calibration included	

SOUS VIDE THERMAPEN®

- Miniature needle probe for Sous Vide cooking
- High accuracy ±0.4 °C

The Sous Vide Thermapen thermometer has been specifically designed for Sous Vide cooking and areas where precise temperature measurement is required.

This model incorporates a miniature, stainless steel needle probe that has a Ø1.1 x 60 mm reduced tip, that conveniently folds back through 180° into the side of the instrument when not in use. **Please Note:** The probe tip is small in diameter and should be used with care.

Use in conjunction with Sous Vide tape to measure the core temperature without suffering water ingress into your vacuum sealed bag.

The Sous Vide Thermapen features the same specification as the Thermapen Classic (see page opposite) and includes a FREE traceable certificate of calibration.

OPTIONAL ACCESSORIES:

- Sous Vide foam/tape - one metre (600-475)
- Zip pouch with belt strap (830-001)

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Order code	Description
231-011	Sous Vide Thermapen
600-475	Sous Vide foam/tape
830-001	Zip pouch

FREE traceable certificate of calibration included

PRO-SURFACE THERMAPEN®

- Pivoting probe & swivel head for perfect contact
- Ideal for grills & hot plates

The Pro-Surface Thermapen thermometer measures the temperature of grills, hotplates, and other surfaces over the range of -49.9 to 299.9 °C with a user-selectable resolution of 0.1 or 1 °C. The Pro-Surface Thermapen is calibrated "as a system" for improved accuracy.

Simply open the probe and take the reading - the pivoting probe and swivel tip ensure perfect surface contact and high accuracy measurement. The Pro-Surface features the same specification as the Thermapen Classic (see page opposite) and includes a FREE traceable certificate of calibration.

- **Protective silicone boot**
  Protect your instrument against accidental damage by fitting a protective silicone boot (830-260).

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Order code	Description
231-279	Pro-Surface Thermapen
830-260	Protective silicone boot
830-110	Protective wallet

FREE traceable certificate of calibration included

THERMALITE® 1 & 2 THERMOMETERS

- Reduced tip provides faster & more accurate readings
- ThermaLite 2 includes CalCheck 0.0 °C function
- FREE traceable certificate of calibration
- Assured accuracy for the life of the thermometer

new model

These ThermaLite digital thermometers display temperature over the range of -39.9 to 149.9 °C with a 0.1 °C/°F resolution and an accuracy of ±0.5 °C (-39.9 to 124.9 °C). This accuracy is guaranteed for life, due to the instruments advanced electronics. The ThermaLite 2 also incorporates CalCheck and hold functions.

The thermometers weigh only 45 grams including battery, and feature a clear, easy to read LCD display with an open circuit 'Err' and low battery indication. The ThermaLite's auto-power off facility turns the instrument off automatically after ten minutes, maximising battery life. The thermometer is housed in a high impact ABS plastic case which includes Biomaster Antimicrobial Technology that reduces bacterial growth, ideal for routine day-to-day food and catering applications.

The Ø3.3 x 80 mm reduced tip, stainless steel, penetration probe is ideal for measuring the temperature of food and semi-solid materials. The ThermaLite is available in six colours, suitable for different applications.

- **ThermaLite 2 - with Calcheck function**
  The ThermaLite 2 features a CalCheck 0.0 °C (±0.1 °C) function that allows the user to verify the accuracy of the thermometer at any time, giving confidence that measurements are accurate.

- **Protective silicone boot**
  Protects your instrument against accidental damage and increases the water resistance to an IP65 rating.

- **NEW ThermaLite 1 & 2 with Surface probe**
  Specifically designed to measure the temperature of grills, hot plates, and other flat surfaces. Probe dimensions are Ø3.3 X 67 mm with a Ø10 mm flat, sensing tip.

Order code	Description
226-101	ThermaLite 1 - grey
226-111	ThermaLite 1 - white
226-121	ThermaLite 1 - yellow
226-131	ThermaLite 1 - green
226-141	ThermaLite 1 - red
226-151	ThermaLite 1 - blue
226-201	ThermaLite 1 - grey - Surface
226-102	ThermaLite 2 - grey
226-112	ThermaLite 2 - white
226-122	ThermaLite 2 - yellow
226-132	ThermaLite 2 - green
226-142	ThermaLite 2 - red
226-152	ThermaLite 2 - blue
226-202	ThermaLite 2 - grey - Surface
830-280	Protective silicone boot

HOLD · AUTO OFF · HACCP COMPATIBLE · Assured Accuracy · CAL CHECK · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	ThermaLite 1 & 2
Range	-39.9 to 149.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.5 °C (-39.9 to 124.9 °C)
Battery	3 volt CR2032 lithium coin cell
Battery life	5000 hours
Sensor type	Thermistor
Display	10 mm LCD
Dimensions	Ø29 x 196 mm (inc. probe)
Weight	45 grams
FREE traceable certificate of calibration included	

TEMPTEST® 1 THERMOMETER

- Fast response probe, reaches temperature in just 3 seconds!
- 360° rotating display with auto intelligent backlight
- Meets the European Standard EN 13485
- Waterproof to IP67

The TempTest 1 thermometer incorporates a large, easy to read digital display, with a precise read-out of temperature over the range of -49.9 to 299.9 °C with a 0.1 °C/°F resolution and an accuracy of ±0.4 °C (-49.9 to 199.9 °C). The thermometer will power off automatically after ten minutes maximising battery life, this feature can be disabled if not required.

The thermometer is housed in a waterproof IP67 case with an ergonomic rubber seal, both include Biomaster Antimicrobial Technology to reduce bacterial growth. As well as being waterproof, it is 'probably' one of the fastest reading contact thermometers on the market today. The true temperature of a product can be measured in just three seconds.

Both low battery (icon) and open circuit indication are displayed, when applicable. Each TempTest 1 is powered by two AAA batteries with a minimum life expectancy of 5000 hours in normal use without the backlight.

Each thermometer is supplied with a permanently attached, pointed stainless steel food penetration probe (Ø3.3 x 80 mm) with fast response tip and FREE holster/wall bracket for safe and secure storage.

- **Patented, automatic 360° rotational display**
  The TempTest 1 features an automatic 360° display, which rotates in 90° increments enabling the user to read the temperature in any position ie. left hand, right hand, vertical or horizontal. This feature can be 'locked' by the user, if required.

Order code	Description
221-910	TempTest 1 thermometer
830-431	Protective silicone boot - white
830-432	Protective silicone boot - yellow
830-433	Protective silicone boot - green
830-434	Protective silicone boot - red
830-435	Protective silicone boot - blue
830-437	Protective silicone boot - black

OPTIONAL ACCESSORIES:

- Protective silicone boot. Various colours available - see below
- Anti-bacterial wipes - see page 35

MAX/MIN · AUTO OFF · IP67 · 360° · HACCP COMPATIBLE · Biomaster

Specification	TempTest 1
Range	-49.9 to 299.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Battery	2 x 1.5 volt AAA
Battery life	5000 hours (normal use, without backlight)
Sensor type	K thermocouple
Display	11 mm LCD
Dimensions	17 x 47 x 200 mm (inc. probe)
Weight	105 grams
FREE traceable certificate of calibration included	

THERMAMITE® THERMOMETER & PROBE

- FREE traceable certificate of calibration
- Includes Biomaster Antimicrobial Technology
- Temperature range -50 to 300 °C
- One button, simple & easy to use

The Thermamite thermometer offers accuracy, flexibility and ease of use, coupled with the durability and reliability that is required by the food and catering industry in helping to meet today's food hygiene legislation.

The thermometer incorporates an easy to read, LCD display with a precise read-out of temperature over the range of -50 to 300 °C with a 1 °C resolution. Low battery and open circuit indication are also displayed. The unit will power off automatically after ten minutes, maximising battery life.

The instrument is housed in an ergonomic, robust ABS case that includes Biomaster Antimicrobial Technology which reduces bacterial growth. Each thermometer is supplied with a permanently attached, pointed stainless steel food penetration probe (Ø3.3 x 100 mm) and a 500 mm PVC lead.

- **Protective silicone boot**
  The Thermamite is water resistant to IP65 when used in conjunction with this boot. Protects from accidental damage. Various colours are available - see page 13

- **Stainless steel wall bracket & boot (832-050)**
  The wall bracket stores your Thermamite safely away when not in use. Keyhole slot for hanging (screws not supplied).

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Order code	Description
261-010	Thermamite - white
261-020	Thermamite - yellow
261-030	Thermamite - green
261-040	Thermamite - red
261-050	Thermamite - blue
830-221	Protective silicone boot - white
832-050	S/steel wall bracket & boot

Specification	Thermamite
Range	-50 to 300 °C
Resolution	1 °C
Accuracy	±1 °C
Battery & life	3 x 1.5 volt AAA - 10000 hours
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	160 grams
FREE traceable certificate of calibration included	

FOOD CHECK THERMOMETER & PROBE

- Ideal for HACCP procedures
- FREE traceable certificate of calibration
- Temperature range -49.9 to 299.9 °C
- Compact & robust design

The Food Check is designed specifically for the food and catering professional who wishes to purchase an economically priced digital thermometer. The Food Check thermometer will measure temperature quickly and accurately when monitoring cooked and chilled foods as part of HACCP and health and safety procedures.

The thermometer is housed in a user-friendly ABS case that includes Biomaster Antimicrobial Technology which reduces bacterial growth. The Food Check features a large, easy to read, LCD display with open circuit and low battery indication. The instrument incorporates a simple to use on/off push-button and is powered by three AAA batteries that give a minimum of five years battery life. The Food Check will power off automatically after ten minutes, maximising battery life.

Each Food Check is supplied with a permanently attached food penetration probe with a 130 mm stainless steel stem and 500 mm PVC lead. This is the ideal choice for routine food inspections.

OPTIONAL ACCESSORIES:

- Stainless steel wall bracket & white silicone boot (832-050)
- Anti-bacterial wipes - see page 35

- **Protective silicone boot**
  The Food Check is water resistant to IP65 when used in conjunction with this boot. Protects from accidental damage. Various colours are available - see page 13.

Order code	Description
221-018	Food Check - white
221-028	Food Check - yellow
221-038	Food Check - green
221-048	Food Check - red
221-058	Food Check - blue
830-221	Protective silicone boot - white
832-050	S/steel wall bracket & boot

Specification	Food Check
Range	-49.9 to 299.9 °C
Resolution	0.1 °C
Accuracy	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Battery & life	3 x 1.5 volt AAA - 10000 hours
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	160 grams
FREE traceable certificate of calibration included	

CATERTEMP® THERMOMETER & PROBE

- High system accuracy ±0.4 °C & 0.1 °C resolution
- FREE traceable certificate of calibration
- Includes Biomaster Antimicrobial Technology
- Display hold function

The CaterTemp professional digital thermometer is designed with the catering and food processing industry in mind and incorporates a combination of proven circuitry and durability. The CaterTemp thermometer is housed in a robust ABS case that includes Biomaster Antimicrobial Technology to reduce bacterial growth.

The CaterTemp measures temperature over the range of -49.9 to 299.9 °C with a resolution of 0.1 °C. The instrument features a bright, easy to read LCD, displaying open circuit and low battery indication, when applicable.

The thermometer is powered by three AAA batteries that give a minimum of five years battery life. The CaterTemp will power off automatically after ten minutes, maximising battery life.

Each thermometer is supplied with a permanently attached food penetration probe with a 130 mm pointed, stainless steel stem and one metre coiled PU lead.

OPTIONAL ACCESSORIES:

- Stainless steel wall bracket & black silicone boot (832-053)
- Protective silicone boot - black (830-227)

Order code	Description
221-046	CaterTemp
830-227	Protective silicone boot - black
832-053	S/steel wall bracket & boot

- **Single use Probe Wipes (836-220)**
  These anti-bacterial wipes are ideal for reducing harmful bacteria within the food industry. Sold in boxes of 100 sachets. See page 35 for details.

HOLD · AUTO OFF · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	CaterTemp
Range	-49.9 to 299.9 °C
Resolution	0.1 °C
Accuracy	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Battery & life	3 x 1.5 volt AAA - 10000 hours
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	175 grams
FREE traceable certificate of calibration included	

THERMACHECK THERMOMETER & PROBE

- Assured accuracy for the life of the thermometer
- High system accuracy ±0.4 °C
- FREE traceable certificate of calibration
- Meets the European Standard EN 13485

The ThermaCheck digital thermistor thermometer has been specifically designed for use in the catering and food processing industries to cope with routine day-to-day usage.

The instrument measures temperature over the range of -39.9 to 149.9 °C with a resolution of 0.1 °C and a high system accuracy (probe and thermometer) of ±0.4 °C (-29.9 to 129.9 °C). This accuracy is guaranteed for life, due to the instrument's advanced electronics.

The ThermaCheck is housed in an ergonomic, robust ABS case that includes Biomaster Antimicrobial Technology which reduces bacterial growth. The low power consumption electronics are powered by three AAA batteries, giving the instrument a minimum battery life of five years. The auto-power off facility turns the instrument off automatically after ten minutes, maximising battery life.

The ThermaCheck thermometer is supplied complete with a permanently attached food penetration probe with a 130 mm stainless steel stem and one metre coiled PU lead.

OPTIONAL ACCESSORIES:

- Protective silicone boot.
  Various colours are available - see below
- Stainless steel wall bracket (832-050)
  & white silicone boot (screws not supplied)

AUTO OFF · HACCP COMPATIBLE · Assured Accuracy · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Order code	Description
226-042	ThermaCheck
830-221	Protective silicone boot - white
830-222	Protective silicone boot - yellow
830-223	Protective silicone boot - green
830-224	Protective silicone boot - red
830-225	Protective silicone boot - blue
830-227	Protective silicone boot - black
832-050	S/steel wall bracket & boot

Specification	ThermaCheck
Range	-39.9 to 149.9 °C
Resolution	0.1 °C
Accuracy	±0.4 °C (-29.9 to 129.9 °C)
Battery & life	3 x 1.5 volt AAA - 20000 hours
Sensor type	Thermistor
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	220 grams
FREE traceable certificate of calibration included	

THERMA 20 HIGH ACCURACY THERMOMETER

- Assured accuracy for the life of the thermometer
- FREE traceable certificate of calibration
- Meets the European Standard EN 13485
- Optional test caps for accuracy checks

The Therma 20 thermistor thermometer has been specifically designed for use in the catering industry with HACCP and health and safety procedures in mind.

The instrument displays temperature to 0.1 °C over the range of -39.9 to 149.9 °C with a high system accuracy of ±0.4 °C (-24.9 to 109.9 °C). This accuracy is guaranteed for life, due to the instrument's advanced electronics. The Therma 20 features an easy to read, LCD display with low battery indication.

The thermometer can be used in low ambient working temperatures down to -20 °C, which meets the requirements of the European Standard EN 13485 for the temperature monitoring of food through the supply chain, from transport to storage to point of sale.

The instrument is housed in an ergonomic, robust ABS case that includes Biomaster Antimicrobial Technology which reduces bacterial growth. The thermometer's auto-power off facility turns the instrument off automatically after ten minutes.

The Therma 20 incorporates an easy to use Lumberg screw-locking connector, allowing a wide range of interchangeable probes to be used. We offer an extensive range of interchangeable thermistor probes, see pages 84 and 85 for full details.

Penetration probe (174-166)

- **Thermistor test caps**
  Used to perform accuracy checks of Therma 20/22 thermometers. Supplied with a UKAS certificate of calibration. See below for various models available.

AUTO OFF · HACCP COMPATIBLE · Assured Accuracy · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Order code	Description
226-040	Therma 20
174-166	Penetration probe
286-001	Thermistor test cap -18 °C
286-002	Thermistor test cap 0 °C
286-003	Thermistor test cap 3 °C
286-004	Thermistor test cap 70 °C
286-005	Thermistor test cap 100 °C
830-221	Protective silicone boot - white
832-050	S/steel wall bracket & boot
The Therma 20 is exclusive of probe	

Specification	Therma 20
Range	-39.9 to 149.9 °C
Resolution	0.1 °C
Instrument only accuracy	±0.2 °C
System accuracy	±0.4 °C (-24.9 to 109.9 °C)
Battery & life	3 x 1.5 volt AAA - 20000 hours
Sensor type	Thermistor
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams
FREE traceable certificate of calibration included	

THERMA 22 THERMOMETER

- Utilises thermistor or type T thermocouple probes
- Meets the European Standard EN 13485
- Fast response with high accuracy
- Includes Biomaster Antimicrobial Technology

The Therma 22 hand held thermistor and thermocouple thermometer has been specifically designed for those who need the versatility of both the thermocouple and thermistor probes in one compact unit.

The thermistor sensor gives greater accuracy for food processing, whilst the type T thermocouple sensor extends the measurement range and provides faster response. Plug the probe of your choice into the Therma 22 and the thermometer will take fast, accurate measurements.

The Therma 22 features an easy to read, LCD display with open circuit and low battery indication. The instrument displays temperature over the range of -39.9 to 149.9 °C (thermistor) or over the range of -199.9 to 400 °C (type T thermocouple).

The unit is housed in a robust ABS case that includes Biomaster Antimicrobial Technology which reduces bacterial growth. The auto-power off facility maximises battery life, turning the instrument off automatically after ten minutes.

The Therma 22 incorporates a Lumberg screw-locking type connector, allowing a wide range of interchangeable probes to be used. We offer an extensive range of interchangeable type T thermocouple probes, see page 82 and for thermistor probes, see pages 84 and 85.

Penetration probe (177-166)

Order code	Description
227-022	Therma 22
177-166	Penetration probe (type T)
830-221	Protective silicone boot - white
832-050	S/steel wall bracket & boot

The Therma 22 is exclusive of probe

OPTIONAL ACCESSORIES:

- Protective silicone boot. Various colours are available - see page 13.
- Stainless steel wall bracket (832-050) & white silicone boot (screws not supplied)
- Thermistor test caps with UKAS Certificate of Calibration - see opposite page for details

AUTO OFF · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Therma 22
Range - type T thermocouple	-199.9 to 400 °C
Range - thermistor	-39.9 to 149.9 °C
Resolution	0.1 °C to 299.9 °C thereafter 1 °C
Instrument only accuracy	±0.2 °C
System accuracy - type T t/c	±0.5 °C (-49.9 to 149.9 °C)
System accuracy - thermistor	±0.4 °C (-24.9 to 109.9 °C)
Battery & life	3 x 1.5 volt AAA - 10000 hours
Sensor type	Thermistor/Type T thermocouple
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams

FREE traceable certificate of calibration included

FOOD & CATERING THERMOMETER KITS

- Excellent value-for-money
- Includes FREE carrying case, Probe Wipes & log book
- Ideal for HACCP procedures

For a full specification on each thermometer see pages 14, 15 and 61.

THERMA 20 PROFESSIONAL CATERING THERMOMETER KIT

Each kit contains:

- Therma 20 thermometer (226-040)
- Penetration probe (174-166)
- Air wire probe (170-372)
- Temperature log book (831-100)
- Mini tub of 70 Probe Wipes (836-022)
- ABS carrying case (834-120)

Order code	Description
860-120	Professional catering kit

FREE traceable certificate of calibration included

THERMA 22 FOOD HYGIENE THERMOMETER KIT

Each kit contains:

- Therma 22 thermometer (227-022)
- Penetration probe (177-166)
- Air wire probe (177-372)
- Temperature log book (831-100)
- Mini tub of 70 Probe Wipes (836-022)
- ABS carrying case (834-120)

Order code	Description
860-125	Food hygiene kit

FREE traceable certificate of calibration included

THERMA 3 BUDGET CATERING THERMOMETER KIT

Each kit contains:

- Therma 3 thermometer (221-043)
- Penetration probe (123-160)
- PTFE wire probe (133-362)
- Temperature log book (831-100)
- Mini tub of 70 Probe Wipes (836-022)
- ABS carrying case (834-120)

Order code	Description
860-025	Budget catering kit

FREE traceable certificate of calibration included

SOUS VIDE THERMOMETER KITS

- For precise temperature measurement
- Includes miniature needle probe for Sous Vide cooking

Sous Vide cooking has become more popular in professional kitchens over the past few years. New cooking methods require new temperature testing techniques. Therefore, ETI has designed two Sous Vide kits; each containing a high accuracy Therma 1 thermometer, Sous Vide needle probe(s) and Sous Vide foam/tape, all supplied in a FREE carrying case/zip pouch.

For a full specification on the Therma 1 thermometer, see page 61.

SOUS VIDE THERMOMETER KIT

Each kit contains:

- Therma 1 thermometer (221-041)
- 60 mm Sous Vide needle probe (133-109)
- 120 mm Sous Vide needle probe (133-110)
- Water resistant countdown timer (806-150)
- Mini tub of 70 Probe Wipes (836-022)
- Sous Vide foam/tape - one metre (600-475)
- ABS carrying case (834-150)

Order code	Description
860-035	Sous Vide thermometer kit
600-475	Additional Sous Vide foam/tape
FREE traceable certificate of calibration included	

BUDGET SOUS VIDE THERMOMETER KIT

Each kit contains:

- Therma 1 thermometer (221-041)
- 60 mm Sous Vide needle probe (133-109)
- Sous Vide foam/tape - one metre (600-475)
- Zip pouch (830-037)

Order code	Description
860-036	Budget Sous Vide thermometer kit
600-475	Additional Sous Vide foam/tape
FREE traceable certificate of calibration included	

		Order code	
SOUS VIDE NEEDLE PROBE  HIGH ACCURACY Ø1.1 x 60 or 120 mm	Ideal for delicate foods, this miniature, stainless steel needle probe is supplied with a one metre PTFE lead. • Response time less than 1 second • Probe temperature range -60 to 90 °C	133-109 (60 mm) 133-110 (120 mm)	

THERMASTICK® THERMOMETER

new

- Reduced tip for faster response
- Large, easy to read LCD display
- Max/min function
- Waterproof to IP66

New for 2019, the ThermaStick is a handy, pocket-sized, waterproof IP66 thermometer that incorporates a Ø2.5 x 115 mm stainless steel penetration probe with a reduced fast response Ø1.6 mm tip. An ideal economical solution for numerous temperature measurement applications.

The thermometer measures temperature over the range of -49.9 to 299.9 °C with a resolution of 0.1 °C/°F and features two easy to use push buttons, on/off and max/min.

The ThermaStick is powered by a single lithium coin cell battery that gives a minimum of 5000 hours use. The unit will power off automatically after ten minutes, maximising battery life.

Available in white, red or blue, each unit is supplied with a probe cover that incorporates a pocket clip for safe storage and transportation.

- Reduced tip for fast response

- **Mini tub of 70 Probe Wipes (836-020)**
  These QAC free, anti-bacterial wipes are ideal for reducing harmful bacteria within the food industry. Sold in cartons of ten tubs. See page 35 for details.

HACCP COMPATIBLE | AUTO OFF | MAX/MIN | IP66 | Biomaster

Order code	Description
810-401	ThermaStick thermometer - white
810-404	ThermaStick thermometer - red
810-405	ThermaStick thermometer - blue

Specification	ThermaStick
Range	-49.9 to 299.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.5 °C (-10 to 100 °C) otherwise ±2.5 °C
Battery	3 volt CR2032 lithium coin cell
Battery life	5000 hours
Sensor type	Thermistor
Display	12 mm LCD
Dimensions	Ø46 x 15 x 188 mm
Weight	28 grams

WATERPROOF POCKET-SIZED THERMOMETER

- Includes max/min recording function
- Waterproof to IP66/67

This waterproof thermometer measures temperature over the range of -49.9 to 199.9 °C with a 0.1 °C resolution and features a max/min temperature recording function and at the back of the instrument a discreet °C/°F and reset button.

The unit incorporates a Ø2.5 x 122 mm stainless steel food penetration probe. This waterproof thermometer incorporates the latest microprocessor technology, designed for reliability and ease of use in routine day-to-day catering, food preparation and industrial applications.

Each unit is supplied with a protective probe cover that incorporates a pocket clip and wall-mounting keyhole slot.

OPTIONAL ACCESSORY:

- Protective silicone boot protects from accidental damage (830-275)

Order code	Description
810-275	Waterproof thermometer
830-275	Protective silicone boot

Specification	Waterproof
Range	-49.9 to 199.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.5 °C (-9.9 to 99.9 °C) otherwise ±1.5 °C
Battery	3 volt CR2032 lithium coin cell
Battery life	5000 hours
Sensor type	Thermistor
Display	8 mm LCD
Dimensions	15 x 26 x 200 mm
Weight	25 grams

WATERPROOF T-SHAPED THERMOMETERS

- Robust & heavy duty, optional longer probe
- Max/min memory & display hold functions

HOLD MAX/ MIN AUTO OFF IP66/ IP67

These easy to use, digital T-shaped waterproof thermometers offer IP66/67 protection and incorporate a reduced tip probe that is ideal for heavy duty applications.

Measuring temperature over the range of -49.9 to 149.9 °C with a 0.1 °C resolution, the thermometer will power off automatically after fifteen minutes, maximising battery life.

Each unit is housed in a robust polycarbonate case with a strong, stainless steel, penetration probe. The probe measures Ø5 x 125 mm or 300 mm with a reduced tip (Ø3.5 x 20 mm) to improve response time. The waterproof thermometers feature a max/min memory and display hold function.

Order code	Description
810-285	T-shaped - 125 mm probe
810-287	T-shaped - 300 mm probe

Specification	Waterproof T-shaped
Range	-49.9 to 149.9 °C
Resolution	0.1 °C
Accuracy	±1 °C (-19.9 to 119.9 °C)
Battery & life	1.5 volt LR44 - 5000 hours
Sensor type	Thermistor
Display	12 mm LCD
Dimensions	30 x 88 x 170/345 mm
Weight	50/55 grams

POCKET-SIZED THERMOMETERS

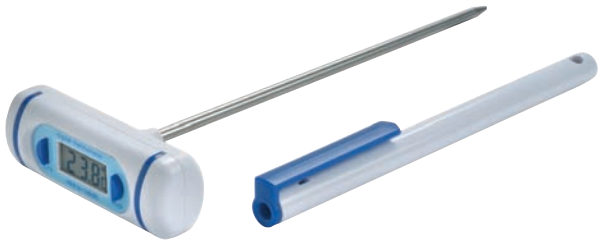
Pen-shaped thermometer

This pen-shaped thermometer measures temperature over the range of -49.9 to 149.9 °C, features a Ø3.5 x 120 mm stainless steel penetration probe and incorporates a °C/°F switch and display hold feature. Supplied with a probe cover that includes a pocket clip.

Specification	Pen-shaped
Range	-49.9 to 149.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery & life	1.5 volt LR44 - 5000 hours
Sensor type	Thermistor
Display	6 mm LCD
Dimensions	17 x 20 x 190 mm
Weight	15 grams

Order code	Description
810-260	Pen-shaped thermometer

T-shaped thermometer



This handy-sized thermometer measures temperature over the range of -49.9 to 149.9 °C, features a Ø3.5 x 120 mm stainless steel penetration probe and incorporates a °C/°F switch and display hold feature. Supplied with a probe cover that includes a pocket clip.

Specification	T-shaped
Range	-49.9 to 149.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery & life	1.5 volt LR44 - 5000 hours
Sensor type	Thermistor
Display	6 mm LCD
Dimensions	20 x 58 x 145 mm
Weight	15 grams

Order code	Description
810-265	T-shaped thermometer

SUPER-FAST MINI THERMOMETER

- Fast response probe, auto-on function
- Max/min memory & display hold

The Super-Fast Mini is a pocket-sized, water resistant IP65 thermometer that measures temperature over the range of -39.9 to 149.9 °C with a 0.1 °C/°F resolution. The instrument turns on automatically when the probe cover is removed, allowing for quick, easy temperature measurements.

The thermometer incorporates a fast response Ø2.5 x 73 mm stainless steel penetration probe with reduced tip and features a max/min and hold function.

Each unit is powered by a CR2032 lithium coin cell battery and supplied with a probe cover with integral pocket clip.

- Reduced tip for fast response

Order code	Description
810-279	Super-Fast Mini thermometer

Specification	Super-Fast Mini
Range	-39.9 to 149.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.5 °C (-9.9 to 99.9 °C) otherwise ±1.5 °C
Battery & life	3 volt CR2032 - 5000 hours
Sensor type	Thermistor
Display	8 mm LCD
Dimensions	Ø25 x 150 mm
Weight	20 grams

MILK FROTHING THERMOMETERS

- Easy to read dial with colour-coded zones
- Colour-coded pack available

The barista milk frothing thermometers incorporate a °C/°F dial with colour-coded zones that make them fast and simple to use.

Measuring over the range of -10 to 110 °C, these thermometers are available in two probe lengths and dial sizes. Each thermometer is supplied with a stainless steel jug mounting probe clip, plastic calibration spanner and protective probe cover.

Also available as a pack of three colour-coded milk dial thermometers (red, green and blue) for barista's to easily identify different types of milk used in stainless steel jugs, to avoid cross-contamination.

Skimmed

Full

Semi

Order code	Description
800-810	Ø25 x 130 mm milk dial
800-820	Ø45 x 130 mm milk dial
800-800	Ø45 x 175 mm milk dial
800-830	Ø45 x 175 mm milk dial - pack of 3
830-220	Ø4 mm probe holder clip

- **Ø4 mm probe holder clip**
  This stainless steel probe holder clips onto the top of a jug, saucepan or similar to hold in place a temperature probe.

CONFECTIONERY & JAM THERMOMETERS

Cook's stainless steel thermometer

This stainless steel thermometer indicates temperature over the range of 40 to 200 °C and 100 to 400 °F in 2 °C/°F divisions.

The thermometer's scale is clearly marked for hard crack, soft crack, hard ball, soft ball, thread, jam, caramel, sterilising and deep fry.

The thermometer's stainless steel casing incorporates a retaining clip and measures 50 x 240 mm plus a 65 mm plastic handle.

Simply insert the thermometer into the liquid or food being measured and read the temperature.

Order code	Description
800-806	Cook's thermometer

Sugar & jam brass thermometer

The traditional brass thermometer indicates temperature over the range of 40 to 200 °C in 2 °C divisions. The thermometer's brass casing measures 47 x 200 mm plus a 40 mm copper handle.

The thermometer's scale is clearly marked for caramel, crack, hard ball, soft ball, jam and sterilise.

Order code	Description
800-808	Brass sugar thermometer

MULTI-FUNCTION THERMOMETER

- Displays both temperature & alarm set temperatures
- Includes CalCheck 0.0 °C function

The Multi-Function is a compact and easy to use thermometer ideal for restaurants, bars and cafes as an economical solution for temperature measurement applications.

The thermometer features a display hold facility, max/min memory and a CalCheck 0.0 °C function together with an adjustable audible high/low temperature alarm.

The Multi-Function thermometer housing and probe handle includes Biomaster Antimicrobial Technology that reduces bacterial growth. Each unit is supplied with a stainless steel, food penetration probe (Ø3.5 x 125 mm) with one metre PVC connecting lead, pocket clip and probe cover.

HOLD · MAX/MIN · AUTO OFF · CAL CHECK · Biomaster

Order code	Description
810-961	Multi-Function thermometer - white
810-964	Multi-Function thermometer - red
810-965	Multi-Function thermometer - blue

Specification	Multi-Function
Range	-49.9 to 149.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C (-19.9 to 149.9 °C)
Battery & life	1.5 volt AAA - 5000 hours
Sensor type	Thermistor
Display	Custom LCD
Dimensions	25 x 85 x 116 mm
Weight	98 grams

ECOTEMP® THERMOMETER

- Detachable, stainless steel penetration probe
- Large, easy to read LCD display

The EcoTemp digital thermometer features a large, easy to read, LCD display with display hold and max/min memory functions. The instrument measures temperature over the range of -49.9 to 199.9 °C with a 0.1 °C/°F resolution. Both open circuit and low battery indication are displayed, when applicable. This thermometer is ideal for monitoring cooking and food holding temperatures as part of HACCP and health and safety procedures.

The EcoTemp thermometer housing and probe handle includes Biomaster Antimicrobial Technology that reduces bacterial growth. Each unit is supplied with a detachable, stainless steel food penetration probe (Ø3.5 x 125 mm) with a 700 mm silicone connecting lead.

HOLD · MAX/MIN · HACCP COMPATIBLE · Biomaster

Order code	Description
810-950	EcoTemp thermometer & probe
810-951	Replacement penetration probe
830-215	Protective silicone boot - white

Specification	EcoTemp
Range	-49.9 to 199.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C (-49.9 to 149.9 °C)
Battery & life	2 x 1.5 volt AAA - 10000 hours
Sensor type	Thermistor
Display	Custom 22 mm LCD
Dimensions	20 x 58 x 165 mm
Weight	115 grams

GOURMET THERMOMETER

- Water resistant with folding probe
- Includes CalCheck 0.0 °C function
- Ideal for HACCP procedures
- Accuracy of ±0.5 °C

The water resistant Gourmet folding probe thermometer is an easy to use instrument, ideal for monitoring cooking, cooling and food holding temperatures as part of HACCP and health and safety procedures. The unit measures temperature over the range of -39.9 to 149.9 °C with a 0.1 °C/°F resolution and incorporates two moulded push buttons, on/off and hold.

Each unit incorporates a stainless steel, food penetration probe (Ø3.5 x 110 mm) that conveniently folds back into the side of the instrument when not in use, rotating through 180°, allowing the user to transport the instrument safely. The Gourmet includes Biomaster Antimicrobial Technology that reduces bacterial growth, ideal for routine day-to-day food and catering applications. Available in six colours, ideal for different food types or preparation areas.

- **CalCheck 0.0 °C function**
  The Gourmet features a CalCheck 0.0 °C function that allows the user to verify the accuracy of the thermometer at any time, giving confidence that measurements are accurate.

- Raw meat
- Cooked meat
- Salad & fruit products
- Vegetable products
- Raw fish & shellfish
- Bakery & dairy products

OPTIONAL ACCESSORIES:

- Protective PVC wallet with belt strap (830-110)
- Stainless steel wall bracket (832-002) (screws not supplied)
- Anti-bacterial Probe Wipes - see page 35 for details

HOLD · AUTO OFF · CAL CHECK · IP65 · Biomaster

Order code	Description
810-730	Gourmet thermometer - white
810-732	Gourmet thermometer - yellow
810-733	Gourmet thermometer - green
810-734	Gourmet thermometer - red
810-735	Gourmet thermometer - blue
810-736	Gourmet thermometer - brown
830-110	Protective wallet
830-001	Zip pouch
832-002	Stainless steel wall bracket

Specification	Gourmet
Range	-39.9 to 149.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.5 °C (-39.9 to 124.9 °C)
Battery	3 volt CR2032 lithium coin cell
Battery life	5000 hours
Sensor type	Thermistor
Display	16 mm LCD
Dimensions	20 x 52 x 155 mm
Weight	83 grams

FRIDGE OR FREEZER THERMOMETERS

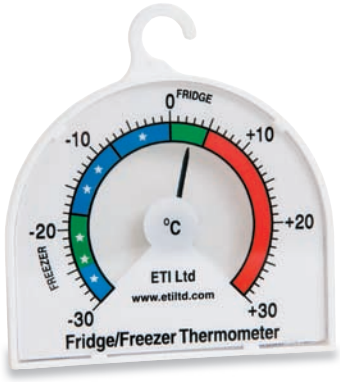
Ø52 mm dial thermometer

This easy to read fridge/freezer thermometer has a Ø52 mm dial that indicates temperature over the range of -30 to 30 °C in 1 °C divisions.

The unit incorporates colour-coded zones for ease of reading. The fridge/freezer thermometer is housed in an ABS case that incorporates a plastic hook to hang from a shelf.

Order code	Description
800-100	Ø52 mm dial thermometer
800-101	Ø52 mm dial - box of 20

Ø70 mm dial thermometer



This fridge/freezer thermometer has a Ø70 mm dial that indicates temperature over the range of -30 to 30 °C in 1 °C divisions. The unit incorporates colour-coded zones for ease of reading.

The fridge/freezer thermometer is housed in an ABS case measuring 60 x 70 mm and can be free-standing or hung from a shelf.

Order code	Description
800-000	Ø70 mm dial thermometer
800-001	Ø70 mm dial - box of 10

FoodSafe fridge thermometer

Most traditional temperature measuring devices in fridges only measure the air temperature. This is a major problem because cold air is heavier than warm air and therefore 'drops out of the fridge' the moment the door is opened.

The FoodSafe food simulant thermometer on the other hand is an encased thermometer that ensures it indicates temperature similar to that of the food stored in the fridge or chill cabinet. Ideal for commercial use, as it is reliable, robust and hygienic.

The unit indicates temperature over the range of -25 to 40 °C with an accuracy of ±1 °C over the range of -5 to 20 °C, 2 °C thereafter.

Each FoodSafe measures Ø25 x 150 mm and is supplied with a stainless steel hook for hanging in a fridge or cold cabinet.

Order code	Description
803-900	FoodSafe thermometer

Ø50 mm dial thermometer

This stainless steel, fridge/freezer thermometer has a Ø50 mm dial that indicates temperature over the range of -30 to 30 °C in 1 °C divisions.

The colour-coded area indicates when the thermometer is at the correct temperature for a fridge or freezer. The stainless steel housing measures 60 x 70 mm and can be free-standing or hung from a shelf.

Order code	Description
800-923	Ø50 mm dial thermometer

SPIRIT-FILLED FRIDGE OR FREEZER THERMOMETERS

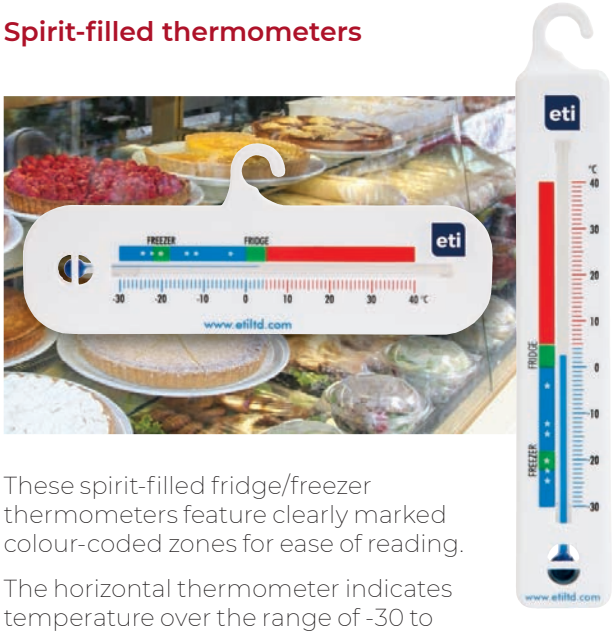
Clear spirit-filled thermometer

This spirit-filled fridge/freezer thermometer is encased in a clear ABS housing (20 x 30 x 122 mm). The thermometer's colour-coded zones indicate temperature over the range of -40 to 20 °C and -40 to 80 °F with a 1 °C resolution.

The unit is designed to be hung from a shelf in a fridge, freezer or cold cabinet, alternatively it could be wall-mounted (brackets supplied).

Order code	Description
803-925	Clear spirit-filled thermometer
803-930	Clear spirit-filled - box of 10

Spirit-filled thermometers



These spirit-filled fridge/freezer thermometers feature clearly marked colour-coded zones for ease of reading.

The horizontal thermometer indicates temperature over the range of -30 to 40 °C in 1 °C divisions. The ABS housing measures 53 x 130 mm. The vertical thermometer indicates temperature over the range of -30 to 40 °C in 1 °C divisions. The ABS case measures 24 x 150 mm.

Order code	Description
803-000	Vertical spirit-filled
803-050	Horizontal spirit-filled

DIGITAL FRIDGE THERMOMETER

- Energy saving feature - 5 years battery life
- Food safety zone indicator

This water resistant (IP65) fridge thermometer incorporates a large and clear digital display that indicates temperature over the range of -9.9 to 49.9 °C with a 0.1 °C resolution.

The thermometer features a unique food safety zone icon '❄' in the display that indicates when the temperature is outside the range of 0 to 8 °C.

The fridge thermometer's energy saving feature turns the unit off when deprived of light, maximising battery life. The unit is powered by a single CR2032 battery with a life expectancy of 10000 hours normal use.

The unit is housed in an ABS case that measures 18 x 42 x 71 mm and can be free-standing or hung from a shelf.

Order code	Description
810-241	Digital fridge thermometer

Specification	Digital fridge
Range	-9.9 to 49.9 °C
Resolution	0.1 °C
Accuracy	±1 °C
Battery	3 volt CR2032 lithium coin cell
Battery life	10000 hours
Display	Custom LCD
Dimensions	18 x 42 x 71 mm
Weight	36 grams

FRIDGE OR FREEZER THERMOMETER

- Internal sensor & external temperature probe
- Programmable high/low audible alarm

This max/min and alarm fridge or freezer thermometer indicates temperature over the range of -24.9 to 69.9 °C with a resolution of 0.1 °C/°F and an accuracy of ±1 °C.

The thermometer features a clear LCD display, max/min memory function to record the highest and lowest temperatures and a high/low programmable audible alarm. The unit incorporates two temperature sensors, a remote water resistant probe with one metre PVC lead for the appliance temperature and an internal sensor for the room temperature.

The remote probe can be mounted onto the internal wall of the fridge using the suction pad or mounting bracket supplied. The thermometer is housed in a durable ABS case and incorporates a foot-stand for shelf mounting.

Remote probe

Order code	Description
810-225	Digital fridge or freezer

Specification	Digital fridge or freezer
Range	-24.9 to 69.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery	3 volt CR2032 lithium coin cell
Battery life	3000 hours
Display	Custom LCD
Dimensions	16 x 50 x 82 mm
Weight	50 grams

FRIDGE OR FREEZER THERMOMETER

- Programmable high/low audible alarm
- Records the max/min temperatures

This fridge or freezer thermometer features a clear LCD display, max/min, audible alarm and incorporates two temperature sensors; a remote water resistant probe with one metre PVC lead for the appliance temperature and an internal sensor for the room temperature.

The remote probe can be mounted onto the internal wall of the fridge using the suction pad or mounting bracket supplied. The thermometer is housed in a durable ABS case and incorporates a foot-stand for shelf mounting.

- Optional UKAS Certificate of Calibration
  An optional two-point UKAS Certificate of Calibration is available. Each certificate indicates deviations from standards at -18 and 0 °C.

Remote probe

Order code	Description
810-210	Fridge or freezer thermometer
891-210	810-210 with UKAS certificate
UKAS certificate applies to remote probe only	

Specification	Digital fridge or freezer
Range	-49.9 to 69.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery & life	1.5 volt AAA - 5000 hours
Display	Custom LCD
Dimensions	15 x 52 x 73 mm
Weight	55 grams

THERMAGUARD® HIGH ACCURACY THERMOMETERS

- Two models available - single or dual external sensors
- Optional UKAS Calibration Certificate available
- Programmable high/low audible alarm
- Records the max/min temperatures

These high accuracy fridge or freezer thermometers feature a large LCD display, which simultaneously display the current and max/min recorded temperatures. The ThermaGuard measures temperature over the range of -39.9 to 49.9 °C (external sensor) with 0.1 °C/°F (switchable) with an accuracy of ±0.4 °C.

Both units feature programmable audible alarms allowing the user to preset high and low temperature limits. When the alarm is active the LCD will flash. The alarm can be silenced by pressing any button.

Each ThermaGuard is housed in a splashproof IP54 ABS case, which includes the Biomaster Antimicrobial Technology that reduces bacterial growth, ideal for monitoring chilled and frozen foods. Each unit is powered by two AA batteries with a battery life expectancy in excess of three years.

Both ThermaGuard models feature a CalCheck 0.0 °C (±0.1 °C) function that allows the user to verify the accuracy of the thermometer at any time, giving confidence that measurements are accurate.

- **Two models available - which one for your application?**
  The ThermaGuard 101 incorporates two temperature sensors; a remote water resistant probe with a one metre PVC lead for monitoring the appliance temperature and an internal sensor to monitor room temperature. The ThermaGuard 102 incorporates two remote water resistant probes, both with one metre PVC leads for monitoring dual appliances. Each remote probe can be mounted onto the internal wall of the fridge using the ABS plastic probe mounting bracket kit supplied.

UKAS CALIBRATION
0601

- **Optional UKAS Certificate of Calibration**
  An optional two-point UKAS Certificate of Calibration is available. Each certificate indicates deviations from standards at -18 and 0 °C.

new

Magnetic mount (830-800)

- **FREE wall bracket included**
  Each ThermaGuard is supplied with an ABS plastic wall bracket that incorporates a built-in foot stand, hook for hanging and screw thread for tripod mounting.

MAX/MIN | CAL CHECK | IP54 | Biomaster | 2 YEAR GUARANTEE | MADE IN BRITAIN

Order code	Description
226-511	ThermaGuard 101
226-521	ThermaGuard 101 with UKAS Cert
226-512	ThermaGuard 102
226-522	ThermaGuard 102 with UKAS Cert
830-880	Protective silicone boot - black
832-590	ABS wall bracket
830-800	Magnetic mount

UKAS certificate applies to remote probe(s) only

Specification	ThermaGuard
Range - internal	-19.9 to 49.9 °C (101 model only)
Range - external	-39.9 to 49.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.4 °C
Battery	2 x 1.5 volt AA
Battery life	25000 hours (normal use, without alarm)
Sensor type	Thermistor
Display	Custom LCD
Dimensions	29 x 73 x 96 mm
Weight	165 grams

Optional UKAS certificate of calibration available

MEAT ROASTING & FRYING THERMOMETERS

Ø20 mm mini poultry thermometer

Insert the thermometer into the thickest part of the chicken or turkey (between the leg and breast) before placing into the oven. The poultry will be ready when the dial reaches the green area.

The thermometer incorporates a Ø20 mm dial with a 55 mm stainless steel probe. Economically priced, these thermometers are an ideal customer giveaway to encourage the sales of poultry.

Order code	Description
800-850	Mini poultry thermometer

Ø50 mm frying thermometer

This frying thermometer incorporates a Ø50 mm dial and a pointed, stainless steel Ø4 x 150 mm probe and indicates temperature over the range of 0 to 300 °C in 10 °C divisions.

Simply insert the thermometer stem into the oil for an accurate temperature reading. The dial is clearly marked for meat, poultry, fish and chips. Each unit is supplied with a stainless steel probe mounting clip.

Order code	Description
800-805	Frying thermometer

Ø45 mm meat dial thermometer

The meat dial thermometer incorporates a Ø45mm dial with a Ø4 x 105 mm stainless steel pointed probe. The unit indicates temperature over the range of 0 to 120 °C in 1 °C divisions.

For accurate temperature measurement, insert the unit into the thickest part of the meat or poultry. The dial is clearly marked for beef, lamb, veal, pork and poultry.

Order code	Description
800-804	Ø45 mm meat dial thermometer

Ø60 mm meat dial thermometer

This meat dial thermometer features a large Ø60 mm dial with a Ø5 x 102 mm stainless steel pointed probe. The unit indicates temperature over the range of 20 to 100 °C in 2 °C divisions.

For accurate temperature measurement, insert the probe into the thickest part of the meat or poultry. The dial incorporates colour-coded markers for beef, lamb, pork and poultry for fast, easy reading.

Order code	Description
800-884	Ø60 mm meat dial thermometer

OVEN DIAL THERMOMETERS

Ø50 mm dial oven thermometer

This stainless steel oven thermometer features a clear Ø50 mm dial with colour-coded zones. The green marker indicates the minimum temperature that commercial heated display units should be kept at. The oven thermometer indicates temperature over the range of 50 to 300 °C in 10 °C divisions. The case measures 40 x 60 x 70 mm.

The unit can be free-standing or hung from a shelf and should be positioned in the middle of the oven for the most accurate temperature reading.

Order code	Description
800-931	Ø50 mm dial oven thermometer

Ø55 mm dial oven thermometer

This stainless steel oven thermometer features a clear Ø55 mm dial with colour-coded zones. The green marker indicates the minimum temperature that commercial hot food display units should be kept at. The oven thermometer indicates temperature over the range of 0 to 300 °C in 10 °C divisions. The case measures 43 x 66 x 80 mm.

The thermometer can be free-standing or hung from a shelf and should be positioned in the middle of the oven for the most accurate temperature reading.

Order code	Description
800-809	Ø55 mm dial oven thermometer

OVEN/COOKING THERMOMETER & TIMER

- Programmable audible high alarm
- Robust, stainless steel oven probe

This combined countdown timer, thermometer and clock displays both the actual and the alarm set temperature over the range of 0 to 300 °C and simultaneously the countdown or the actual time.

The timer will count down or up from/to 23 hours, 59 minutes and 59 seconds and the real time clock will display the time in either a 12 or 24 hour format.

The unit features an audible high alarm that can be set from the simple to use seven-button keypad. The alarm temperature is continuously displayed. The unit is designed to sit on a worktop or can be attached to an appliance via the magnetic pads at the rear of the instrument.

The high temperature probe has an insertion length of 150 mm (Ø4 mm) and is supplied with a one metre stainless steel braided lead.

Order code	Description
810-060	Oven thermometer & timer
810-061	Replacement oven probe

Specification	Oven thermometer & timer
Range	0 to 300 °C
Resolution	1 °C/°F
Accuracy	±1 °C (0 to 130 °C)
Battery & life	2 x 1.5 volt AAA - 5000 hours
Sensor type	Thermistor
Display	Triple custom LCD
Dimensions	18 x 73 x 125 mm
Weight	128 grams

DOT - DIGITAL OVEN THERMOMETER

- Programmable high alarm
- Simple two button operation

The DOT is an easy to use cooking thermometer that displays both the current temperature and alarm set temperature. Simply set the desired temperature using the buttons, insert the probe into your food, the DOT will beep, and the display will flash when the temperature is reached.

The DOT incorporates a large LCD display and loud 70dB audible alarm making it ideal for use in busy, commercial kitchens.

Housed in a durable, water resistant case, the DOT is designed to either sit on a worktop using the fold out stand, or attach to an appliance using the magnetic pads at the rear of the instrument.

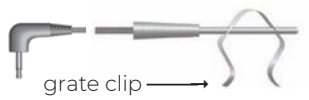
Each unit is supplied with a 114 mm penetration probe (810-078) with a 1.2 metre stainless steel braided lead. See below for full probe specification and alternative probes.

Order code	Description
810-031	DOT - digital oven thermometer

IP65

Specification	Digital Oven Thermometer
Range	-50 to 300 °C
Resolution	1 °C/°F
Accuracy	±1 °C (-20 to 120 °C)
Battery & life	2 x 1.5 volt AAA - 5000 hours
Alarm volume	70dB
Sensor type	Thermistor
Display	Custom LCD
Dimensions	24 x Ø80 mm
Weight	97 grams

DOT & CHEFALARM® NTC THERMISTOR PROBES

		Order code	
PENETRATION PROBE  Ø3 x 150 mm	This probe features a fast response, stainless steel reduced tip, which is moisture-resistant and ideal for continuous monitoring in ovens or similar. Supplied with a 1.2 metre stainless steel braided lead. • Response time less than 4 seconds • Probe temperature range -50 to 300 °C	810-071	
PENETRATION PROBE  Ø3.5 x 114 or 305 mm	This stainless steel, reduced tip probe is moisture-resistant and ideal for continuous monitoring in ovens or similar. Supplied with a 1.2 metre stainless steel braided lead. • Response time less than 4 seconds • Probe temperature range -50 to 300 °C	810-078 (114 mm) 810-075 (305 mm)	
OVEN/AIR PROBE & CLIP  Ø3.5 x 50 mm	This oven/air probe is ideal for monitoring air temperatures. Using the grate clip provided, attach the probe to an oven rack/shelf. Supplied with a 1.2 metre stainless steel braided lead. • Response time less than 4 seconds • Probe temperature range -50 to 300 °C	810-076 830-530 (spare clip)	
MINIATURE NEEDLE PROBE  Ø1.6 x 90 mm	This stainless steel, miniature needle probe is moisture-resistant and ideal for Sous Vide cooking. Supplied with a 1.2 metre silicone lead. • Response time less than 4 seconds • Probe temperature range -50 to 300 °C	810-072	

Please note: the above probes are suitable for use with the DOT and ChefAlarm thermometers only

CHEFALARM® THERMOMETER & TIMER

- Interchangeable NTC thermistor probes
- Programmable high/low alarm

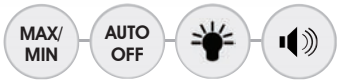
The ChefAlarm is a professional cooking thermometer and timer which displays the countdown/up time, current temperature and simultaneously displays both the high/low alarms and max/min temperatures.

The timer is fully programmable, allowing the user to set the countdown/up time to/from 99 hours and 59 minutes. The unit incorporates a large, easy to read LCD display with user selectable backlight and a loud audible alarm with adjustable volume to 92dB.

The ChefAlarm also includes a calibration function allowing the user to fine-tune the accuracy of the thermometer (±2.2 °C). The unit is housed in a water resistant casing and is designed to either sit on a worktop or attach to an appliance using the magnetic pads at the rear of the instrument.

Available in three colours, each unit is supplied in a zip wallet complete with a penetration probe (810-071) and probe holder clip. See opposite page for full probe specification.

Order code	Description
810-041	ChefAlarm - white
810-044	ChefAlarm - red
810-045	ChefAlarm - blue



Specification	ChefAlarm
Range	-50 to 300 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C (-20 to 120 °C)
Battery & life	2 x 1.5 volt AAA - 5000 hours
Alarm volume	<92dB
Sensor type	Thermistor
Display	Custom LCD
Dimensions	19 x 70 x 152 mm
Weight	165 grams

CATERING

DISHTEMP® DISHWASHER THERMOMETER

- Simulates maximum plate surface temperatures
- FREE traceable certificate of calibration

IP66

The DishTemp thermometer simulates a plate as it's cleaned and sanitised in a commercial dishwasher, accurately recording the maximum surface temperature at the touch of a single button, eliminating the need for costly and inaccurate test strips and stem thermometers that do not stay in place or record the surface temperature of a plate.

The instrument indicates temperature over the range of 0 to 90 °C with a resolution of 0.1 °C/°F and an accuracy of ±0.5 °C. Incorporating a durable water-tight seal, the DishTemp thermometer is waterproof to IP66 and is supplied complete with a FREE traceable certificate of calibration.

Order code	Description
810-280	DishTemp thermometer
832-280	Stainless steel wall bracket

Specification	DishTemp
Range	0 to 90 °C
Resolution	0.1 °C/°F
Accuracy	±0.5 °C
Battery	3 volt CR2032 lithium coin cell
Battery life	5000 hours
Display	Custom LCD
Dimensions	14 x Ø127 mm
Weight	120 grams
FREE traceable certificate of calibration included	

DIGITAL KITCHEN TIMERS

Countdown/up timer - mins & secs

new

This countdown/up timer incorporates a louder than average 70 decibel audible alarm. The timer is fully programmable, allowing the user to set the time up to 99 minutes and 59 seconds.

The unit is powered by one AAA battery and is designed to sit on a worktop or be attached to an appliance via the magnetic pad at the rear of the instrument.

Order code	Description
806-101	Countdown/up timer

Countdown/up timer - hours, mins & secs

This countdown/up timer incorporates a louder than average 80 decibel audible alarm. The timer is fully programmable, allowing the user to set the time up to 99 minutes and 59 seconds or 19 hours and 59 minutes.

The unit is powered by one AAA battery and is designed to sit on a worktop or be attached to an an appliance via the magnetic pad at the rear of the instrument.

Order code	Description
806-105	Countdown/up timer

Water resistant countdown timer

This countdown timer offers water resistance to IP65 along with a large digital display and audible alarm with variable volume control, allowing the user to set up to a maximum volume of 95 decibels.

The keypad allows the user to set times up to 99 hours, 99 minutes and 99 seconds. The timer incorporates magnetic pads and a keyhole slot for wall-mounting or attaching to an appliance. The unit measures 22 x 89 x 130 mm and is powered by two AAA batteries.

Order code	Description
806-150	Water resistant countdown timer

Extra **BIG** & **LOUD** timer

The Extra Big & Loud timer features a rugged water resistant housing and variable volume control, allowing the user to set up to a maximum volume of 110 decibels - ideal in busy professional kitchens.

When a countdown alarm sounds, the count up timer starts so you will see how much time elapses after your alarm. The memory keeps your last countdown setting. The timer incorporates two magnetic pads and a flip-out stand. The unit measures 28 x 90 x 130 mm and is powered by a 9 volt PP3 battery.

Order code	Description
806-160	Extra Big & Loud timer

ACCESSORIES

TimeStick® water resistant keypad timer

The TimeStick is a handy-sized, portable timer with a water resistant numeric keypad. The countdown bar graph gives you a quick indicator of remaining time. When the countdown alarm sounds, the count up timer starts to show how much time has elapsed since setting the alarm.

The TimeStick also features a 12 or 24 hour format, keypad lock to prevent accidental key entry and is powered by a CR2032 battery.

Order code	Description
806-181	TimeStick timer - white
806-184	TimeStick timer - red
806-185	TimeStick timer - blue

PVC zip wallets

These protective zip pouches are ideal for storing and transporting thermometers and probes.

The zip pouches are manufactured from soft PVC imitation leather and have a zip fastener and loop attachment.

Order code	Description
830-001	Zip pouch - 35 x 65 x 170 mm
830-005	Zip pouch - 46 x 80 x 180 mm
830-037	Zip pouch - 46 x 80 x 290 mm

Magnetic mount

new

This new magnetic mount has been specifically designed to attach to wall bracket (832-590) and silicone boot (830-880) to allow for easy, convenient fixing to fridges, freezers and other ferrous metal surfaces. The magnet has a diameter of Ø36 mm with a thread size of 1/4-20 UNC.

Compatible with products such as the BlueTherm One, Thermocouple ThermaData logger, ThermaGuard and ThermaData WiFi loggers.

Order code	Description
830-800	Magnetic mount

Flexible tripod

The flexible tripod allows for the secure and easy positioning of your instrument for the perfect viewing angle. The compact design provides a sturdy base, but still allows flexibility to stand on any surface, or wrap-around a convenient fixing point. The tripod has a quick release plate for easy attachment of your instrument. Compact in size (195 x 35 x 35 mm) and lightweight (96 g).

Compatible with products such as the BlueTherm One, Thermocouple ThermaData logger and ThermaData WiFi loggers.

Order code	Description
832-950	Flexible tripod

ACCESSORIES

Stainless steel wall brackets

These handy, stainless steel or ABS wall brackets allow users to store specific thermometers safely when not in use (screws not supplied).

832-002

832-015

832-050

Order code	Description
832-002	Thermapen s/s wall bracket
832-015	WP Therma series s/s wall bracket
832-050	Therma series s/s wall bracket & boot
832-590	ThermaGuard/WiFi ABS wall bracket

Temperature log book

In commercial kitchens each fridge, freezer or cold cabinet should have its own temperature log/record book. The log book has a wipe clean cover and contains six months' supply of easy to use record sheets.

Each log book allows the user to enter three readings per day consisting of the temperature, time and initials of the person responsible for recording the data.

Order code	Description
831-100	A5 temperature log book
831-105	A5 log book - pack of 10

Protective silicone boots

Protect your instruments against accidental damage by fitting them with a protective boot. We offer a wide range of protective silicone boots tailored to fit most of our instruments. Selected boots are available in red, yellow, blue, green, black and white.

Order code	Description
830-221	Therma series - white*
830-231	WP Therma series - white*
830-258	WP Therma series inc. magnet
830-260	Thermapen Classic
830-460	Thermapen Professional
830-270	ThermaData Logger
830-280	ThermaLite
830-431	TempTest 1 & 2 - white*
830-210	BlueTherm One
830-880	ThermaGuard/ThermaData WiFi

*For other colours see page 9 for TempTest, page 13 for Therma Series or page 38 for Waterproof Therma Series

Waterproof protective pouches

These fully waterproof protective pouches are manufactured from flexible PVC that can be used to protect a variety of instruments in damp or wet environments. Each pouch measures 125 x 230 mm.

The 830-410 is supplied with a single integral lead, thermocouple (T/C) plug and socket. The 830-411 with a single integral lead, thermistor plug and socket and the 830-412 with dual integral leads, thermocouple (T/C) plugs and sockets. For more information contact our sales office or visit our website.

830-442

Order code	Description
830-410	PVC pouch K T/C lead
830-411	PVC pouch & thermistor lead
830-442	PVC pouch & 2 K T/C leads

ANTI-BACTERIAL WIPES

Anti-Bacterial wipes are ideal for reducing harmful bacteria in the food industry. Each wipe is pre-saturated with a broad spectrum anti-bacterial solution that is odourless and does not taint food. The wipes are effective against a wide range of bacteria including listeria and salmonella.

Box of 100 single use Probe Wipes

These convenient, single use, white, anti-bacterial thermometer Probe Wipes are safe and easy to use.

Each wipe measures 60 x 30 mm and is designed for one-time use. These single use wipes are sold in a box of 100 sachets.

Order code	Description
836-220	Box of 100 single use Probe Wipes

Mini tubs of 70 QAC free Probe Wipes

This mini tub is designed to fit into the user's pocket and incorporates an easy to dispense flip-top lid. The mini tub contains 70 blue QAC free, anti-bacterial Probe Wipes.

Each Probe Wipe measures 70 x 130 mm and is supplied in cartons of ten tubs.

Order code	Description
836-020	Carton x 10 mini tubs

Tubs of 180 QAC free Probe Wipes

Each tub contains 180 blue QAC free, anti-bacterial Probe Wipes that measure 130 x 130 mm.

The tubs are supplied in cartons of six tubs of 180 Probe Wipes.

An optional wall bracket is available, enabling a single tub of wipes to be conveniently positioned. (screws not supplied).

Order code	Description
836-050	Carton x 6 tubs of Probe Wipes
832-305	S/steel wall bracket for single tub

THERMOMETERS FOR FOOD PROCESSING

Selecting the correct thermometer for food and catering applications is very important in order to achieve maximum accuracy and repeatability of temperature.

The selection criteria for a digital thermometer should include:

- Measurement range
- Resolution of the reading 1 °C, 0.1 °C or 0.01 °C
- Desired accuracy
- Response time
- Extra features such as max/min, hold & backlight

The following pages offer a selection of thermometers that are suitable for food processing applications, i.e. heavy duty and water resistant or waterproof instruments. Many of our thermometers are suitable for use as part of HACCP.

WHAT IS HACCP?

Hazard Analysis and Critical Control Point is a system that was devised to provide quality assurance throughout the food industry by establishing critical monitoring (control) points. It is a legal requirement for food businesses to have a suitable HACCP plan in place.

The seven principles of HACCP:

1. **Conduct a hazard analysis** - identify the food safety hazards associated with your business, e.g. multiplication of harmful bacteria.
2. **Determine the critical control points** - if there is no later stage in the process that will then make the food safe, e.g. cooking, then it is a CCP.
3. **Establish critical limits** - temperature limits, below or above which, food will not be acceptable.
4. **Monitor and control the CCPs** - if it cannot be monitored or measured, it is not a CCP. You cannot monitor by placing a hand in the fridge or looking at food to see if it is at the right temperature.
5. **Establish corrective actions** - if a critical limit is exceeded, you must have a procedure in place to take a corrective action.
6. **Establish verification procedures** - how do you know that your temperatures are OK, unless you regularly calibrate your thermometer? This is just one example of verification.
7. **Documenting records and procedures** - you will find it difficult to demonstrate your controls, unless you keep records of your actions.

Conscientious implementation of HACCP principles by plant operators demonstrates their commitment to food safety; improves employee awareness of their role in protecting consumers and emphasises management's responsibility for safe production.

THERMA 20/22 PLUS WATERPROOF THERMOMETERS

- Therma 22 Plus accepts type T thermocouple & thermistor probes
- FREE traceable certificate of calibration
- Biomaster Antimicrobial Technology
- Large, easy to read backlit LCD

The Therma 20 Plus waterproof thermometer offers IP66/67 protection and is housed in a robust waterproof white ABS case. The thermometer utilises state of the art electronic circuitry, designed for reliability and ease of use and can be submerged or washed under a running tap - ideal for food processing applications where cleaning is paramount.

The thermometer features a large, easy to read, LCD display with max/min, °C/°F, hold, open circuit, low battery indication and a user selectable backlight. The unit also incorporates an auto-power off facility that automatically turns the instrument off after ten minutes, maximising battery life.

The instrument is housed in an ergonomic, ABS case that includes Biomaster Antimicrobial Technology that reduces bacterial growth. Each unit has an integrated rubber seal to ensure complete water resistance and help reduce the possibility of damage in harsh environments.

The Therma 20 Plus incorporates an easy to use waterproof Lumberg screw-locking type connector, allowing a wide range of interchangeable thermistor probes to be used. We offer an extensive range of probes, see pages 84 and 85 for details.

- **Therma 22 Plus thermometer**
  The Therma 22 Plus incorporates all the features of a Therma 20 Plus, but also accepts type T thermocouple probes giving a faster response time and wider temperature range of -199.9 to 400 °C. See page 82 for our range of type T thermocouple probes.

Waterproof penetration probe (174-266)

- **Thermistor test caps**
  Used to perform accuracy checks of thermistor thermometers. Supplied with a UKAS certificate of calibration. See page 103 for details.

HOLD · MAX/MIN · AUTO OFF · IP66/IP67 · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Therma 20 Plus	Therma 22 Plus
Range - type T t/c	n/a	-199.9 to 400 °C
Range - thermistor	-39.9 to 149.9 °C	
Resolution	0.1 °C to 299.9 °C thereafter 1 °C	
Instrument only accuracy	±0.2 °C	
System accuracy - type T t/c	±0.5 °C (-49.9 to 149.9 °C)	
System accuracy - thermistor	±0.4 °C (-24.9 to 109.9 °C)	
Battery & life	3 x 1.5 volt AAA - 7500 hours	
Sensor type	Thermistor	Thermistor/type T t/c
Display	15 mm LCD	
Dimensions	32 x 71 x 141 mm	
Weight	220 grams	
FREE traceable certificate of calibration included		

Order code	Description
232-040	Therma 20 Plus
232-041	Therma 22 Plus
174-266	Penetration probe
The Therma 20/22 Plus are exclusive of probe	

THERMACHECK PLUS WATERPROOF THERMOMETER

- Backlight, auto-power off, max/min & hold functions
- Meets the European Standard EN 13485
- Integrated rubber seal for durability
- High system accuracy ±0.4 °C

The ThermaCheck Plus is a waterproof, hand held thermistor thermometer which offers IP66/67 protection and is housed in a robust waterproof white ABS case. The thermometer utilises state of the art electronic circuitry, designed for reliability and ease of use and can be submerged or washed under a running tap - ideal for food processing applications where cleaning is paramount.

Measuring temperature over the range of -39.9 to 149.9 °C with a 0.1 °C resolution, the ThermaCheck Plus features a large, easy to read, LCD display with max/min, °C/°F, hold, open circuit, low battery indication and a user selectable backlight. The unit also incorporates an auto-power off facility that automatically turns the instrument off after ten minutes, maximising battery life.

The instrument is housed in an ergonomic, ABS case that includes Biomaster Antimicrobial Technology to reduce bacterial growth. Each unit has an integrated rubber seal to ensure complete water resistance and help reduce the possibility of damage in harsh environments.

The ThermaCheck Plus is supplied complete with a permanently attached food penetration probe with a 130 mm stainless steel stem and one metre coiled PU lead.

2 YEAR GUARANTEE

MADE IN BRITAIN

OPTIONAL ACCESSORIES:

- Protective silicone boot.
  Various colours are available - see below for details
- Stainless steel wall bracket (832-015)
  (screws not supplied)
- Anti-bacterial Probe Wipes - see page 35

HOLD | MAX/MIN | AUTO OFF | IP66/IP67 | HACCP COMPATIBLE | Biomaster

Order code	Description
232-042	ThermaCheck Plus
830-231	Protective silicone boot - white
830-232	Protective silicone boot - yellow
830-233	Protective silicone boot - green
830-234	Protective silicone boot - red
830-235	Protective silicone boot - blue
830-257	Protective silicone boot - black
832-015	Stainless steel wall bracket

Specification	ThermaCheck Plus
Range	-39.9 to 149.9 °C
Resolution	0.1 °C
Accuracy	±0.4 °C (-29.9 to 129.9 °C)
Battery & life	3 x 1.5 volt AAA - 7500 hours
Sensor type	Thermistor
Display	15 mm LCD
Dimensions	32 x 71 x 141 mm
Weight	298 grams
FREE traceable certificate of calibration included	

THERMAQ® TWO CHANNEL THERMOMETER

- Simultaneously displays two probe temperatures
- Audible alarm with variable volume control
- Wide temperature range -99.9 to 1372 °C
- Programmable high/low alarm

The ThermaQ thermometer allows the user to simultaneously use two type K thermocouple probes whilst displaying both current temperatures and the maximum and minimum recorded temperatures. This allows the user to monitor, for example, both an item of food and the oven air temperature at the same time or monitor the rise and fall of temperatures across refrigeration units.

The thermometer measures temperature over the range of -99.9 to 299.9 °C with a 0.1 °C resolution or 300 to 1372 °C with a 1 °C resolution. The unit features a large, easy to read LCD display with °C/°F, T1, T2, max/min, open circuit, low battery indication, programmable high/low audible alarm and a user selectable backlight.

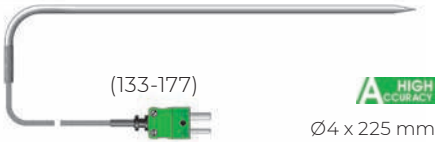
The instrument is housed in an ergonomic, ABS case that includes Biomaster Antimicrobial Technology to reduce bacterial growth. An integrated rubber seal ensures complete water resistance and helps reduce the possibility of damage in harsh environments.

We offer an extensive range of interchangeable type K thermocouple probes for a variety of different applications, see below and pages 75 to 81.

MAX/MIN · IP65 · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	ThermaQ
Range	-99.9 to 1372 °C
Resolution	0.1 °C to 299.9 °C thereafter 1 °C
Accuracy	±0.4 °C ±0.1 % of reading
Battery & life	3 x 1.5 volt AAA - 3000 hours
Sensor type	K thermocouple
Display	Custom LCD
Dimensions	32 x 71 x 141 mm
Weight	230 grams
FREE traceable certificate of calibration included	

Order code	Description
231-050	ThermaQ
830-258	Protective silicone boot - black
832-015	Stainless steel wall bracket
The ThermaQ is exclusive of probes	

		Order code
OVEN/AIR PROBE & CLIP  HIGH ACCURACY Ø3.5 x 50 mm	This oven/air probe is ideal for monitoring air temperatures. Using the grate clip provided, attach the probe to an oven rack/shelf. Supplied with a two metre stainless steel braided lead. • Response time less than 4 seconds • Probe temperature range -50 to 350 °C	133-441 830-530 (spare clip)
CROCODILE CLIP OVEN PROBE  HIGH ACCURACY Ø4 x 20 mm with 2000 mm lead	Oven probe incorporating a crocodile clip that can easily be attached to an oven rack or similar. Supplied with a two metre stainless steel braided lead. • Response time less than 2 seconds • Probe temperature range -50 to 350 °C	133-041
PENETRATION PROBES  HIGH ACCURACY Ø4 x 225 mm	These stainless steel penetration probes are ideal for continuous monitoring in ovens. Supplied with a two metre stainless steel braided lead or stainless steel armoured lead. • Response time less than 4 seconds • Probe temperature range -50 to 250 °C	133-177 (braided) 133-178 (armoured)

Longer leads are available for the probes above, please contact our technical sales office for more information.

SAF-T-LOG® RECORDING THERMOMETER

- Displays date, time & user name with each reading
- Automatically archives data & creates reports
- Helps your business be HACCP compliant
- PASS/FAIL & corrective actions displayed

Measure, store, download and print HACCP reports. No more paper logs or complicated PDA's to train staff how to use! The Saf-T-Log is as easy to use as your current thermometer.

The Saf-T-Log includes Windows® software to create a list of up to 300 items that you routinely measure, 10 corrective actions, along with up to 25 users. Each item can include a high/low temperature limit that gives the user instant on-screen pass/fail feedback or yes/no on non-temperature items. A time delay feature can be added to each temperature item. Up to seven different checklists can be created at any one time, to be saved, emailed to other users and uploaded onto any Saf-T-Log.

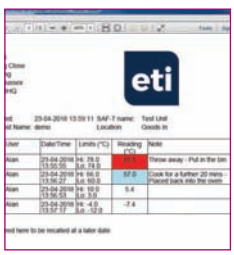
Record up to 1000 readings by simply scrolling to the correct item and pressing record. Any 'fail' or 'no' answer, can prompt the selection of a corrective action. Once readings are taken they can be downloaded to a PC automatically when reconnected. The data is archived and a report generated automatically with no additional user input. The Saf-T-Log report is locked so the data logged cannot be tampered with.

Housed in a durable, IP66/67 waterproof case with a choice of interchangeable type K thermocouple probes, the Saf-T-Log can be used for a wide variety of applications. The thermometer includes a high contrast backlit display with an accuracy of ±0.4 °C and a calibration trim function.

Penetration probe (123-160)

- **CUSTOMISED CHECKLISTS**
  Simply create your own checklist of items, upload to the unit, attach the appropriate probe and store readings at the touch of a button.

- **CORRECTIVE ACTIONS**
  The user is prompted to select a corrective action if the reading is outside of the acceptable limit. Easy for staff to implement and use.



- **REPORT GENERATOR**
  Reports are created automatically from the saved readings. Failed results are highlighted and notes or corrective actions included. Eliminates the need for paper logs!

AUTO OFF · IP66/ IP67 · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Saf-T-Log
Range	-100 to 1372 °C
Resolution	0.1 °C
Accuracy	±0.4 °C ±0.1 % of reading
Battery	3 x 1.5 volt AAA - 3000 hours
Battery life	>2500 hours (without backlight)
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	32 x 71 x 141 mm
Weight	220 grams
FREE traceable certificate of calibration included	

Order code	Description
292-701	Saf-T-Log
123-160	Penetration probe
830-231	Protective silicone boot - white
The Saf-T-Log is exclusive of probe	

TEMPTEST® 2 THERMOMETER

- Choice of air, surface or penetration probe
- 360° rotating display with auto intelligent backlight
- Meets the European Standard EN 13485
- Waterproof to IP67

The TempTest 2 thermometer incorporates a large, easy to read digital display, with a precise read-out of temperature over the range of -49.9 to 299.9 °C with a 0.1 °C/°F resolution and an accuracy of ±0.4 °C (-49.9 to 199.9 °C). The thermometer will power off automatically after ten minutes, maximising battery life. This feature can be disabled.

The thermometer is housed in a waterproof IP67 case with an ergonomic rubber seal, both include Biomaster Antimicrobial Technology to reduce bacterial growth. As well as being waterproof, it is 'probably' one of the fastest reading contact thermometers on the market today. The true temperature of a product can be measured in just three seconds.

Both low battery (icon) and open circuit indication are displayed, when applicable. Each TempTest 2 is powered by two AAA batteries with a minimum life expectancy of 5000 hours in normal use without the backlight. Each unit is supplied with a permanently attached hand held probe with 500 mm PVC lead.

- **Choice of probe styles**
  The TempTest 2 is also available with two additional probe styles; surface or air. The fast response air or gas probe is an invaluable tool in establishing the correct air temperature quickly in refrigeration units, storage areas and other similar applications. The waterproof, ribbon surface probe is particularly useful for determining the temperature of hot plates, grills, pipework etc.
  Please note: The accuracy and speed of response will be dependant on whether the surface is flat.

PENETRATION PROBE

Ø3.3 x 100 mm

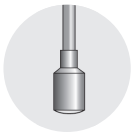
This fast response, stainless steel penetration probe has a reduced tip and is ideal for measuring a wide variety of applications including liquids and semi-solids.

AIR OR GAS PROBE

Ø3.3 x 100 mm

This fast response air or gas probe is ideal for measuring the air temperature in fridges, freezers, chill cabinets and similar.

WATERPROOF SURFACE PROBE

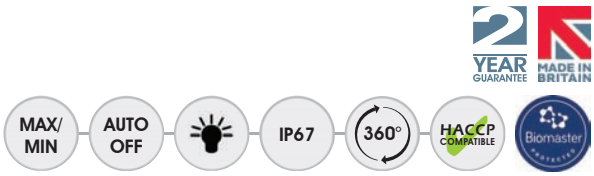


Ø8 x 100 mm

This ribbon surface probe is ideal for measuring the surface temperature of hotplates, grills and other flat surfaces.

Order code	Description
222-910	TempTest 2 - penetration probe
222-913	TempTest 2 - air probe
222-914	TempTest 2 - surface probe
830-431	Protective silicone boot - white*

*For other colour silicone boots see page 9



Specification	TempTest 2
Range	-49.9 to 299.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Battery	2 x 1.5 volt AAA
Battery life	5000 hours (normal use, without backlight)
Sensor type	K thermocouple
Display	11 mm LCD
Dimensions	17 x 47 x 120 mm
Weight	140 grams

FREE traceable certificate of calibration included

CATERTEMP® PLUS WATERPROOF THERMOMETER

- Extruded aluminium case for superior durability
- Supplied complete with food penetration probe
- Colour-coded rubber bumper seals
- Meets the European Standard EN 13485

The CaterTemp Plus hand held thermometer is housed in a robust extruded aluminium waterproof case, offering IP66/67 protection, with a white anti-bacterial/salt resistant powder coated finish. The instrument incorporates the latest microprocessor technology with improved durability, designed for reliability and ease of use in day-to-day catering and food processing applications.

The CaterTemp Plus thermometer measures temperature over the range of -49.9 to 299.9 °C with a 0.1 °C resolution. The instrument features a large, easy to read, LCD display with open circuit and low battery indication. The unit is powered by a 9 volt PP3 battery which gives the thermometer approximately 5000 hours continuous use.

The on/off button is conveniently located at the front of the instrument as is the display hold facility. The CaterTemp Plus thermometer incorporates a secure battery compartment with a waterproof cover.

Each CaterTemp Plus thermometer is supplied with a permanently attached, water resistant, heavy duty, food penetration probe with a Ø3.3 x 130 mm stainless steel stem and one metre PU coiled lead. The probe is both strong, versatile and suitable for a variety of applications including liquids, semi-solids and granular materials.

- **Colour-coded rubber bumper seals**
  The CaterTemp Plus thermometer is available with colour-coded rubber bumper seals that can help avoid cross-contamination - see below for details.

OPTIONAL ACCESSORIES:

- Acrylic wall bracket - screws not supplied (832-150)
- Protective black PVC boot (830-242)
- Anti-bacterial wipes - see page 35

HOLD · AUTO OFF · IP66/IP67 · HACCP COMPATIBLE · 2 YEAR GUARANTEE · MADE IN BRITAIN

Order code	Description
221-056	CaterTemp Plus - black seal
221-256	CaterTemp Plus - yellow seal
221-356	CaterTemp Plus - green seal
221-456	CaterTemp Plus - red seal
221-556	CaterTemp Plus - blue seal
830-242	Protective PVC boot - black
832-150	Acrylic wall bracket

Specification	CaterTemp Plus
Range	-49.9 to 299.9 °C
Resolution	0.1 °C
Accuracy	±0.4 °C ±0.1 % of reading
Battery & life	9 volt PP3 alkaline - 5000 hours
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	35 x 60 x 115 mm
Weight	286 grams
FREE traceable certificate of calibration included	

THERMA PLUS WATERPROOF THERMOMETER

- Interchangeable thermocouple probes
- FREE traceable certificate of calibration
- Meets the European Standard EN 13485
- Extruded aluminium case for superior durability

The Therma Plus hand held thermometer is housed in a robust extruded aluminium waterproof case, offering IP66/67 protection with a white anti-bacterial/salt resistant powder coated finish. The unit incorporates the latest microprocessor technology, designed for reliability and ease of use in routine day-to-day food processing and industrial applications.

The unit features a large, easy to read, LCD display with open circuit and low battery indication. The Therma Plus thermometer measures temperature over the range of -99.9 to 1372 °C, -99.9 to 299.9 °C with a 0.1 °C resolution, auto-ranging to 1 °C resolution over the range of 300 to 1372 °C.

The thermometer incorporates an auto-power off facility that automatically turns the instrument off after twenty minutes, maximising battery life. The on/off button is conveniently located at the front of the instrument as is the display hold facility. The secure battery compartment with a waterproof cover is located at the base of the instrument.

The Therma Plus is available with colour-coded rubber bumper seals, black, yellow, green, red or blue.

- **Choice of probes**
  Conveniently located at the top of the instrument is the thermocouple probe socket that allows a wide range of interchangeable, thermocouple type K probes to be connected to the instrument. For our full range of thermocouple probes for the Therma Plus - see pages 75 to 81.

Waterproof penetration probe (143-162)

OPTIONAL ACCESSORIES:

- Protective black PVC boot (830-242)
- Acrylic wall bracket - screws not supplied (832-150)
- Three-point temperature checkers - see page 102 for details
- Anti-bacterial wipes - see page 35

Order code	Description
221-071	Therma Plus - black seal
221-271	Therma Plus - yellow seal
221-371	Therma Plus - green seal
221-471	Therma Plus - red seal
221-571	Therma Plus - blue seal
143-162	Penetration probe
830-242	Protective PVC boot - black
832-150	Acrylic wall bracket
The Therma Plus is exclusive of probe	

HOLD · AUTO OFF · IP66/IP67 · HACCP COMPATIBLE · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Therma Plus
Range	-99.9 to 1372 °C
Resolution	0.1/1 °C auto-ranging @ 299.9 °C
Accuracy	±0.4 °C ±0.1 % of reading
Battery & life	9 volt PP3 alkaline - 5000 hours
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	35 x 60 x 115 mm
Weight	194 grams
FREE traceable certificate of calibration included	

REMOTE TEMPERATURE MONITORING

We have used our vast experience in temperature measurement, together with the latest technology, to create the ThermaData range of small, cost-effective, data-loggers, WiFi loggers and Bluetooth wireless thermometers. All of which have been designed for ease of use and reliability.

APPLICATIONS

There are many uses for data-loggers, WiFi loggers and Bluetooth wireless thermometers for example; to ensure compliance with legislation, to help save costs, to ensure the quality of a product, process, or for research purposes in the following industries:

- Food processing
- Agriculture
- Laboratories
- Refrigeration
- Environmental
- Logistics
- Museum & archives
- Medical

The EC food industry directive suggests that organisations involved in food preparation, storage or transportation should have the ability to verify that the temperature of food has been kept at the correct levels. This is often referred to as due diligence. ThermaData loggers offer organisations a method of complying with food industry legislation by providing traceability from the moment the food is received to the time it is delivered to the customer.

For shippers, data-loggers can verify that conditions inside the transportation vehicles have been maintained within the specified levels.

For growers of fresh produce, ThermaData loggers provide an accurate record of temperatures during the life cycle of a product, from farm to plate, i.e. during growth, preparation and transportation of produce, thus ensuring best quality.

The ThermaData WiFi loggers utilise the latest WiFi wireless technology. The WiFi loggers are a temperature monitoring system that remotely record the temperature of appliances and buildings. Each logger transmits the recorded data to a WiFi router connected to the internet which can be remotely accessed and viewed from a PC, laptop or tablet anywhere in the world.

The Bluetooth wireless thermometers and probes transmit temperature data to your Android, iOS or Bluetooth wireless device via a secure connection. These thermometers and probes have been specifically designed to eliminate the need for wires and connectors which often cause many traditional probes to break or fail.

UKAS CERTIFICATES OF CALIBRATION

Our in-house UKAS calibration laboratory offers certification for both temperature and humidity data-loggers. Each certificate indicates deviations from standards at various temperature or humidity check points. See pages 105 and 106 for more information.

THERMADATA® LITE LOGGER

new

- LED display shows if limits are exceeded
- Customised high/low alarm facility
- Ideal for storage & transportation
- FREE software to download

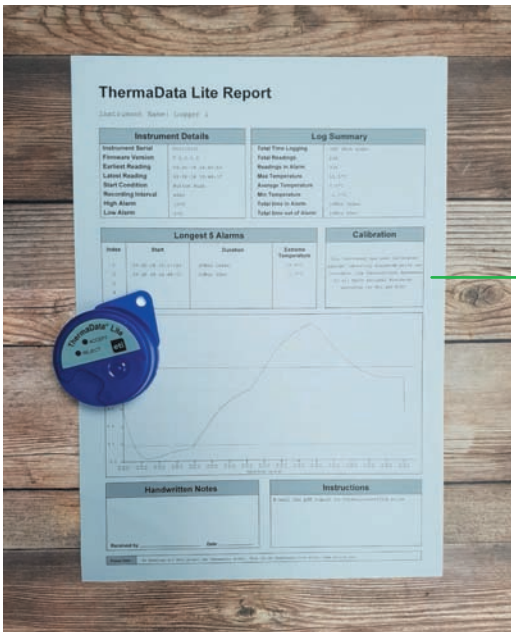
The new ThermaData Lite logger is a cost effective, self-contained temperature data-logger or blind recording thermometer that is designed to record the temperature of the surrounding environment. The ThermaData Lite logger is housed in a water resistant polyethylene case and incorporates two LED status indicators.

The ThermaData Studio software allows the user to programme the logging sample/interval rate (0.1 to 255 minutes), the real-time clock, °C/°F, delayed start (maximum 23 hours, 59 minutes), push-button start, temperature start or time start and a 32-character user ID. The software also incorporates a password protected calibration adjustment feature that allows the user to check the calibration of loggers and make minor adjustments of 0.1 °C (±3 °C).

The user can also set, within the software, high and low alarm values for a specific application. A push of the button will allow a simple visual inspection of the unit to show if either of these limits have been exceeded. A flashing red LED will warn the user that the alarm limits have been exceeded (reject) or a flashing green LED will advise the user that the alarm limits have not been exceeded (accept).

THERMADATA STUDIO SOFTWARE & AUTOMATIC PDF FILE OUTPUT

The ThermaData Studio software is supplied as a FREE download. The ThermaData Lite logger is connected to a PC via a USB-C port lead and by selecting the relevant icon the data can be downloaded and displayed either as a graph, table or summary. The information can then be analysed by zooming in, saving as a Studio File or exporting to other software packages. The new ThermaData Lite produces a report automatically on computer plug-in, this report will detail high and low alarms and also give you various key information for acceptance for deliveries or processes. No software required to download PDF report.



- **Colour-coded data-loggers**
  Available in a variety of coloured cases; blue, yellow, white and black. These colour-coded cases help to prevent cross contamination by allowing the user to allocate a colour to a specific product or application. Other applications include different coloured loggers for easy identification in for example; the building and construction industry where loggers can often blend in with the environment.

- **Example of PDF file**
  The automatic report generated shows key information such as instrument details, log summary and longest alarms. The PDF also displays an intuitive graph for easy visual indication.

MAX/MIN

2 YEAR GUARANTEE

MADE IN BRITAIN

Order code	Description
293-010	ThermaData Lite - white
293-020	ThermaData Lite - yellow
293-050	ThermaData Lite - blue
293-070	ThermaData Lite - black
812-510	USB-C lead

Specification	ThermaData Lite
Range	-40 to 85 °C
Resolution	0.1 °C
Accuracy	±0.5 °C
Memory	16000
Sample rate	0.1 to 255 minutes
Battery	3.6 volt ½ AA lithium
Battery life	Minimum 3 years
Dimensions	Ø55 x 25 mm
Weight	40 grams
Optional UKAS Certificate of Calibration available	

THERMADATA® LOGGERS

- Waterproof housing offering IP66/67 protection
- Temperature range -40 to 85 °C or 125 °C
- Resolution 0.1 °C, high accuracy ±0.5 °C
- Meets EN12830, S & T, C & D, 1

The ThermaData logger consists of a comprehensive range of portable data-loggers utilising the latest in electronic technology and housed in waterproof, ergonomic cases designed to meet IP66/67 protection.

The ThermaData logger offers the choice of either blind data-loggers or data-loggers with an LCD display. Other options include internal and external temperature sensors/ probes. The remote temperature probes are supplied with a one metre PVC/PFA lead. Other models and options are available on our website.

Each logger incorporates a red and green LED, the flashing green LED indicates that the logger is active/logging and the flashing red LED indicates that your customised preset alarms have been exceeded.

THERMADATA STUDIO SOFTWARE

The ThermaData logger is connected to a PC via a USB cradle. By selecting the relevant icon the data can be downloaded and displayed either as a graph, table or summary. The information can be analysed by zooming in, saving as a Studio File or exporting as a text (.txt) or Excel (.xls) file to other software packages.

The software incorporates several useful functions, including the ability to display two traces on a graph, the trace colours are user selectable. All files can be viewed as thumbnail icons for easy identification.

The ThermaData Studio software will work equally with all ThermaData loggers. The software is both powerful and sophisticated, yet user-friendly enabling temperature data to be organised and analysed to provide management information. The software allows the user to programme the logging sample/interval rate (0.1 to 255 minutes), the real-time clock, °C or °F, delayed start (maximum 23 hours, 59 minutes and 59 seconds) or select a magnetic start option. It is also possible to include a 32-character user ID for each logger.

By selecting continuous logging in the software options, it is possible to start the ThermaData logger only once and never have to reset its parameters again, even if downloaded regularly. Unlike most low cost loggers, the ThermaData logger will continue recording during and after downloading the data.

The ThermaData Studio software is supplied as a FREE download. **Please note:** when initially ordering loggers it is necessary to order at least one ThermaData logger cradle - see opposite page for details.

MAX/ MIN | IP66/ IP67 | 2 YEAR GUARANTEE | MADE IN BRITAIN

TB - BLIND WITH AN INTERNAL SENSOR

- NTC thermistor sensor
- -40 to 85 °C
- Records up to 4000 readings

Order code	Description
295-001	Model TB

TD - LCD WITH AN INTERNAL SENSOR

- NTC thermistor sensor
- -30 to 85 °C
- Records up to 4000 readings

Order code	Description
296-001	Model TD

TBF - BLIND WITH AN EXTERNAL FIXED SENSOR

- NTC thermistor sensor
- Ø3.3 x 100 mm probe, 1 metre PVC/PFA lead
- -40 to 125 °C
- Records up to 4000 readings

Order code	Description
295-101	Model TBF

TDF - LCD WITH AN EXTERNAL FIXED SENSOR

- NTC thermistor sensor
- Ø3.3 x 100 mm probe, 1 metre PVC/PFA lead
- -40 to 125 °C
- Records up to 4000 readings

Order code	Description
296-101	Model TDF

TB2F - BLIND WITH TWO EXTERNAL FIXED SENSORS

- NTC thermistor sensors
- Ø3.3 x 100 mm probe, 1 metre PVC/PFA lead
- -40 to 125 °C (external)
- Records up to 2 x 2000 readings

Order code	Description
295-111	Model TB2F

TD2F - LCD WITH TWO EXTERNAL FIXED SENSORS

- NTC thermistor sensors
- Ø3.3 x 100 mm probe, 1 metre PVC/PFA lead
- -40 to 125 °C (external)
- Records up to 2 x 2000 readings

Order code	Description
296-111	Model TD2F

Specification	All models
Range - internal	-30/-40 to 85 °C - model dependant
Range - external	-40 to 125 °C - model dependant
Resolution	0.1 °C
Accuracy	±0.5 °C (@ ambient -10 to 85 °C)
Memory	4000 or 2 x 2000 readings
Sample rate	0.1 to 255 minutes
Battery	3.6 volt ½ AA lithium
Battery life	Approximately 1.5 years
Display - blind	2 LED's
Display - LCD	10 mm LCD/2 LED's
Dimensions	Ø76 x 23 mm
Weight	71 to 113 grams - model dependant

An optional protective silicone boot (white) is available (830-270) see page 34 for details

USB CRADLE & START MAGNET

Each USB cradle is supplied with a one metre PVC lead complete with a start magnet.

Order code	Description
293-804	Cradle & start magnet

THERMADATA® LOGGERS FOR HUMIDITY

- Display toggles between humidity & temperature
- Records up to a maximum of 16000 readings
- LED display of high & low alarm status
- Choice of internal or remote sensors

The humidity and temperature ThermaData loggers measure and record both temperature and relative humidity (%rh) over the range of -20 to 85 °C and 0 to 100 %rh. At programmable intervals, the loggers will record simultaneously both temperature and humidity, recording up to a maximum of 16000 readings (8000 humidity and 8000 temperature).

With a choice of either LCD or a blind display, both options include an internal or external humidity and temperature sensor with a one metre lead. Each ThermaData logger incorporates two LED's, a flashing green LED indicates that the logger is active/logging and a flashing red LED indicates that your customised preset alarms have been exceeded.

The humidity and temperature ThermaData loggers are suitable for a diverse range of applications which include HVAC climate monitoring, QA monitoring of storage areas etc.

THERMADATA STUDIO SOFTWARE

The ThermaData Studio software is supplied as a FREE download. The ThermaData logger is connected to a PC via a USB cradle. By selecting the relevant icon the data can be downloaded and displayed either as a graph, table or summary. The information can then be analysed by zooming in, saving as a Studio File or exporting to other software packages. **Please note:** When initially ordering these loggers, it is necessary to order at least one ThermaData logger cradle.

MAX/ MIN

2 YEAR GUARANTEE

MADE IN BRITAIN

Order code	Description
295-061	Blind model HTB - internal sensors
296-061	LCD model HTD - internal sensors
295-062	Blind model HTBF - external sensors
296-062	LCD model HTDF - external sensors
293-804	USB cradle & magnet
890-111	*UKAS 3-point certificate
*Price when purchased with a new instrument	

Specification	Temperature	Humidity
Range	-20 to 85 °C	0 to 100 %rh
Resolution	0.1 °C	0.1 %rh
Accuracy	±0.5 °C (0 to 45 °C)	±3 %rh @ 25 °C (10 to 90 %rh)
	±1 °C (-20 to 70 °C)	
	±1.5 °C (70 to 85 °C)	
Hysteresis	N/A	±1 %rh
Sensor type	Silicon bandgap	Capacitance polymer
Memory	2 x 8000 readings	
Sample rate	0.1 to 255 minutes	
Battery	3.6 volt ½ AA lithium	
Battery life	Minimum 2 years	
Display	10 mm LCD - toggles every 6 seconds/2 LED's	
Dimensions	Ø76 x 23 mm	
Weight	80 grams approx. - model dependant	
Optional UKAS Certificate of Calibration available		

STAINLESS STEEL THERMADATA® LOGGERS

- Integral USB interface for setup & download
- High temperature range -20 to 105 °C
- Food grade 316 stainless steel housing
- 5 probe options available

These stainless steel data-loggers are ideal for food, pharmaceutical and other applications where a high temperature data-logger is required. The ThermaData logger is housed in a waterproof, food grade 316 stainless steel case to protect the logger from corrosion, impact and moisture (IP66/67).

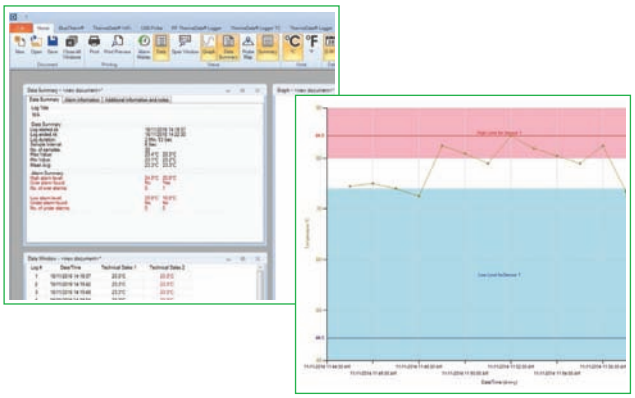
The ThermaData logger software allows the user to programme the logging sample/interval rate (1 to 255 minutes), the real-time clock, °C/°F, delayed start (maximum 23 hours, 59 minutes) and a 12-character user ID. The software also incorporates a password protected calibration adjustment feature that allows the user to check the calibration of loggers and make minor adjustments of 0.5 °C (±3 °C).

By selecting continuous logging in the software options, it is possible to start the logger only once and never have to reset its parameters again, even if downloaded regularly. Unlike most low cost loggers, the ThermaData stainless steel logger will continue recording during and after downloading the data.

The ThermaData logger is available in five options; without a probe, with a Ø3.3 x 50 mm penetration probe or Ø4.5 x 100 mm, Ø4.5 x 150 mm or Ø4.5 x 200 mm penetration probe, all with a Ø3.3 reduced tip. Each logger is supplied with a two metre USB lead and FREE downloadable ThermaData Studio software.

THERMADATA STUDIO SOFTWARE

The ThermaData logger is connected to a PC via the internal USB connector or a USB lead (supplied). By selecting the relevant icon the data can be downloaded and displayed either as a graph, table or summary. The user can also set, within the software, high and low alarm values for a specific application. The information can then be analysed by zooming in, saving as a Studio File or exporting to other software packages.



- **USB connection point**
  Simply unscrew the end cap to access the USB port. This allows the user to connect the logger to a PC and upload any data collected.

MAX/MIN | IP66/IP67 | 2 YEAR GUARANTEE | MADE IN BRITAIN

Order code	Description
293-900	Stainless steel logger - without probe
293-930	Stainless steel logger - 50 mm probe
293-931	Stainless steel logger - 100 mm probe
293-932	Stainless steel logger - 150 mm probe
293-933	Stainless steel logger - 200 mm probe

Supplied with a two metre USB lead & FREE downloadable ThermaData Studio software

Specification	Stainless Steel ThermaData Logger
Range	-20 to 105 °C
Resolution	0.5 °C
Accuracy	±1 °C (±0.5 °C with calibration utility)
Memory	2048 temperature readings
Sample rate	1 minute to 255 minutes
Battery	3.6 volt 2/3 AA lithium
Battery life	Minimum 3 years
Dimensions	Ø22.5 x 129 mm (excluding probe)
Weight	170 grams - model dependant

THERMADATA® WIFI LOGGERS FOR TEMPERATURE

- Email alerts user when alarm limits are exceeded
- Access temperature data worldwide via internet
- NO ongoing or subscription charges
- Programmable high/low alarm

The ThermaData WiFi loggers utilise the latest WiFi wireless technology. The loggers are a battery powered, cost-effective, temperature monitoring system that remotely records the temperature of appliances and buildings. Each logger transmits the recorded data to a WiFi router connected to the internet which can be accessed and viewed from a PC, laptop or tablet anywhere in the world.

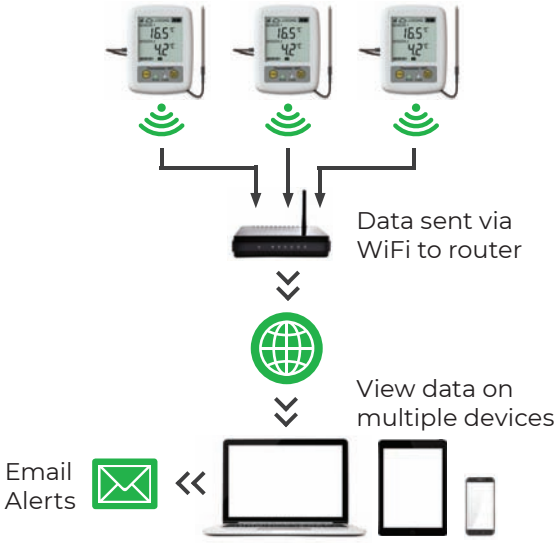
The loggers have a range limited to the specification of the users WiFi router. Each logger has an intuitive LCD displaying; temperature, WiFi and internet connection status, max/min recorded temperatures, alarm status and battery life.

At programmable intervals, the loggers will record temperature from both sensors, recording up to a maximum of 18000 readings (9000 from each sensor). Each logger incorporates a red and green LED. The flashing green LED indicates that the logger is active/logging and the flashing red LED indicates that the customised preset alarms have been exceeded. Each logger communicates directly to the WiFi router at set intervals to push data through the internet into ThermaData Studio. The information is available to be analysed and exported into a report format. Each unit is supplied with a USB lead and FREE wall bracket ThermaData Studio software is available to download FREE from our website and is licence free, no ongoing or subscription charges.

HOW DOES THE THERMADATA WIFI LOGGER WORK?

Using the unique ID of each logger ThermaData Studio creates a secure connection between logger and software, which can be accessed and viewed anytime and anywhere with an internet connection. Each logger communicates directly to the WiFi router at set intervals to push data through the internet into ThermaData Studio. The information is available to be analysed and exported into a report format.

Simple setup & easy to use software makes the ThermaData WiFi loggers perfect for HACCP analysis



THERMADATA STUDIO SOFTWARE

Both powerful and sophisticated, yet user-friendly, the ThermaData Studio software enables temperature data to be organised and analysed to provide management information.

The ThermaData Studio software has the ability to display up to 32 traces on a graph, the trace colours are user selectable. All files can be viewed as thumbnail icons for easy identification.

The software allows the user to programme the logging sample/interval rate (0.1 to 330 minutes), communication interval (sync) with PC, real-time clock, °C or °F and a manual start option. It is also possible to include a user ID for each logger.

Please note: WiFi routers have a range of 100 metres depending on the make, model, capabilities and setup of the router. Environmental conditions may also affect the signal strength.

THERMADATA® WIFI ONE/TWO CHANNEL THERMISTOR LOGGERS

The ThermaData® WiFi thermistor loggers can be supplied with one internal sensor or a stainless steel general purpose probe (Ø3.3 x 100 mm) with a one metre PUR/PVC fixed lead. **Please Note:** Model TD1F is supplied with one external remote probe and an internal sensor. Model TD2F is supplied with two external remote probes.

Specification	TD	TD1F	TD2F
Range - internal	0 to 50 °C	0 to 50 °C	N/A
Range - external	N/A	-40 to 125 °C	-40 to 125 °C
Resolution	0.1 °C/°F		
Accuracy	±0.5 °C		
Memory	18000 readings	2 x 9000 readings	
Sample rate	0.1 to 330 minutes		
Battery & life	2 x 1.5 volt AA - approximately 1 year		
Display	12 mm LCD/2 LED's		
Dimensions	29 x 72.5 x 96 mm		
Weight	165 grams model dependant		
FREE traceable certificate of calibration included			

Order code	Description
298-001	Model TD
298-011	Model TD1F*
298-111	Model TD2F*
830-880	Protective boot - black
*Inclusive of thermistor probe(s)	

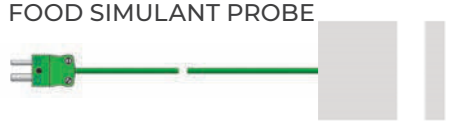
THERMADATA® WIFI TWO CHANNEL THERMOCOUPLE LOGGERS

The ThermaData® WiFi thermocouple loggers are available in two sensor types, type K and type T thermocouple. **Please Note:** Each logger is supplied exclusive of probes, see below for a small selection of probes available or for alternative designs see pages 75 to 81.

General purpose probes (133-158)

Specification	ThermaData WiFi - Thermocouple
Range - type K	-100 to 1372 °C
Range - type T	-100 to 400 °C
Resolution	0.1 °C/°F to 999.9 thereafter 1 °C/°F
Accuracy	±0.4 °C ±0.1 % of reading
Memory	2 x 9000 readings
Sample rate	0.1 to 330 minutes
Battery & life	2 x 1.5 volt AA - approximately 1 year
Display	12 mm LCD/2 LED's
Dimensions	29 x 72.5 x 96 mm
Weight	165 grams
FREE traceable certificate of calibration included	

Order code	Description
298-121	Model TD2TC - type K
298-721	Model TD2TC - type T
830-800	Magnetic mount
830-880	Protective boot - black
Exclusive of thermocouple probes	

		Order code
GENERAL PURPOSE PROBE  Ø3.3 x 100 mm	This stainless steel probe is suitable for a wide range of applications. Supplied with a one metre PTFE insulated lead and connector. • Response time less than 5 seconds • Probe temperature range -75 to 250 °C	133-158
FOOD SIMULANT PROBE  9 x 100 x 100 mm	This polypropylene simulant probe is designed for use in refrigeration, food storage and chill cabinets. Supplied with a one metre PTFE insulated lead and connector. • Probe temperature range -20 to 100 °C	133-350
HEAVY DUTY PTFE WIRE PROBE  Ø2.4 x 1000 or 2000 mm	This heavy duty, PTFE insulated wire probe is ideal for measuring the air temperature in fridges, freezers, ovens etc. • Response time less than 1 second • Probe temperature range 75 to 250 °C	133-372 (1000 mm) 133-373 (2000 mm)

Please note: for type T thermocouple probes, replace the third digit (3) of the order code with the number 7

THERMADATA® PHARM WIFI LOGGERS

- External sensor(s) designed to simulate fridge contents temperature
- FREE software with NO ongoing or subscription charges
- Access recorded data worldwide via internet
- High/low alerts via email

new

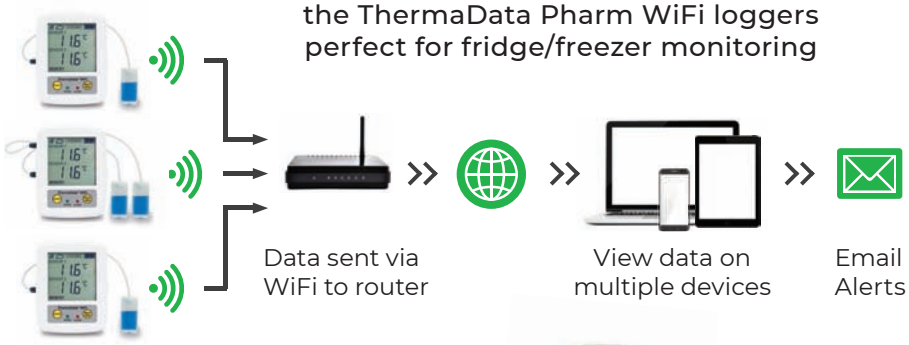
The ThermaData Pharm WiFi loggers are a battery powered, cost-effective, temperature monitoring system that remotely records storage and transportation temperatures of perishable items such as food, vaccines and medication.

Each logger has an intuitive LCD displaying; temperature, WiFi connection status, max/min recorded temperatures, alarm status and battery life. Simple to set up, the logger once up and running will transmit recorded data to a WiFi router connected to the internet which can then be accessed and viewed from a PC, laptop or tablet anywhere in the world.

At programmable intervals, the loggers will record temperature from both sensors, recording up to a maximum of 18000 readings (9000 from each sensor). Each logger incorporates a red and green LED. The flashing green LED indicates that the logger is active/logging and the flashing red LED indicates that the customised preset alarms have been exceeded. Each logger communicates directly to the WiFi router at set intervals to push data through the internet into ThermaData Studio. The information is available to be analysed and exported into a report format. Each unit is supplied with a USB lead and free wall bracket ThermaData Studio software is available to download FREE from our website and is licence free, no ongoing or subscription charges.

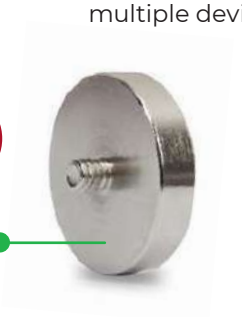
Each thermistor probe is encased in a sealed bottle and incorporates a one metre PUR/PVC fixed lead. To begin monitoring, simply unscrew and top up with Glycol solution (50 ml bottle supplied). **Please Note:** Model TD1F Pharm is supplied with one external remote probe and an internal sensor. Model TD2F is supplied with two external remote probes. For more information contact our sales office.

Simple setup & easy to use software makes the ThermaData Pharm WiFi loggers perfect for fridge/freezer monitoring



new

Magnetic mount (830-800)



MAX/MIN · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Order code	Description
298-011-PHM	Model TD1F c/w Pharm probe
298-111-PHM	Model TD2F c/w Pharm probes
830-880	Protective silicone boot - black
832-590	ABS wall bracket
830-800	Magnetic mount
816-035	Replacement Glycol solution - 50 ml
Inclusive of thermistor probe(s) & USB lead	

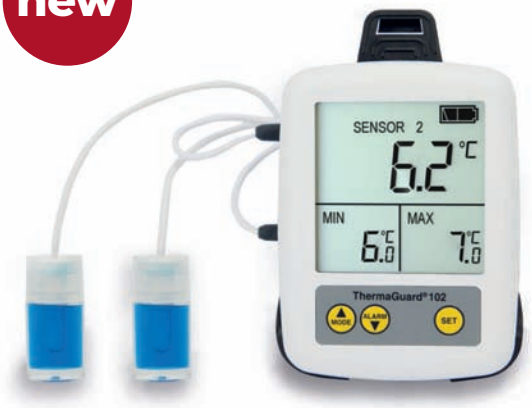
Specification	Model TD1F	Model TD2F
Range - internal	0 to 50 °C	N/A
Range - external	-40 to 70 °C	-40 to 70 °C
Resolution	0.1 °C/°F	
Accuracy	±0.5 °C	
Memory	2 x 9000 readings	
Sample rate	0.1 to 330 minutes	
Battery & life	2 x 1.5 volt AA - approx. 1 year	
Display	12 mm LCD/2 LED's	
Dimensions	29 x 72.5 x 96 mm	
Weight	165 grams	
FREE traceable certificate of calibration included		

Please note: WiFi routers have a range of 100 metres depending on the make, model, capabilities and setup of the router. Environmental conditions may also affect the signal strength.

THERMAGUARD® PHARM THERMOMETER

- External sensor(s) designed to simulate fridge contents temperature
- Two models available - single or dual external sensors
- Optional UKAS Calibration Certificate available
- Programmable high/low audible alarm

new



The ThermaGuard Pharm has been specifically designed for use in monitoring the storage and transportation temperatures of perishable items such as food, vaccines and medication. Each thermometer features a large LCD display, which simultaneously displays the current and max/min recorded temperatures.

Both units feature programmable audible alarms allowing the user to preset high and low temperature limits. When the alarm is active the LCD will flash. The alarm can be silenced by pressing any button.

Housed in a splashproof IP54 ABS case, which includes Biomaster Antimicrobial Technology to reduce bacterial growth, both ThermaGuard Pharm models feature a CalCheck 0.0 °C (±0.1 °C) function that allows the user to verify the accuracy of the thermometer at any time, giving confidence that measurements are accurate.

Each thermistor probe is encased in a sealed bottle. To begin monitoring, simply unscrew and top up with Glycol solution (50 ml bottle supplied).

UKAS CALIBRATION
0601

- **Two models available with optional UKAS Certificate of Calibration**
  The ThermaGuard Pharm 101 incorporates two temperature sensors; a remote water resistant thermistor probe with a one metre PVC lead for monitoring the product temperature and an internal sensor to monitor room temperature. The ThermaGuard 102 incorporates two remote water resistant thermistor probes, both with one metre PVC leads for monitoring dual applications. An optional two-point UKAS Certificate of Calibration is available. Each certificate indicates deviations from standards at -18 and 0 °C.

- **FREE wall bracket included**
  Each ThermaGuard is supplied with an ABS plastic wall bracket that incorporates a built-in foot stand, hook for hanging and screw thread for tripod mounting.

OPTIONAL ACCESSORIES:

- Protective silicone boot (830-880)
- Replacement Glycol solution 50 ml (816-035)
- Magnetic mount (830-800)

MAX/MIN · CAL CHECK · IP54 · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Order code	Description
226-911	ThermaGuard Pharm 101
226-921	ThermaGuard Pharm 101 & UKAS Cert
226-912	ThermaGuard Pharm 102
226-922	ThermaGuard Pharm 102 & UKAS Cert
830-880	Protective silicone boot - black
832-590	ABS wall bracket
830-800	Magnetic mount
816-035	Replacement Glycol solution - 50 ml
UKAS certificate applies to remote probe(s) only	

Specification	ThermaGuard Pharm
Range - internal	-19.9 to 49.9 °C (101 model only)
Range - external	-39.9 to 49.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.4 °C
Battery	2 x 1.5 volt AA
Battery life	25000 hours (without alarm)
Sensor type	Thermistor
Display	Custom LCD
Dimensions	29 x 73 x 96 mm
Weight	165 grams
Optional UKAS certificate of calibration available	

THERMADATA® WIFI LOGGER FOR HUMIDITY

- Simultaneously displays humidity & temperature
- Records up to a maximum of 18000 readings
- LED display of high & low alarm status
- No ongoing or subscription charges

These new ThermaData WiFi humidity loggers measure and record both temperature and relative humidity (%rh) over the range of 0 to 50 °C and 0 to 100 %rh. At programmable intervals, the loggers will record simultaneously both temperature and humidity, recording up to a maximum of 18000 readings (9000 humidity and 9000 temperature).

The logger incorporates a large LCD that displays temperature and humidity from the internal sensors. Each ThermaData WiFi humidity logger incorporates two LED's, a flashing green LED indicates that the logger is active/logging and a flashing red LED indicates that your customised preset alarms have been exceeded.

The humidity and temperature ThermaData WiFi loggers are suitable for a diverse range of applications which include HVAC climate monitoring, QA monitoring of storage areas etc.

THERMADATA STUDIO SOFTWARE

Both powerful and sophisticated, yet user-friendly, the ThermaData Studio software enables temperature and humidity data to be organised and analysed to provide management information.

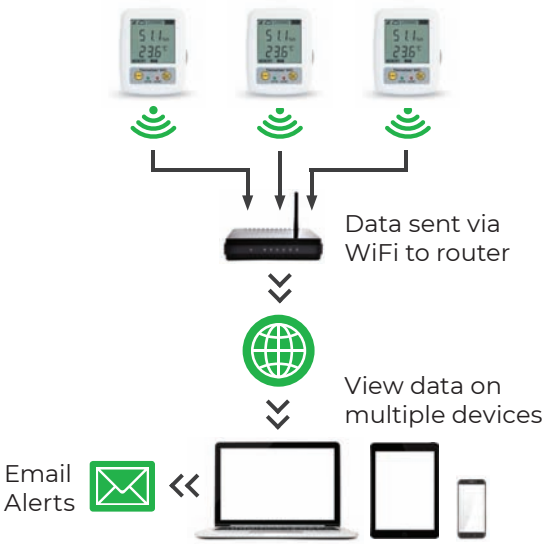
The ThermaData Studio software has the ability to display up to 32 traces on a graph, the trace colours are user selectable. All files can be viewed as thumbnail icons for easy identification.

The software allows the user to programme the logging sample/interval rate (0.1 to 330 minutes), communication interval (sync) with PC, real-time clock, °C or °F and a manual start option. It is also possible to include a user ID for each logger.

MAX/MIN | IP55 | 2 YEAR GUARANTEE | MADE IN BRITAIN

Order code	Description
298-621	ThermaData WiFi HTD
830-880	Protective silicone boot - black
830-800	Magnetic mount
890-111	UKAS 3-point certificate available

HOW DOES THE THERMADATA WIFI HTD LOGGER WORK?



Specification	Temperature	Humidity
Range	0 to 50 °C	0 to 100 %rh
Resolution	0.1 °C/°F	0.1 %rh
Accuracy	±0.5 °C (0 to 50 °C)	±2 %rh @ 25 °C (20 to 80 %rh)
		±3 %rh @ 25 °C (10 to 90 %rh)
		±4 %rh @ 25 °C (0 to 100 %rh)
Hysteresis	N/A	±1 %rh
Sensor type	Thermistor	Capacitance polymer
Memory	2 x 9000 readings	
Sample rate	0.1 to 330 minutes	
Battery & life	2 x 1.5 volt AA - approx. 10 months @ 20 °C	
Display	12 mm LCD/2 LED's	
Dimensions	29 x 72.5 x 96 mm	
Weight	165 grams	
Optional UKAS Certificate of Calibration		

THERMOCOUPLE THERMADATA® LOGGERS

- Two channel type K or type T thermocouple input
- Water resistant housing offering IP65 protection
- Wide temperature range -100 to 1372 °C
- Visual display of high & low alarm status

These two input Thermocouple ThermaData loggers are housed in a water resistant, ergonomic case that is designed to meet IP65 protection. Two models are available, either blind or with an LCD display.

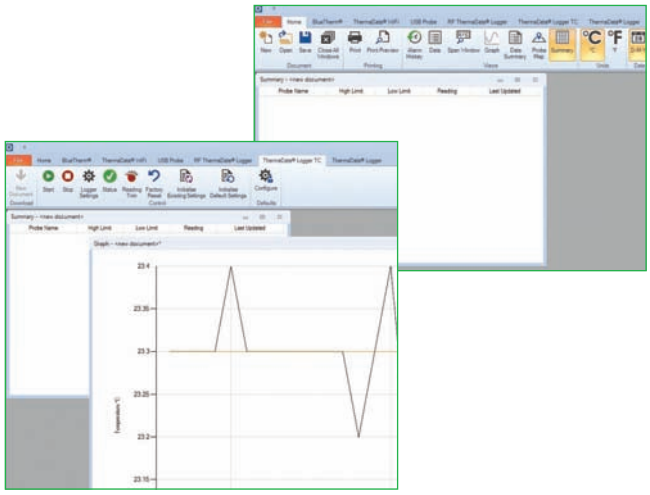
The ThermaData loggers measure temperature over the range of -100 to 1372 °C (type K thermocouple) with a 0.1 °C resolution, auto-ranging to 1 °C over the range of 301 to 1372 °C. At programmable intervals the loggers will record the temperature, up to a maximum of 16000 readings or 2 x 8000 readings.

Each logger incorporates a red and green LED, the flashing green LED indicates that the logger is active/logging and the flashing red LED indicates that your customised preset alarms have been exceeded. Each logger is supplied with a USB lead, FREE downloadable software and traceable certificate of calibration.

For details of the wide range of interchangeable type K or T thermocouple probes available, see pages 75 to 81.

THERMADATA STUDIO SOFTWARE

The ThermaData logger is connected to a PC via a USB lead (supplied). By selecting the relevant icon the data can be downloaded and displayed either as a graph, table or summary. The information can then be analysed by zooming in, saving as a Studio File or exporting to other software packages.



- **USB connection point**
  Simply remove the end cap to access the USB port. This allows the user to connect the logger to a PC via the USB lead and upload the temperature readings collected.

Order code	Description
291-501	T/C TD logger type K - blind
292-501	T/C TD logger type K - LCD
291-571	T/C TD logger type T - blind
292-571	T/C TD logger type T - LCD
830-210	Protective silicone boot - white
832-950	Flexible tripod
T/C ThermaData loggers are exclusive of probes	

IP65 Biomaster 2 YEAR GUARANTEE MADE IN BRITAIN

Specification	T/C ThermaData logger
Range - type K t/c	-100 to 1372 °C
Range - type T t/c	-100 to 400 °C
Operating range	-20 to 50 °C
Resolution	0.1 °C to 300 °C thereafter 1 °C
Accuracy	±0.4 °C ±0.1 % of reading
Memory	16000 or 2 x 8000 readings
Sample rate	0.1 to 255 minutes
Battery	AA Tadiran - Li-SOCl
Battery life	maximum 3 years @ 20 °C
Sensor type	K or T thermocouple
Display	12 mm LCD
Dimensions	34 x 66 x 109 mm
Weight	177 grams
Optional UKAS Certificate of Calibration available	

BLUETOOTH® LE THERMOMETERS

- Fast & accurate readings
- Instantly sends data to host device
- No more paperwork, eliminates human error
- SDK & technical support available

Using the latest Bluetooth LE thermometer technology eliminates human error from traditional pen and paper written logs and checks. Any iOS or Android smart phone, tablet or Windows 10 PC can be used as a host device to record and view the temperatures.
A simple push of the button will transmit the real time temperature to the host device, capture the reading and lock in the time and date for complete control on all checks.

APPLICATIONS FOR BLUETOOTH THERMOMETERS;

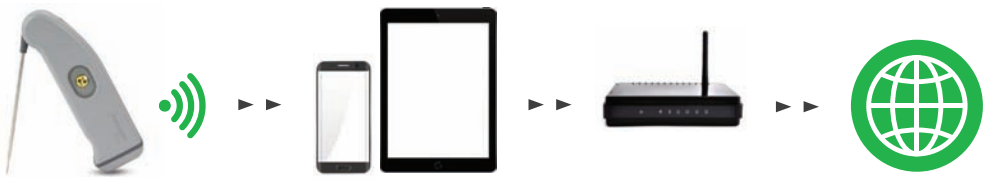
- Food processing
- Catering
- Refrigeration
- Water Treatment
- Logistics
- Pharmaceutical

Our latest range in Bluetooth LE thermometers are also the perfect tool for software developers to integrate into new or existing custom built software. An SDK is available upon request.

HOW DOES THE SOFTWARE DEVELOPMENT KIT (SDK) WORK?

The SDK gives the software developer working on iOS, Android or Windows the ability to fully integrate the functionality of the Bluetooth product. This way the custom application which may already be in use, allows the probes to enhance the system, improving data capturing and help businesses to comply to procedures. For further information please contact our technical sales office

EXAMPLE OF WHAT CAN BE ACHIEVED USING THE SDK



Readings taken & transmitted

Data captured on device

Data sent via WiFi to router

Manage & archive data in the cloud

HACCP LE MOBILE APPLICATION

HACCP LE is designed to allow iOS & Android devices to be used in conjunction with ETI Bluetooth thermometers. In seconds you can turn your smart device into a professional HACCP solution. Create custom checklists for food items, and Yes/No questions. Assign high and low temperature settings for each food item. Store temperature readings with the touch of a button and add user notes and corrective actions where needed. Export the results to store electronically as a PDF file.

THERMAPEN® BLUE THERMOMETER

- Reaches temperature in just 3 seconds
- Securely transmits data to your smart device
- Helps your business be HACCP compliant
- Colour-coded ID for different applications

The Thermapen Blue combines the latest Bluetooth® wireless technology with the same high accuracy, precision and speed as delivered by the Thermapen Professional. Simply connect to your host device (iOS or Android), probe the item to be measured and press the button to securely transmit your temperature data via a secure connection of up to 50 metres.

The casing is washable and includes Biomaster Antimicrobial Technology that reduces bacterial growth and the ergonomic rubber seal minimises the risk of the ingress of water, dust or food. As well as being waterproof to IP66/67, the Thermapen Blue is still 'probably' the fastest reading contact thermometer on the market today. The true temperature of a product can be tested in just three seconds.

The Thermapen Blue incorporates a reduced tip, stainless steel, penetration probe (Ø3.3 x 110 mm) that conveniently folds back through 180° into the side of the instrument when not in use.

A Software Development Kit (SDK) is available upon request to allow integrators to write custom Apps to communicate with the Thermapen Blue.

Example of HACCP LE App

Order code	Description
179-607	Thermapen Blue - grey
179-647	Thermapen Blue - red
179-657	Thermapen Blue - blue
830-620	Silicone boot - glow in dark/magnets
832-002	Stainless steel wall bracket

AUTO OFF · IP66/ IP67 · HACCP COMPATIBLE · SDK AVAILABLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Thermapen Blue
Range	-49.9 to 299.9 °C
Resolution	0.1 °C via remote device
Accuracy	±0.4 °C (-49.9 to 199.9 °C)
	otherwise ±1 °C
Bluetooth module	Bluetooth LE
Battery	1 x 1.5 volt AAA
Battery life	1000 hours - continuous use
Sensor type	K thermocouple
Dimensions	19 x 50 x 157 mm
Weight	112 grams
FREE traceable certificate of calibration included	

Please note: Bluetooth LE thermometers have a range of 50 metres depending on the users smart device make and model. Environmental conditions may also affect the signal strength.

BLUETHERM® ONE THERMOMETER

- Interchangeable thermocouple probes
- Fast & Accurate HACCP checks
- Water resistant to IP65
- SDK & technical support available

Example of HACCP LE App

Fast response penetration probe (133-153)

The BlueTherm One thermometer transmits temperature data to your iOS, Android or Bluetooth wireless device via a secure connection of up to 50 metres. This thermometer is specifically designed to eliminate the need for wires which often cause many traditional probes to break or fail.

Each unit is housed in an ergonomic case that includes Biomaster Antimicrobial Technology that reduces bacterial growth. The BlueTherm One incorporates a large LCD and a single LED which indicates Bluetooth connection status. A wide range of type K thermocouple probes can be connected to the BlueTherm One, see below and pages 39, 51 and 75 to 81 for details.

Available as a FREE download, the 'ThermaQ App' software reads the temperature and provides simple-to-set high and low alarms. This App includes programmable alerts and notifications to prompt changes and also logs data from the probe to a graph.

A Software Development Kit (SDK) is available upon request to allow integrators to write custom Apps to communicate with the BlueTherm One.

Order code	Description
292-911	BlueTherm One
830-210	Protective silicone boot - white
The BlueTherm One is exclusive of probe	

IP65 · HACCP COMPATIBLE · SDK AVAILABLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	BlueTherm One
Range	-199.9 to 1372 °C
Resolution	0.1 °C/°F to 999.9 thereafter 1 °C/°F
Accuracy	±0.4 °C ±0.1 % of reading
Bluetooth module	Bluetooth LE
Battery & life	1 x 1.5 volt AA - 3000 hours
Sensor type	K thermocouple
Display	12 mm LCD
Dimensions	34 x 66 x 109 mm
Weight	165 grams
FREE traceable certificate of calibration included	

		Order code	
FAST RESPONSE PENETRATION PROBE  HIGH ACCURACY HIGH ACCURACY Ø3.3 x 80 or 120 mm	This reduced tip (Ø1.8 x 25 mm) fast response, stainless steel penetration probe is versatile and ideal for liquids or semi-solids. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	133-153 (120 mm) 133-154 (80 mm)	
AIR OR GAS PROBE  HIGH ACCURACY HIGH ACCURACY Ø3.3 x 120 mm	This probe has a perforated stainless steel tip for fast response. Ideal for chill cabinets, fridges, freezers and HVAC units. ● Response time less than 1 second ● Probe temperature range -75 to 250 °C	133-301	
SURFACE PROBE  Ø8 x 120 mm	This stainless steel surface probe uses flat ribbon technology ensuring a fast, accurate response with minimal heat loss. A right-angled version is also available. ● Response time less than 1 second ● Probe temperature range 75 to 250 °C	133-045 133-046 (right-angled)	

Please note: Bluetooth LE thermometers have a range of 50 metres depending on the users smart device make and model. Environmental conditions may also affect the signal strength.

TEMPTEST® BLUE THERMOMETER

new

- Waterproof IP67, compact design
- Automatic 360° rotational display

The new TempTest Blue combines the latest Bluetooth wireless technology with high accuracy, precision and fast response. Simply connect to your host device (iOS or Android), probe the item to be measured and press the button to securely transmit your temperature data via a secure connection of up to 50 metres.

The thermometer is housed in a waterproof IP67 case with an ergonomic rubber seal, both include Biomaster Antimicrobial Technology to reduce bacterial growth. The TempTest Blue incorporates a stainless steel food penetration probe (Ø3.3 x 80 mm) with fast response tip. The true temperature of a product can be measured in just three seconds.

A Software Development Kit (SDK) is available upon request to allow integrators to write custom Apps to communicate with the TempTest Blue.

Order code	Description
292-910	TempTest Blue
830-431	Protective silicone boot - white

MAX/MIN · AUTO OFF · IP67 · 360° · HACCP COMPATIBLE · SDK AVAILABLE · Biomaster

Specification	TempTest Blue
Range	-49.9 to 299.9 °C
Resolution	0.1 °C/°F
Accuracy	±0.4 °C (-49.9 to 199.9 °C)
	otherwise ±1 °C
Bluetooth module	Bluetooth LE
Battery	2 x 1.5 volt AAA
Battery life	1000 hours - continuous use
Sensor type	K thermocouple
Display	11 mm LCD
Dimensions	17 x 47 x 200 mm (inc. probe)
Weight	105 grams
FREE traceable certificate of calibration included	

RAYTEMP® BLUE THERMOMETER

- Securely transmits data to your device
- Target distance/diameter ratio 5:1

The RayTemp Blue infrared non-contact thermometer incorporates many of the features of the RayTemp 2, but with the latest Bluetooth wireless technology. Simply connect to your host device (iOS or Android), press and hold the measure button and aim the thermometer at the target to display the surface temperature and securely transmit the data via a secure connection of up to 50 metres.

The unit does not incorporate laser alignment, which will encourage users to get closer to the object being measured thus reducing inaccurate readings.

The RayTemp Blue features a two button keypad, incorporating measure and on/off function, and an auto-power off facility that automatically turns the instrument off after 10 minutes, maximising battery life.

Order code	Description
228-920	RayTemp Blue
830-221	Protective silicone boot - white
814-132	Comparator

AUTO OFF · SDK AVAILABLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	RayTemp Blue
Range	-49.9 to 349.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C (0 to 100 °C) otherwise ±2 °C or
	±2 % of reading whichever is greater
Field of view	Target ratio 5:1
Bluetooth module	Bluetooth LE
Emissivity	0.95 default - adjustable 0.1 to 1
Battery & life	3 x 1.5 volt AAA - 3000 hours
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	140 grams
FREE traceable certificate of calibration included	

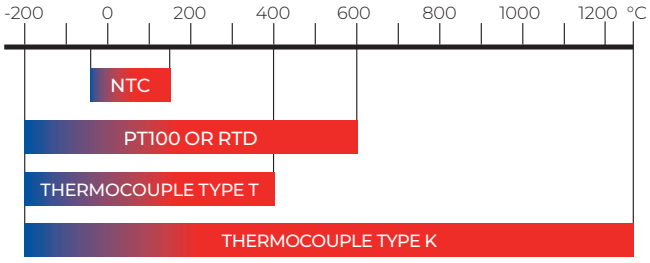
Please note: Bluetooth LE thermometers have a range of 50 metres depending on the users smart device make and model. Environmental conditions may also affect the signal strength.

INDUSTRIAL THERMOMETERS

Selecting the correct thermometer for an application is by definition very important, to achieve the maximum accuracy and repeatability of the temperature reading. The selection criteria for a digital thermometer should include:

- Measurement range
- Resolution of the reading 1 °C, 0.1 °C or 0.01 °C
- Desired accuracy
- Response time
- Extra features such as max/min, hold & backlight

Our digital thermometers utilise one of three types of temperature sensors: thermocouple, NTC thermistor and resistance temperature detectors (PT100 or RTD). Thermocouple thermometers and probes are fast to respond to changes in temperature, they also have a wide measurement range. Resistance temperature detector and NTC thermistor thermometers and probes are slower to respond to changes in temperature, but generally more accurate, although thermistor probes have a limited measurement range.



NTC THERMISTORS

NTC thermistor probes are also based on a temperature dependent resistance change in the sensor element. But unlike resistance thermometer detectors, thermistors have a negative temperature coefficient, i.e the resistance decreases with increasing temperature.

RESISTANCE TEMPERATURE DETECTORS

Resistance temperature detector (PT100 or RTD) probes consist of a flat film or wire wound platinum resistance sensor element. The measurement resistance value changes in line with the temperature being measured.

THERMOCOUPLES

Thermocouple probes consist of two wires of dissimilar metals or metal alloys welded together. Thermocouples are based on the thermoelectric (Seebeck) effect. There are various types of thermocouple, types K and T being the most common, although type K is by far the most widely used.

THERMA 1, 3 & ELITE THERMOMETERS

- Elite model includes backlight & max/min functions
- FREE traceable certificate of calibration
- Interchangeable thermocouple probes
- Compact & robust design

The Therma 1 and 3 digital thermometers are rugged and easy to use instruments that operate through the range of -100 to 1372 °C with a 0.1 °C or 1 °C resolution. The thermometers are housed in a robust ABS case that contains Biomaster Antimicrobial Technology to reduce bacterial growth.

The Therma 1 and 3 feature large, easy to read, LCD displays with open circuit 'Err', hold and low battery indication. Each thermometer is powered by three AAA batteries that give a minimum of 10000 hours battery life. The units will power off automatically after ten minutes, maximising battery life. This feature can be disabled by the user, if not required.

We offer an extensive range of interchangeable type K thermocouple probes for a variety of different applications, see pages 75 to 81 for full details.

Penetration probe (123-160)

- **Therma Elite thermometer**
  The Therma Elite incorporates all the features of a Therma 1 thermometer, but with the addition of a backlit display, max/min memory function and a mode button for the selection of 0.1/1 °C/°F. The thermometer also incorporates a calibration trim function (±2 °C) which allows the user to compensate for thermocouple probe errors.

OPTIONAL ACCESSORIES:

- Protective silicone boot - the Therma series is splashproof to IP64 when used in conjunction with this boot. Various colours are available - see page 13 for details
- Stainless steel wall bracket (screws not supplied) & protective black silicone boot (832-053)

Order code	Description
221-041	Therma 1
221-043	Therma 3
221-061	Therma Elite
123-160	Penetration probe
830-227	Protective silicone boot - black
832-053	S/steel wall bracket & boot
The Therma series is exclusive of probe	

HOLD | MAX/ MIN | AUTO OFF | Biomaster | 2 YEAR GUARANTEE | MADE IN BRITAIN

Specification	Therma 1/Elite	Therma 3
Range 0.1 °C	-99.9 to 299.9 °C	N/A
Range 1 °C	300 to 1372 °C	-100 to 1372 °C
Resolution	0.1 °C & 1 °C	1 °C
Accuracy	±0.4 °C ±0.1 %	±1 °C
Battery & life	3 x 1.5 volt AAA - 10000 hours	
Sensor type	K thermocouple	
Display	12 mm LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130 grams	
FREE traceable certificate of calibration included		

THERMA WATERPROOF THERMOMETER

- Interchangeable thermocouple probes
- Waterproof IP66/67, robust design
- Integrated rubber seal for durability
- Large, easy to read backlit LCD

The Therma Waterproof thermometer is housed in a robust waterproof black ABS case which offers IP66/67 protection. The thermometer utilises state of the art electronic circuitry, designed for reliability and ease of use and can be submerged or washed under a running tap - ideal for industrial applications.

The thermometer measures temperature over the range of -99.9 to 299.9 °C with a 0.1 °C resolution, auto-ranging to 1 °C resolution over the range of 300 to 1372 °C.

The Therma Waterproof thermometer features a large easy to read, LCD display with max/min, hold, open circuit, low battery indication and a user selectable backlight. The unit also incorporates an auto-power off facility that automatically turns the instrument off after ten minutes, maximising battery life.

Each unit is housed in a durable, ABS case that incorporates an integrated rubber seal to ensure complete water tightness and help reduce the possibility of damage in harsh environments.

We offer an extensive range of interchangeable type K thermocouple probes, for a variety of different applications, see pages 75 to 81 for full details.

Waterproof penetration probe (143-162)

Order code	Description
232-101	Therma Waterproof
143-162	Penetration probe
830-257	Protective silicone boot - black

The Therma Waterproof is exclusive of probe

OPTIONAL ACCESSORIES:

- Protective silicone boot. Various colours are available - see page 38 for details
- Anti-bacterial Probe Wipes - helps reduce bacterial growth - see page 35

HOLD | MAX/ MIN | AUTO OFF | IP66/ IP67 | Biomaster | 2 YEAR GUARANTEE | MADE IN BRITAIN

Specification	Therma 1/Elite
Range 0.1 °C	-99.9 to 299.9 °C
Range 1 °C	300 to 1372 °C
Resolution	0.1 °C to 299.9 °C thereafter 1 °C
Accuracy	±0.4 °C ±0.1 % of reading
Battery	3 x 1.5 volt AAA
Battery life	7500 hours
Sensor type	K thermocouple
Display	15 mm LCD
Dimensions	32 x 71 x 141 mm
Weight	220 grams

FREE traceable certificate of calibration included

LEGIONNAIRES' THERMOMETER KITS

- For routine water temperature monitoring
- New budget kit available for 2019

Incorrect water temperature is a key risk factor for legionella growth. The legionella bacteria multiply in water at temperatures between 20 to 45 °C. A typical method of control is to store hot water above 60 °C and distribute it at above 50 °C (care must be taken to prevent scalding). Cold water should be kept below 20 °C. These kits represent excellent value-for-money and are supplied in a robust ABS carrying case/zip pouch. For a full specification on the Therma 1, see page 61.

BUDGET LEGIONNAIRES' THERMOMETER KIT

Each kit contains:

- Therma 1 thermometer (221-041)
- Waterproof surface immersion probe (323-046)
- Heavy Duty PTFE wire probe (133-372)
- Zip pouch (830-037)

Order code	Description
860-885	Budget Legionnaires' kit

FREE traceable certificate of calibration included

LEGIONNAIRES' THERMOMETER KIT

Each kit contains:

- Therma 1 thermometer (221-041)
- Penetration probe (123-160)
- Precision ribbon surface probe (123-030)
- PTFE wire probe (133-362)
- Water resistant countdown timer (806-150)
- Mini tub of 70 Probe Wipes (836-022)
- ABS carrying case (834-150)

Order code	Description
860-860	Legionnaires' thermometer kit

FREE traceable certificate of calibration included

LEGAL RESPONSIBILITIES FOR TESTING FOR LEGIONELLA

If you are the employer or person in control of premises, you must organise a risk assessment from exposure to legionella. The revised Approved Code of Practice (ACOP) Legionnaires' disease: Control of Legionella Bacteria in water systems (L8) issued by the Government's Health and Safety Executive (HSE) significantly extends the scope of its guidance on control of legionella bacteria in water. The code applies to all hot and cold water systems in the workplace regardless of their capacity, i.e. the lower limit of 300 litres previously used to exclude domestic systems, no longer applies. Whilst domestic systems may represent a risk, the code only applies to a risk arising from a work activity, but does include domestic landlords who have a duty to keep their tenants safe from health hazards. This means that all employers and landlords, who manage premises with hot/cold water systems and/or wet cooling systems, have a legal responsibility to identify any risk of contamination and to prevent or control it.

THERMA DIFFERENTIAL THERMOMETER

- Robust, waterproof case offering IP66/67 protection
- Ideal for radiator balancing or HVAC applications
- Designed for plumbers, reliable & easy to use
- Backlit LCD with max/min & hold functions

The Therma Differential is a digital thermometer that allows the user to operate two type K thermocouple probes simultaneously. The display can be switched to show probe T1 or T2 temperature or the difference between probes T1 and T2 (T1-T2). This allows, for example, the temperature drop across radiators or the temperature rise or fall of two items being measured.

The Therma Differential measures temperature over the range of -99.9 to 299.9 °C with a 0.1 °C resolution or 300 to 1372 °C with a 1 °C resolution. The thermometer features a custom, LCD display with °C/°F, T1, T2, diff, hold, open circuit, low battery indication and a user selectable backlight. The unit incorporates an auto-power off facility that automatically turns the instrument off after ten minutes, maximising battery life.

Each unit is housed in a durable, ABS case that has an integrated rubber seal to ensure complete water tightness and help reduce the possibility of damage in harsh environments.

We offer an extensive range of interchangeable type K thermocouple probes, for a variety of different applications, see pages 75 to 81 for full details.

OPTIONAL ACCESSORIES:

- Protective silicone boot - black c/w foot stand and magnet for mounting on pipes, radiators etc.. (830-258)
- Stainless steel wall bracket (832-015) screws not supplied
- Anti-bacterial Probe Wipes - help reduce bacterial growth - see page 35

Order code	Description
231-022	Therma Differential
830-258	Protective silicone boot - black
133-040	Pipe clamp probe
832-015	Stainless steel wall bracket
The Therma Differential is exclusive of probe	

HOLD · MAX/MIN · AUTO OFF · IP66/IP67 · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Therma Differential
Range 0.1 °C	-99.9 to 299.9 °C
Range 1 °C	300 to 1372 °C
Resolution	0.1 °C to 299.9 °C thereafter 1 °C
Accuracy	±0.4 °C ±0.1 % of reading
Battery	3 x 1.5 volt AAA
Battery life	7500 hours
Sensor type	K thermocouple
Display	15 mm LCD
Dimensions	32 x 71 x 141 mm
Weight	220 grams
FREE traceable certificate of calibration included	

HVAC THERMOMETER KITS

- For everyday temperature monitoring
- Excellent value-for-money

These HVAC thermometer kits are ideal for a wide range of plumbing and heating applications. The kits can be used to monitor both cold and hot water temperatures as well as undertake other routine HVAC checks. A typical application includes balancing radiators using a pair of clip-on pipe probes on the flow and return pipes at either end of the radiator. Starting with the radiator nearest the boiler, adjust the lockshield valve until you get a temperature drop of 11 °C across the two pipes. Then move on to the other radiators in turn.

For a full specification on the Therma Differential thermometer, see page opposite.

BUDGET HVAC THERMOMETER KIT

Each kit contains:

- Therma Differential thermometer (231-022)
- 2 x pipe clamp probes (133-040)
- Zip pouch (830-090)

Order code	Description
860-095	Budget HVAC thermometer kit
FREE traceable certificate of calibration included	

HVAC THERMOMETER KIT

Each kit contains:

- Therma Differential thermometer (231-022)
- Precision ribbon surface probe (123-030)
- Penetration probe (123-160)
- 2 x pipe clamp probes (133-040)
- ABS carrying case (834-300)

Order code	Description
860-090	HVAC thermometer kit
FREE traceable certificate of calibration included	

LEGAL RESPONSIBILITIES FOR SAFE SURFACE & WATER TEMPERATURES

If you are the employer or person in control of premises you have a legal duty of care in respect of the risk of scalding or burning from hot water and hot surface temperatures. NHS and HSE guidelines state that surface temperatures of space heating devices such as thermal storage heaters, oil-filled radiators and conventional radiators should not exceed 43 °C. This will control and prevent patients from being burned. When the surface temperature exceeds 43 °C there is a high risk of burning, often leading to fatalities in the elderly, people with mental illness and learning disabilities or children who cannot react appropriately to prevent injury.

MICROTHERMA 1 THERMOMETER

- ±0.2 °C high accuracy, 0.1 °C resolution over the full range
- Multi-input type K, J, T, R, N, S & E thermocouple probes
- In-built microprocessor for automatic re-calibration
- FREE traceable certificate of calibration

High temperature probe (123-212)

The MicroTherma 1 microprocessor thermometer measures temperature over the range of -270 to 1768 °C with a 0.1 °C/°F resolution. Each MicroTherma 1 incorporates an easy to read, 4½-digit dual LCD display with open circuit, low battery, hold, max/min and °C/°F indication.

The thermometer should never need re-calibrating as the microprocessor enables the instrument to continuously and automatically carry out self-diagnostic re-calibration. An additional feature allows the user to adjust the reading (±2.5 °C) to offset any probe errors, correcting any inaccuracies of the thermocouple probe.

Each thermometer thereafter will automatically store, display the offset and adjust the instrument for the known probe error, maximising system accuracy.

The MicroTherma 1 has the versatility of accepting any type K, J, T, R, N, S & E thermocouple probe, the probe type is simply selected through the mode button. The unit incorporates both max and min readings with a reset function and also features an auto-power off facility that maximises the battery life, turning the instrument off automatically after 30 minutes, this function can be disabled by the user, if not required. Other selectable parameters include: display contrast and internal CJC temperature reading. For details of the wide range of type K or type T thermocouple probes available, see pages 75 to 81.

Reduced tip probe (137-126)

OPTIONAL ACCESSORIES:

- Protective silicone boot - white. Protect your instrument against accidental damage by fitting a boot (830-205)
- Acrylic wall bracket (screws not supplied). Ideal for storing your thermometer safely when not in use (832-115)

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Order code	Description
221-091	MicroTherma 1
123-212	High temperature probe
137-126	Reduced tip probe
830-205	Protective silicone boot - white
832-115	Acrylic wall bracket

The MicroTherma 1 is exclusive of probe

Specification	MicroTherma 1
Range 0.1 °C	-270 to 1768 °C
Resolution	0.1 °C/ °F
Accuracy	±0.2 °C ±1 digit
Battery	2 x 1.5 volt AAA
Battery life	1000 hours
Sensor type	K, J, T, R, N, S & E thermocouple - selectable
Display	Custom LCD
Dimensions	35 x 73 x 141 mm
Weight	175 grams

FREE traceable certificate of calibration included

THERMA 1T THERMOMETER

- High accuracy ±0.2 °C
- Utilises high accuracy type T thermocouple probes
- FREE traceable certificate of calibration
- Includes Biomaster Antimicrobial Technology

The Therma 1T utilises a type T thermocouple sensor which offers both fast response and a measurement range of -100 to 400 °C with a 0.1 °C resolution. Each unit is housed in a robust ABS case that contains Biomaster Antimicrobial Technology that reduces bacterial growth.

The Therma 1T thermometer features a large, easy to read, LCD display with open circuit and low battery indication. Each unit is powered by three AAA batteries that give a minimum of 10000 hours battery life. The instrument will power off automatically after ten minutes, maximising battery life. This feature can be disabled by the user, if not required.

Below is a small selection of our high accuracy (±0.2 °C) type T thermocouple probes, for alternative probes contact our sales team or visit our website.

HOLD AUTO OFF Biomaster 2 YEAR GUARANTEE MADE IN BRITAIN

Order code	Description
221-107	Therma 1T
830-221	Protective silicone boot - white
832-050	S/steel wall bracket & boot
The Therma 1T is exclusive of probe	

Fast response probe (127-159)

Specification	Therma 1T
Range	-100 to 400 °C
Resolution	0.1 °C to 300 °C thereafter 1 °C
Accuracy	±0.2 °C ±0.1 % of reading
Battery & life	3 x 1.5 volt AAA - 10000 hours
Sensor type	T thermocouple
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams
FREE traceable certificate of calibration included	

INDUSTRIAL

HIGH ACCURACY TYPE T THERMOCOUPLE PROBES

		Order code	
PENETRATION PROBE  HIGH ACCURACY Ø3.3 x 130 mm	This stainless steel penetration probe is strong, versatile and ideal for measuring liquids and semi-solids. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	127-160 327-160 (coiled lead)	
FAST RESPONSE PROBE  HIGH ACCURACY Ø3.3 x 100 mm	This reduced tip (Ø1.8 x 25 mm), fast response, stainless steel penetration probe is ideal for liquids or semi-solids i.e. soft rubber and other similar materials. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	127-159 327-159 (coiled lead)	
AIR OR GAS PROBE  HIGH ACCURACY Ø4.5 x 130 mm	This stainless steel, fast response probe is ideal for measuring air temperature in chill cabinets, fridges, freezers, storage areas and similar. ● Response time less than 1 second ● Probe temperature range -75 to 250 °C	127-300 327-300 (coiled lead)	

Please note: the above type T thermocouple probes offer a high accuracy of ±0.2 °C over the range of -20 to 70 °C

PRECISION PT100 THERMOMETERS

- High accuracy ±0.2 °C or 0.05 °C
- Interchangeable PT100 probes
- 0.1 °C or 0.01 °C resolution
- Meets the European Standard EN 13485

PT100 1/10th DIN liquid probe (160-222)

High accuracy is one of the notable features of the Precision thermometers. There are two models available, the Precision and Precision Plus. The Precision measures temperature over the range of -199.9 to 499.9 °C with a 0.1 °C resolution and high accuracy of ±0.2 °C. The Precision Plus measures temperature over the range of -199.99 to 199.99 °C with a 0.01 °C resolution and high accuracy of ±0.05 °C. **Please note:** the accuracies quoted are for the instruments only.

Conveniently located on the front of the instrument are the on/off, max/min and display hold buttons. The Binder probe socket is positioned at the top of the instrument which enables a variety of probes to be used depending on the application.

The Precision thermometers feature a large, easy to read, LCD display with open circuit 'Err' and low battery indication. Each thermometer is powered by three AAA batteries that give a minimum of 2000 hours battery life. The unit will power off automatically after ten minutes, maximising battery life. This feature can be disabled by the user, if required.

We offer a range of interchangeable PT100 Class A probes for use with the Precision thermometer, see page 83 for full details. The Precision Plus is supplied with a PT100 1/10th DIN liquid probe (160-222) and a UKAS Certificate of Calibration. For regularly checking the accuracy of each Precision thermometer, a range of calibration PT100 test caps complete with a UKAS Certificate of Calibration are available, see page 103 for details.

Order code	Description
222-053	Precision thermometer
222-051	Precision Plus thermometer
160-222	PT100 1/10th DIN liquid probe
830-221	Protective silicone boot - white
832-050	S/steel wall bracket & boot

The Precision is exclusive of probe
The Precision Plus is inclusive of probe

UKAS CALIBRATION 0601

OPTIONAL ACCESSORY:

- Protective silicone boot - the Precision/Precision Plus thermometers are splashproof to IP64 when used in conjunction with this boot. Various colours are available - see page 13

HOLD | MAX/ MIN | AUTO OFF | Biomaster | 2 YEAR GUARANTEE | MADE IN BRITAIN

Specification	Precision	Precision Plus
Range	-199.9 to 499.9 °C	-199.99 to 199.99 °C
Resolution	0.1 °C	0.01 °C
Accuracy	±0.2 °C	±0.05 °C
Battery & life	3 x 1.5 volt AAA - 2000 hours	
Sensor type	PT100	
Display	10 mm LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130 grams	

The Precision includes a traceable certificate of calibration
The Precision Plus includes a UKAS Certificate of Calibration

INDUSTRIAL THERMAPEN® THERMOMETERS

- Choice of air, surface or penetration probe
- Lightweight, compact & easy to use
- High accuracy ±0.4 °C
- One-handed operation

These industrial Thermapen thermometers incorporate a large digital display with a precise read-out over the range of -49.9 to 299.9 °C with a 0.1 °C resolution and an accuracy of ±0.4 °C. The resolution can be switched to 1 °C, if required, via a switch in the battery compartment.

The thermometer will power off automatically after ten minutes, maximising battery life. This feature can be disabled if not required. Both low battery (icon) and open circuit indication are also displayed, when applicable. Each industrial Thermapen is powered by two lithium coin cell batteries with a minimum life expectancy of 1500 hours.

The probe conveniently folds back through 180° into the side of the instrument when not in use. The casing is washable and includes Biomaster Antimicrobial Technology that reduces bacteria growth and the ergonomic rubber seal minimises the risk of the ingress of water, dust or food.

- **Choice of probe styles**
  The industrial Thermapen is available with three styles of probe; surface, air or penetration. The fast response air probe is an invaluable tool in establishing the correct air temperature quickly in HVAC and laboratory applications. The surface probe is particularly useful in determining the temperature of hot plates or pipes etc. **Please note:** the accuracy and speed of response will be dependant on whether the surface is flat and heat transfer compound is used.

WATERPROOF SURFACE PROBE

Ø8 x 95 mm

This waterproof ribbon surface probe is ideal for measuring the surface temperature of pipes, bearings, hotplates and other flat surfaces.

PENETRATION PROBE

Ø3.3 x 108 mm

This strong and versatile probe incorporates a pointed, general purpose tip, ideal for insertion into liquids and semi-solids.

AIR OR GAS PROBE

Ø3.3 x 95 mm

This fast response air or gas probe is ideal for measuring the air temperature in HVAC applications, laboratories and other temperature sensitive working areas.

OPTIONAL ACCESSORIES:

- Protective PVC wallet with belt strap (830-110)
- Protective silicone boot (830-260)
- Glow-in-the-dark silicone boot with magnets (830-265)
- Stainless steel wall bracket (832-002) screws not supplied

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Order code	Description
231-210	Industrial Thermapen - penetration
231-212	Industrial Thermapen - surface
231-214	Industrial Thermapen - air
830-260	Protective silicone boot
830-265	Silicone boot - glow in dark
830-110	Protective wallet
832-002	Stainless steel wall bracket
The Thermapen is supplied in a zip pouch (830-001)	

Specification	Industrial Thermapen
Range	-49.9 to 299.9 °C
Resolution	0.1 °C or 1 °C - user selectable
Accuracy	±0.4 °C (-49.9 to 199.9 °C) or ±1 °C
Battery	2 x 3 volt CR2032 lithium coin cell
Battery life	1500 hours
Sensor type	K thermocouple
Display	14.5 mm LCD
Dimensions	19 x 47 x 153 mm
Weight	97 grams
FREE traceable certificate of calibration included	

BI-METAL DIAL THERMOMETERS

Ø25 mm bi-metal dials

These pocket-sized Ø25 mm dial thermometers feature a magnified lens and a pointed Ø4 x 130 mm stainless steel stem. Each dial is manufactured in three scales and is supplied with a FREE calibration spanner and probe cover complete with pocket clip.

The thermometer incorporates a calibration adjustment nut, at the rear of the dial to allow easy re-calibration.

Order code	Description	Range
800-811	Ø25 mm dial	-40 to 70 °C
800-812	Ø25 mm dial	-10 to 110 °C
800-813	Ø25 mm dial	0 to 250 °C
830-220	Ø4 mm probe holder clip	

Ø45 mm bi-metal dials

These pocket-sized Ø45 mm dial thermometers feature a pointed Ø4 x 130 mm stainless steel stem. Each dial is manufactured in three scales and is supplied with a FREE calibration spanner and probe cover complete with pocket clip.

The thermometer incorporates a calibration adjustment nut, at the rear of the dial to allow easy re-calibration.

Order code	Description	Range
800-801	Ø45 mm dial	-40 to 70 °C
800-802	Ø45 mm dial	-10 to 110 °C
800-803	Ø45 mm dial	0 to 250 °C
830-220	Ø4 mm probe holder clip	

HEAVY DUTY BI-METAL DIAL THERMOMETERS

- Self adjustment nut for easy re-calibration
- Ø50 mm dial with 300 mm length probe

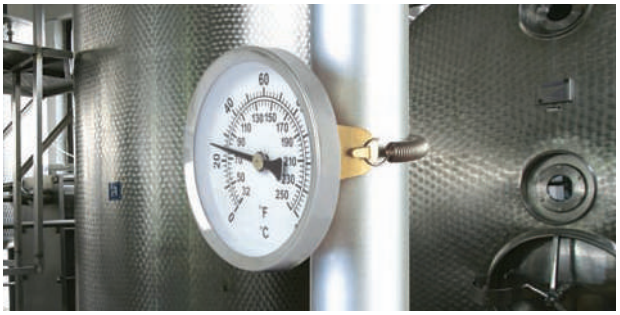
These simple to use, heavy duty, Ø50 mm bi-metal dial probe thermometers are reliable and accurate. The dial thermometers feature a Ø6.35 x 300 mm pointed stainless steel stem. Ideal for asphalt, blacktop, soil and other heavy duty applications.

Each thermometer incorporates a clear acrylic face and a calibration adjustment nut at the rear of the dial. Three temperature scales are available - see below.

Order code	Description	Range
800-060	Ø50 mm dial	-20 to 60 °C
800-120	Ø50 mm dial	0 to 120 °C
800-250	Ø50 mm dial	0 to 250 °C

BI-METAL DIAL PIPE THERMOMETERS

Pipe surface thermometer



This easy to use surface pipe thermometer features a Ø60 mm stainless steel dial and indicates temperature over the range of 0 to 120 °C or 32 to 250 °F. The Ø50 mm dial face has a clear, graduated scale indicating temperature in 2 °C and 4 °F divisions.

Supplied with a wrap-around stainless steel spring kit for pipe mounting (two springs - one for up to 15 mm pipes, the other for up to 53 mm pipes). For larger pipes it is possible to attach the thermometer to pipework using either tie-wraps or wire (not supplied).

Order code	Description
800-951	Pipe thermometer

Budget pipe surface thermometer

This easy to use surface pipe thermometer features a Ø60 mm nickel plated dial and indicates temperature over the range of 0 to 120 °C. The Ø50 mm dial face has a clear, graduated scale indicating temperature in 2 °C divisions.

Each pipe surface thermometer is supplied with a wrap-around spring kit (53 mm long) for pipe mounting. For larger pipes it is possible to attach the thermometer to pipework using either tie-wraps or wire (not supplied).

Order code	Description
800-971	Budget pipe thermometer

MAGNETIC BI-METAL DIAL THERMOMETER

- Ø60 mm bi-metal dial
- Ideal for central heating & HVAC industries

This Ø60 mm stainless steel, surface dial thermometer incorporates a magnetic sensing pad for mounting on ferrous metals and indicates temperature ranges from 0 to 120 °C or 32 to 250 °F.

This magnetic dial thermometer is widely used in the central heating and HVAC industries and is suitable for monitoring the temperature of radiators and pipes, it is especially useful when balancing radiator temperatures.

The Ø50 mm dial face has a clear, graduated scale indicating temperature in 2 °C and 4 °F divisions.

Order code	Description
800-950	Magnetic thermometer

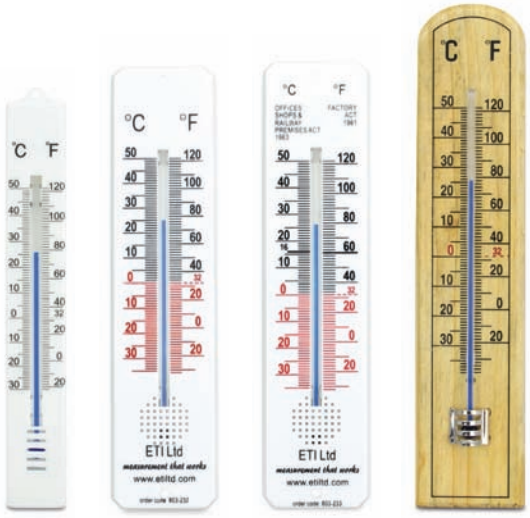
ROOM THERMOMETERS

- Simple & cost-effective means of measuring temperature
- Traditional, spirit-filled design - mercury free

These traditional, spirit-filled room thermometers display temperature over the range of -30 to 50 °C with an accuracy of ±1 °C and a clearly marked scale in both °C and °F.

Models 803-229, 803-232 and 803-233 are housed in a white, ABS plastic case whereas model 803-292 is housed in a smooth grained, traditional style, beechwood case. Model 803-233 indicates the Factory Act minimum working temperature of 16 °C.

These room thermometers feature a wall-mounted slot for hanging and are ideal for recording temperatures in the office, factory, laboratory or home.



Order code	Description
803-229	White 25 x 175 mm
803-232	White 45 x 195 mm
803-233	White 45 x 195 mm - Factory Act
803-292	Wooden 45 x 205 mm

MAX/MIN THERMOMETER

- Simultaneously displays max/min temperatures
- Large, easy to read LCD display

These digital max/min thermometers with internal temperature sensor simultaneously display the actual temperature whilst displaying the maximum and minimum recorded temperatures.

Each unit measures temperature over the range of -20 to 69.9 °C with a 0.1 °C/°F resolution and is ideal for recording temperatures in an office, factory, laboratory, home, greenhouse or conservatory.

The thermometer is easy to use, to switch the current reading between °C and °F or reset the recorded max/min temperatures simply press the button on the side of the unit.

The unit is housed in an ABS case measuring 29 x 79 x 187 mm that incorporates a slot for hanging and is powered by one AA battery (supplied).

Order code	Description
810-120	Digital max/min - white
810-121	Digital max/min - green

Specification	Digital max/min
Range	-20 to 69.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery & life	1.5 volt AA - 4000 hours
Display	Custom LCD
Dimensions	29 x 79 x 187 mm
Weight	180 grams

MAX/MIN THERMOMETER

- Internal sensor & external temperature probe
- Programmable high/low audible alarm

This max/min and alarm thermometer indicates temperature over the range of -24.9 to 69.9 °C with a resolution of 0.1 °C/°F and an accuracy of ±1 °C.

The thermometer features a large, easy to read LCD display, max/min memory function to record the highest and lowest temperatures and a high/low programmable audible alarm. The unit incorporates two temperature sensors, a remote water resistant probe with one metre PVC lead for the appliance temperature and an internal sensor for the room temperature.

The remote probe can be mounted onto a wall using the suction pad or mounting bracket supplied. Housed in a durable ABS case the thermometer incorporates a foot-stand for shelf mounting.

Remote probe

Order code	Description
810-125	Digital max/min thermometer

Specification	Digital max/min
Range	-24.9 to 69.9 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery	3 volt CR2032 lithium coin cell
Battery life	3000 hours
Display	Custom LCD
Dimensions	16 x 50 x 82 mm
Weight	50 grams

MAX/MIN THERMOMETER

- Classic design with a modern digital LCD bar graph
- Internal temperature sensor

This max/min thermometer simultaneously displays the actual temperature whilst displaying the max and min temperatures on a digital LCD bar graph.

The thermometer measures temperature over the range of -40 to 40 °C with a resolution of 0.1 °C/°F and an accuracy of ±1 °C. To switch the current reading between °C and °F, simply press the button on the side of the unit. To reset the recorded max and min temperatures, simply press the red 'clear' button on the front of the thermometer.

The instrument is housed in an ABS case which incorporates a slot for hanging and is powered by one AA battery (supplied).

Order code	Description
810-020	Digital max/min thermometer

Specification	Digital max/min
Range	-40 to 40 °C
Resolution	0.1 °C/°F
Accuracy	±1 °C
Battery	1.5 volt AA
Battery life	4000 hours
Display	Custom LCD
Dimensions	31 x 79 x 187 mm
Weight	170 grams

THERMOCOUPLE, PT100 & THERMISTOR PROBES

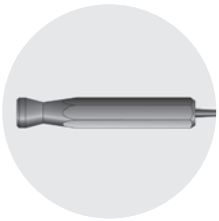
Thermometers are only part of the system; of equal importance is the design of the temperature probes used to physically measure the item. ETI manufacture an extensive range of probes to compliment our range of instrumentation.

RESPONSE TIMES

The response time is the time taken for the sensor to reach 66.6 % of the final reading and is the industry standard means of measuring probe response times. Five times the quoted response time is the figure normally required to obtain 100 % of the reading. Response times are dependent upon the substance being measured and in the case of liquid or gas, upon the degree of agitation. It is therefore difficult to quote an accurate response time without knowledge of the application. The results given in this catalogue were obtained in a stirred oil bath and may differ from those obtained under other conditions but can be used as a general guide when selecting probes.

HANDLE TYPES

Where appropriate, each probe is supplied with a hexagonal, small rounded, ribbed heavy duty or T-shaped handle. To reduce bacterial growth, probe handles contain Biomaster Antimicrobial Technology.

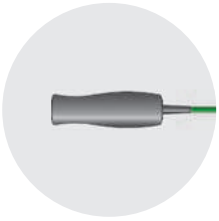


HEXAGONAL

Manufactured from nylon and available in black.
Maximum temperature is 105 °C.

T-SHAPED

Manufactured from polypropylene and available in black or white.
Maximum temperature is 105 °C.



SMALL ROUNDED

Manufactured from nylon and available in black.
Maximum temperature is 105 °C.

RIBBED HEAVY DUTY

Manufactured from polypropylene and available in black or white.
Maximum temperature is 85 °C.
Available with colour-coded caps.

PROBE ACCURACY SPECIFICATIONS

K Thermocouple Probes/Sensors
All type K thermocouple probes/sensors are manufactured from Class 1 type K thermocouple wire as detailed in the British Standard BS EN 60584-1:2013, and meet the following accuracy specification:

- ±1.5 °C between -40 & 375 °C
- ±0.4 % between 375 & 1000 °C

T Thermocouple Probes/Sensors
All type T thermocouple probes/sensors are manufactured from Class 1 type T thermocouple wire as detailed in the British Standard BS EN 60584-1:2013, and meet the following accuracy specification:

- ±0.5 °C between -40 & 125 °C
- ±0.4 % between 125 & 400 °C

NTC Thermistor Probes/Sensors
The tolerance specification for all ETI manufactured thermistor probes is as follows:

- ±0.4 °C between -20 & 100 °C
- ±0.2 °C between 0 & 70 °C
- ±0.3 °C between -10 & 0 °C

High Accuracy K Thermocouple Probes/Sensors (indicated in the catalogue with the HIGH ACCURACY icon)
ETI high accuracy type K probes are manufactured from Class 1 type K thermocouple wire which is chosen for improved accuracy and performance and meet the following accuracy specification:

- ±0.5 °C between 0 & 100 °C

High Accuracy T Thermocouple Probes/Sensors (indicated in the catalogue with the HIGH ACCURACY icon)
ETI high accuracy type T probes are manufactured from Class 1 type T thermocouple wire which is chosen for improved accuracy and performance and meet the following accuracy specification:

- ±0.2 °C between -20 & 70 °C

PT100/RTD Probes/Sensors
All PT100/RTD probes/sensors are manufactured from Class A PT100/RTD 100 Ω (ohmns) detectors as detailed in the IEC 60751 (2008) standard, and meet the following accuracy specification:

- ±0.15 °C ±0.2 % between -200 & 600 °C

HAND HELD TYPE K OR T THERMOCOUPLE PROBES

		Order code	£ each
PENETRATION PROBE  Ø3.3 x 130 mm	This stainless steel penetration probe is strong, versatile and ideal for measuring liquids and semi-solids. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	123-160 323-160 (coiled lead)	
PENETRATION PROBE  Ø3.3 x 300 mm	This extended, stainless steel penetration probe is strong, versatile and ideal for measuring liquids and semi-solids. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	123-168 323-168 (coiled lead)	
FAST RESPONSE PROBE  Ø3.3 x 100 mm	This reduced tip (Ø1.8 x 25 mm), fast response, stainless steel penetration probe is ideal for liquids or semi-solids i.e. soft rubber and other similar materials. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	123-159 323-159 (coiled lead)	
NEEDLE PENETRATION PROBE  Ø1.8 x 130 mm	This fast response, stainless steel needle penetration probe is ideal for liquids or semi-solids i.e. soft rubber or plastic. ● Response time less than 1 second ● Probe temperature range -75 to 250 °C	123-100 323-100 (coiled lead)	
OVEN PROBE  Ø3.3 x 130 mm	This oven probe has a stainless steel handle and a two metre PTFE high temperature lead. An oven probe without a handle is available. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	133-170 133-173 (no handle)	
RIGID BETWEEN PACK PROBE  Ø4.5 x 130 mm	This rigid, stainless steel between pack probe is strong and versatile, designed specifically to measure between packets or boxes of produce. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	123-060 323-060 (coiled lead)	
HIGH TEMPERATURE PROBE  Ø1.5 x 130 mm	This flexible, mineral insulated (MI) probe can be bent to any shape without affecting its performance. Ideal for measuring high temperatures i.e. fryers or furnaces. ● Response time less than 2 seconds ● Probe temperature range -200 to 1100 °C	123-204 323-204 (coiled lead)	
HIGH TEMPERATURE PROBE  Ø3 x 130 mm	This flexible, mineral insulated (MI) probe can be bent to any shape without affecting its performance. Ideal for measuring high temperatures i.e. fryers or furnaces. ● Response time less than 3 seconds ● Probe temperature range -200 to 1100 °C	123-212 323-212 (coiled lead)	
HIGH TEMPERATURE PROBE  Ø3 x 300 mm	This extended, flexible, mineral insulated (MI) probe can be bent to any shape without affecting its performance. Ideal for measuring high temperatures i.e. fryers or furnaces. ● Response time less than 4 seconds ● Probe temperature range -200 to 1100 °C	123-213 323-213 (coiled lead)	

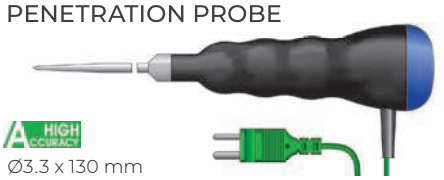
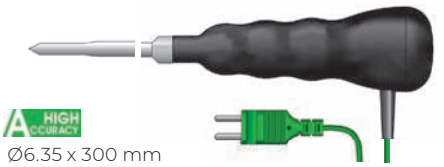
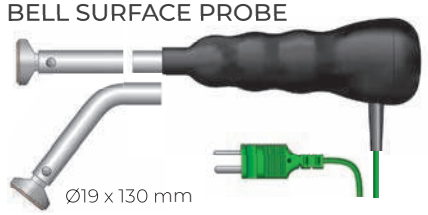
Please note: for hand held type T thermocouple probes, replace the third digit (3) of the order code with the number 7

HAND HELD TYPE K OR T THERMOCOUPLE PROBES

		Order code	£ each
BINDER PROBE  HIGH ACCURACY HIGH ACCURACY Ø3 x 130 mm	This rounded tip, stainless steel probe is designed for inserting into Binder self-sealing glands to measure the temperature of vessels or radiators. • Response time less than 3 seconds • Probe temperature range -75 to 250 °C	123-240 323-240 (coiled lead)	
AIR OR GAS PROBE  HIGH ACCURACY HIGH ACCURACY Ø4.5 x 130 mm	This stainless steel, fast response air or gas probe is ideal for measuring air temperature in chill cabinets, fridges, freezers, offices, storage areas and similar. • Response time less than 1 second • Probe temperature range -75 to 250 °C	123-300 323-300 (coiled lead)	
RIBBON SURFACE PROBE  Ø15 x 130 mm	This precision, ribbon surface probe utilises flat ribbon technology that ensures a fast, accurate response with minimal heat loss. A right-angled version is also available. • Response time less than 1 second • Probe temperature range -75 to 250 °C	123-030 123-032 (right-angled)	
RIBBON SURFACE PROBE  Ø8 x 130 mm	This precision, ribbon surface probe utilises flat ribbon technology that ensures a fast, accurate response with minimal heat loss. A right-angled version is also available. • Response time less than 1 second • Probe temperature range -75 to 250 °C	123-044 123-052 (right-angled)	
WATERPROOF SURFACE PROBE  Ø8 x 130 mm	This waterproof, ribbon surface probe incorporates a moulded mini plug and utilises flat ribbon technology to ensure a fast, accurate response with minimal heat loss. • Response time less than 1 second • Probe temperature range -75 to 250 °C	123-046 323-046 (coiled lead)	
SURFACE PROBE  Ø6 x 130 mm	This surface probe incorporates a spring-loaded copper disc sensing tip. The probe is ideal for a variety of surface temperature measurements. • Response time less than 1 second • Probe temperature range -100 to 600 °C	123-000 323-000 (coiled lead)	
HEAVY DUTY SURFACE PROBE  Ø12 x 130 mm	This high temperature surface probe is ideal for measuring the temperature of griddles, hotplates etc. A right-angled version is also available. • Response time less than 1 second • Probe temperature range -100 to 1000 °C	123-020* 123-028* (right-angled)	
PENETRATION PROBE  HIGH ACCURACY HIGH ACCURACY Ø3.3 x 100 mm	This small handled, stainless steel penetration probe is strong, versatile and ideal for measuring liquids and semi-solids. A fast response version with a reduced tip is also available. • Response time less than 2 seconds • Probe temperature range -75 to 250 °C	123-162 123-158 (reduced tip)	

Please note: for hand held type T thermocouple probes, replace the third digit (3) of the order code with the number 7.
*Order codes 123-020 & 123-028 are not available in type T thermocouple

WATERPROOF TYPE K THERMOCOUPLE PROBES

		Order code	£ each
PENETRATION PROBE  HIGH ACCURACY Ø3.3 x 130 mm	This stainless steel, waterproof penetration probe is strong, versatile and incorporates a heavy duty handle with a colour-coded end cap. Suitable for liquids and semi-solids. ● Response time less than 3 seconds ● Probe temperature range -75 to 250 °C	143-161 (●) 143-162 (●) 143-164 (●) 143-165 (●) 143-166 (○) 143-167 (●)	
REDUCED TIP PROBE  HIGH ACCURACY Ø6.35 x 300 mm	This extended, waterproof, stainless steel probe incorporates a reduced tip (Ø4.5 x 25 mm) and heavy duty ribbed handle, ideal for heavy duty applications including food processing, asphalt and other similar materials. ● Response time less than 7 seconds ● Probe temperature range -75 to 250 °C	143-120	
BELL SURFACE PROBE  Ø19 x 130 mm	These fast response, waterproof heavy duty surface probes utilise a bell-shaped housing with a thin, flat, stainless steel measuring disc that ensures a fast, accurate response. Ideal for measuring a variety of surface temperatures. ● Response time less than 3 seconds ● Probe temperature range -75 to 200 °C	143-080 (straight) 143-084 (45° angle) 143-086 (90° angle)	

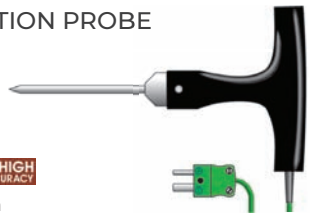
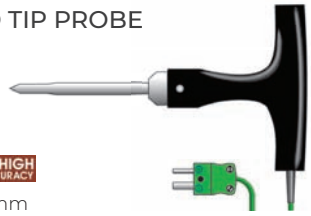
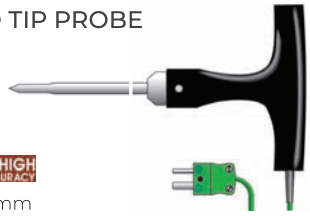
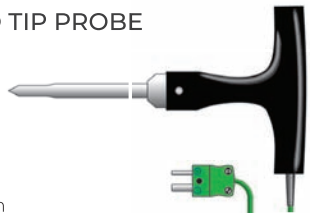
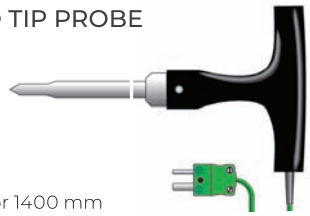
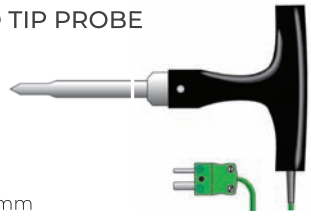
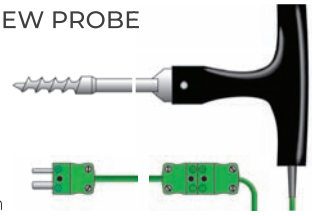
Please note: the above type K thermocouple probes are supplied with a moulded thermocouple connector and are waterproof to IP67 when connected to an instrument

PLUG-MOUNTED TYPE K THERMOCOUPLE PROBES

		Order code	£ each
INTERCHANGEABLE PROBE HANDLE  Ø25 x 151 mm	This probe handle incorporates a miniature thermocouple socket, to be used in conjunction with our range of plug-mounted probes. Supplied with a one metre coiled PU lead and miniature plug.	323-950	
PENETRATION PROBE  HIGH ACCURACY HIGH ACCURACY Ø3.3 x 120 mm	This stainless steel, penetration probe is strong, versatile and ideal for liquids or semi-solids. A fast response version with reduced tip (Ø1.8 x 25 mm) is also available. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	133-161 133-153 (reduced tip)	
AIR OR GAS PROBE  HIGH ACCURACY HIGH ACCURACY Ø3.3 x 120 mm	This probe has a perforated stainless steel tip for fast response. Ideal for chill cabinets, fridges, freezers and HVAC units. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	133-301	
SURFACE PROBE  Ø8 x 120 mm	This stainless steel surface probe uses flat ribbon technology ensuring a fast, accurate response with minimal heat loss. A right-angled version is also available. ● Response time less than 1 second ● Probe temperature range -75 to 250 °C	133-045 133-046 (right-angled)	

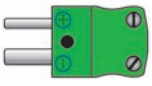
Please note: for hand held type T thermocouple probes, replace the third digit (3) of the order code with the number 7

HEAVY DUTY TYPE K OR T THERMOCOUPLE PROBES

		Order code	£ each
PENETRATION PROBE  Ø4 x 100 mm	This robust, stainless steel penetration probe incorporates a T-shaped polypropylene handle and is ideal for a variety of heavy duty applications including food processing and other similar industries. • Response time less than 3 seconds • Probe temperature range -75 to 250 °C	133-124	
REDUCED TIP PROBE  Ø6.35 x 100 mm	This robust, stainless steel, reinforced probe incorporates a T-shaped polypropylene handle and a reduced sensing tip (Ø4.5 x 25 mm) for faster response. Ideal for a variety of heavy duty applications including food processing etc. • Response time less than 9 seconds • Probe temperature range -75 to 250 °C	133-126	
REDUCED TIP PROBE  Ø6.35 x 300 mm	This extended robust, stainless steel, reinforced probe incorporates a T-shaped polypropylene handle and a reduced sensing tip (Ø4.5 x 25 mm) for faster response. Ideal for a variety of heavy duty applications including food processing etc. • Response time less than 9 seconds • Probe temperature range -75 to 250 °C	133-120	
REDUCED TIP PROBE  Ø8 x 500 mm	This extended robust, stainless steel, reinforced probe incorporates a T-shaped polypropylene handle and a reduced sensing tip (Ø6.35 x 25 mm) for faster response. Ideal for a variety of heavy duty applications including food processing etc. • Response time less than 20 seconds • Probe temperature range -75 to 250 °C	133-130	
REDUCED TIP PROBE  Ø9.5 x 1000 or 1400 mm	This Ø9.5 mm stainless steel, reinforced probe incorporates a T-shaped polypropylene handle and a reduced sensing tip (Ø6.35 x 25 mm) for faster response. Ideal for applications where a longer probe is required, i.e. grain silos. • Response time less than 20 seconds • Probe temperature range -75 to 250 °C	133-136 (1000 mm) 133-135 (1400 mm)	
REDUCED TIP PROBE  Ø9.5 x 2000 mm	This extended stainless steel, reinforced probe incorporates a T-shaped polypropylene handle and a reduced sensing tip (Ø6.35 x 25 mm) for faster response. Ideal for applications where a very long probe is required, i.e. grain silos. • Response time less than 20 seconds • Probe temperature range -75 to 250 °C	133-133	
CORKSCREW PROBE  Ø8 x 100 mm	This stainless steel probe incorporates a heavy duty T-shaped polypropylene handle and a corkscrew design sensing tip. Ideal for industrial and food processing applications. Supplied with a one metre PU detachable lead. • Response time less than 9 seconds • Probe temperature range -75 to 250 °C	133-175	

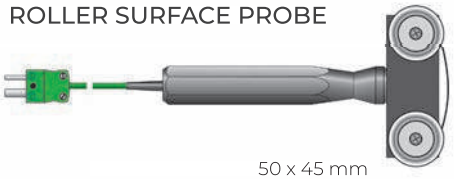
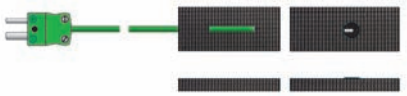
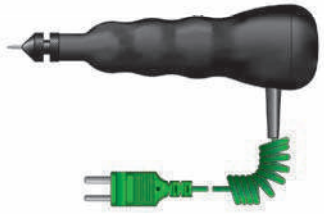
Please note: for hand held type T thermocouple probes, replace the third digit (3) of the order code with the number 7

FAST RESPONSE K OR T THERMOCOUPLE WIRE PROBES

		Order code	£ each
PTFE WIRE PROBE  Ø1.5 x 1000 or 2000 mm	This PTFE insulated, exposed junction wire probe is suitable for measuring the air temperature in fridges, freezers, ovens etc. Extended probe lengths over two metres are available upon request. • Response time less than 1 second • Probe temperature range -75 to 250 °C	133-362 (1000 mm) 133-363 (2000 mm)	
HEAVY DUTY PTFE WIRE PROBE  Ø2.4 x 1000 or 2000 mm	This heavy duty, PTFE insulated wire probe is ideal for measuring the air temperature in fridges, freezers, ovens etc. Extended probe lengths over two metres are available upon request. • Response time less than 1 second • Probe temperature range -75 to 250 °C	133-372 (1000 mm) 133-373 (2000 mm)	
FIBREGLASS WIRE PROBE  Ø1.5 x 1000 or 2000 mm	This fibreglass, exposed junction wire probe is ideal for measuring the air temperature of ovens, hot cupboards and similar appliances. Extended probe lengths over two metres are available upon request. • Response time less than 1 second • Probe temperature range -60 to 350 °C	133-382 (1000 mm) 133-383 (2000 mm)	
HIGH TEMPERATURE WIRE PROBE  Ø3 x 1000 or 2000 mm	This high temperature, fibreglass wire probe is insulated with a stainless steel braid and is ideal for ovens, hot cupboards and similar appliances. Supplied with a one or two metre stainless steel braided lead. • Response time less than 1 second • Probe temperature range -60 to 600 °C	133-387 (1000 mm) 133-389 (2000 mm)	
ATTACHMENT PADS  12 x 18 mm	These easy to use attachment pads are recommended for attaching small diameter wire thermocouples to surfaces. Supplied in packs of 25. • For use over the range of -50 to 200 °C	600-485	
PROBE EXTENSION LEAD - STRAIGHT  1000 or 2000 mm	This probe extension lead enables the user to connect to any ETI thermocouple type K probe, extending reach up to an additional 1000 or 2000 mm. Supplied with a PVC straight lead with MPK to MSK.	627-732 (1000 mm) 627-733 (2000 mm)	
PROBE EXTENSION LEAD - COILED  1000 or 2000 mm	This probe extension lead enables the user to connect to any ETI thermocouple type K probe, extending reach up to an additional 1000 or 2000 mm. Supplied with a PU coiled lead with MPK to MSK.	627-740 (1000 mm) 627-741 (2000 mm)	
MINIATURE PLUG OR SOCKET  MPK 16 x 19 mm  MSK 16 x 25 mm	Miniature thermocouple plugs and sockets are a must for accurate readings when joining probe cables. The flat pins (plug) and socket are manufactured from compatible thermocouple material and can accommodate wires up to Ø0.5 mm	625-217 (plug) 421-501 (socket)	

Please note: for type T thermocouple wire probes, replace the third digit (3) of the order code with the number 7

SPECIALIST TYPE K OR T THERMOCOUPLE PROBES

		Order code	£ each
MINIATURE PROBE  HIGH ACCURACY HIGH ACCURACY Ø1.4 mm reducing to Ø1 mm tip x 50 mm	This miniature, stainless steel needle probe is supplied with a one or two metre PTFE lead. Ideal for measuring small semi-solid items and sous vide cooking. • Response time less than 1 second • Probe temperature range -75 to 250 °C	133-180 (1m lead) 133-182 (2m lead)	
FAST RESPONSE MEAT PROBE  HIGH ACCURACY HIGH ACCURACY Ø1 mm tip x 90 mm	This fast response, meat penetration probe is specially designed for measuring burger patties etc. Supplied with a one metre coiled lead. • Response time less than 2 seconds • Probe temperature range -75 to 250 °C	133-150	
BURGER PROBE  HIGH ACCURACY HIGH ACCURACY Ø4.5 x 45 x 160 mm (6 or 12 mm tip)	This burger probe has been specifically designed for use in fast food kitchens. The 12 mm stainless steel disc ensures the correct insertion depth (6 or 12 mm) every time. • Response time less than 4 seconds • Probe temperature range -75 to 250 °C	123-745 (6 mm tip) 123-746 (12 mm tip)	
MAGNET SURFACE PROBE  Ø24 x 28 mm	This magnet probe is supplied with a 500 mm PTFE lead. Ideal for monitoring the surface temperature of ferrous metals, e.g. radiators or hotplates. • Response time less than 30 seconds • Probe temperature range -20 to 80 °C	133-017	
ROLLER SURFACE PROBE  50 x 45 mm	These roller surface probes have either s/steel or PTFE wheels and are designed for measuring moving surfaces. Max. speed 100 m/min. • Response time less than 2 seconds • Probe temperature range -75 to 250 °C	123-038 (s/steel) 123-036 (PTFE)	
VELCRO PIPE PROBE  20 x 500 mm	This 500 mm wrap-around velcro pipe probe is suitable for both medium and large pipe temperature measurement in the HVAC industry. Supplied with a two metre lead. • Response time less than 30 seconds • Probe temperature range -10 to 100 °C	133-080	
PIPE CLAMP PROBE 	This robust, pipe clamp probe is suitable for measuring the surface temperature of pipes in refrigeration, heating and ventilating systems etc. Simple clamp-on design for simplicity of use, suitable for pipes from Ø6 to Ø30 mm. • Response time less than 4 seconds • Probe temperature range -10 to 100 °C	133-040	
ADJUSTABLE TYRE PROBE  HIGH ACCURACY Ø1 x 10 mm	This fast response probe has an adjustable depth stop (1 to 10 mm) which the user can manually set. This probe has been specifically designed for measuring tyre temperatures, supplied with a one metre coiled lead and moulded thermocouple connector. • Response time less than 2 seconds • Probe temperature range -75 to 250 °C	343-100	

Please note: for type T thermocouple wire probes, replace the third digit (3) of the order code with the number 7

THERMADATA® WIFI LOGGER THERMOCOUPLE PROBES

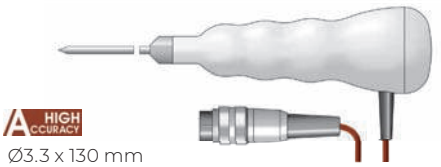
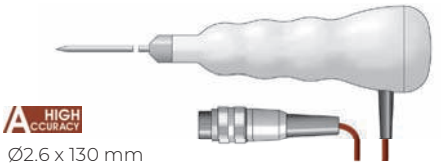
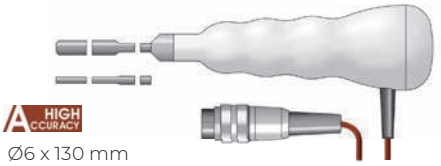
		Order code	£ each
GENERAL PURPOSE PROBE  Ø3.3 x 100 mm	This stainless steel probe is suitable for a wide range of applications. Supplied with a one, three or five metre PTFE insulated lead and connector. • Response time less than 5 seconds • Probe temperature range -75 to 250 °C	133-158 (1000 mm) 133-220 (3000 mm) 133-222 (5000 mm)	
FOOD SIMULANT PROBE  9 x 100 x 100 mm	This polypropylene simulant probe is designed for use in refrigeration, food storage and chill cabinets. Supplied with a one, three or five metre PTFE insulated lead and connector.. • Probe temperature range -20 to 100 °C	133-350 (1000 mm) 133-352 (3000 mm) 133-354 (5000 mm)	
Ø4.8MM STANDARD PROBE  Ø4.8 x 100 mm	This Ø4.8 mm general purpose, stainless steel probe is ideal for a variety of applications. Supplied with a two metre PVC lead. • Response time less than 17 seconds • Probe temperature range -50 to 100 °C	133-453	
Ø6MM STANDARD PROBE  Ø6 x 100 mm	This Ø6 mm general purpose, stainless steel probe is ideal for a variety of applications. Supplied with a two metre PVC lead. • Response time less than 20 seconds • Probe temperature range -50 to 100 °C	133-448	
Ø6.35MM STANDARD AIR PROBE  Ø6.35 x 150 mm	This Ø6.35 mm stainless steel air or gas probe is ideal for measuring air temperatures in chill cabinets, fridges, freezer, storage areas or similar. Supplied with a two metre PVC lead. • Response time less than 2 seconds • Probe temperature range -50 to 100 °C	133-499	
MINERAL INSULATED PROBES  Ø1.5 x 180, 500 or 1000 mm	These Ø1.5 mm high temperature MI probes can be bent to any shape without affecting performance. Supplied with a plain pot seal and a two metre PTFE lead. • Response time less than 2 seconds • Probe temperature range -200 to 1100 °C	133-420 (180 mm) 133-421 (500 mm) 133-422 (1000 mm)	
MINERAL INSULATED PROBES  Ø3 x 180, 500 or 1000 mm	These Ø3 mm high temperature MI probes can be bent to any shape without affecting performance. Supplied with a plain pot seal and a two metre PTFE lead. • Response time less than 4 seconds • Probe temperature range -200 to 1100 °C	133-425 (180 mm) 133-428 (500 mm) 133-429 (1000 mm)	

Please note: Longer leads are available for the probes above, please contact our technical sales office for more information

CUSTOMISED & SPECIAL TEMPERATURE PROBES

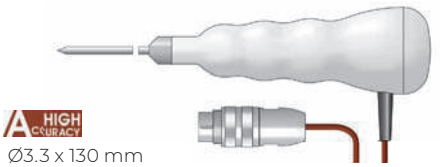
ETI manufactures a wide range of fully interchangeable, fast response and special probes to meet most customer requirements but, if the probe you need is not in our catalogue or on our website, ask a member of our sales team and we will do our best to manufacture the probe to your specification. It is vital to choose the correct probe for a specific purpose. If you have any requirements outside the specifications of our current range, please call our sales office.

LUMBERG CONNECTOR TYPE T THERMOCOUPLE PROBES

		Order code	£ each
PENETRATION PROBE  HIGH ACCURACY Ø3.3 x 130 mm	This stainless steel penetration probe is strong, versatile and incorporates a heavy duty, ribbed, polypropylene handle with a white end cap. Ideal for measuring liquids, semi-solids and granular materials. ● Response time less than 5 seconds ● Probe temperature range -75 to 250 °C	177-166	
FAST RESPONSE PROBE  HIGH ACCURACY Ø2.6 x 130 mm	This stainless steel, fast response, needle penetration probe incorporates a heavy duty ribbed, polypropylene handle. Suitable for liquids and soft semi-solid materials including fish, fruit and other soft or delicate materials. ● Response time less than 4 seconds ● Probe temperature range -75 to 250 °C	177-100	
RIGID BETWEEN PACK PROBE  HIGH ACCURACY Ø6 x 130 mm	This rigid, stainless steel, between pack probe is strong, versatile and incorporates a heavy duty ribbed, polypropylene handle. The probe has been specifically designed to measure between packs or boxes of produce. ● Response time less than 3 seconds ● Probe temperature range -75 to 250 °C	177-060	
AIR OR GAS WIRE PROBE  HIGH ACCURACY Ø2.4 x 1000 mm PTFE lead	This fast response, air or gas wire probe is ideal for measuring air temperatures in fridges, freezers, chill cabinets and similar. Supplied complete with a one metre PTFE lead. ● Response time less than 2 seconds ● Probe temperature range -75 to 250 °C	177-372	

Please note: the above type T thermocouple probes are suitable for use with the Therma 22 & Therma 22 Plus

WATERPROOF TYPE T THERMOCOUPLE PROBES

		Order code	£ each
PENETRATION PROBE  HIGH ACCURACY Ø3.3 x 130 mm	This waterproof, stainless steel, penetration probe with Lumberg connector is strong, versatile and incorporates a heavy duty, ribbed, polypropylene handle with a white end cap. Ideal for measuring liquids, semi-solids and granular materials. ● Response time less than 5 seconds ● Probe temperature range -75 to 250 °C	177-266	
PENETRATION PROBE  HIGH ACCURACY Ø3.3 x 100 mm	This waterproof, stainless steel, plug-mounted probe with lumberg connector is strong, versatile and ideal for measuring liquids, semi-solids and granular materials. ● Response time less than 4 seconds ● Probe temperature range -75 to 250 °C	177-200	

Please note: the above type T thermocouple probes (177-266 & 177-200) are suitable for use with the Therma 22 Plus and are waterproof to IP67 when connected to an instrument

PT100 CLASS A TEMPERATURE PROBES

		Order code	£ each
PENETRATION PROBE  Ø3.3 x 130 mm	This stainless steel penetration probe is strong, versatile and ideal for measuring liquids and semi-solids accurately in a variety of applications. ● Response time less than 6 seconds ● Probe temperature range -100 to 200 °C	160-160	
AIR OR GAS PROBE  3.3 x 130 mm	This stainless steel air or gas probe is ideal for measuring air or gas temperatures accurately in rooms and ducts in HVAC and industrial applications. ● Response time less than 4 seconds ● Probe temperature range -100 to 200 °C	160-300	
LIQUID PROBE  3.3 x 130 mm	This liquid probe features a rigid, stainless steel stem with a flat tip. The probe is suitable for accurate temperature measurement in a wide variety of laboratory applications. ● Response time less than 6 seconds ● Probe temperature range -100 to 200 °C	160-220	
AIR OR GAS WIRE PROBE  Ø3.7 x 30 mm with 1000 mm FEP lead	This FEP insulated air or gas wire probe is ideal for measuring air or gas temperatures accurately in a variety of HVAC and industrial applications. ● Response time less than 4 seconds ● Probe temperature range -100 to 200 °C	160-372	

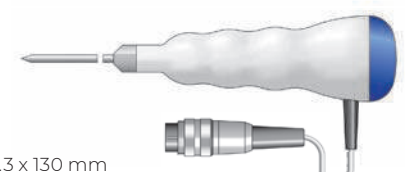
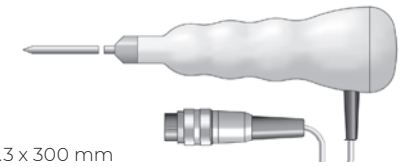
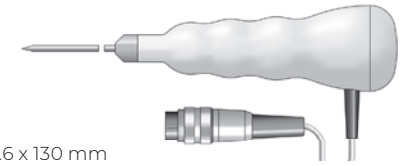
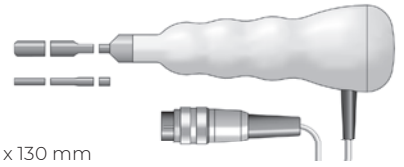
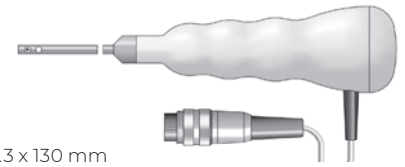
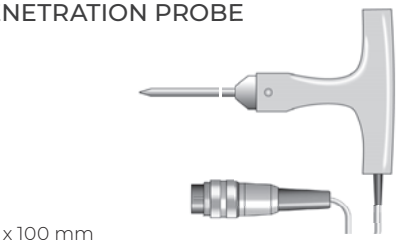
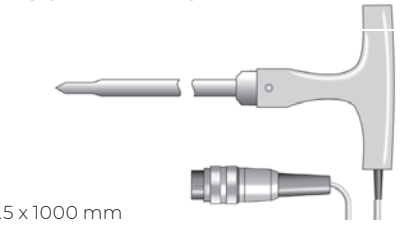
Please note: the above PT100 Class A probes are suitable for use with the Precision 0.1 °C thermometer

PT100 1/10TH DIN TEMPERATURE PROBES

		Order code	£ each
LIQUID PROBE  Ø3.3 x 130 mm	This hand held liquid probe features a rigid, stainless steel stem with a flat tip. Suitable for high accuracy temperature measurement in a wide variety of laboratory applications. ● Response time less than 8 seconds ● Probe temperature range -200 to 200 °C	160-222	
LIQUID PROBE  Ø4.8 x 250 mm with 2000 mm PTFE lead	This liquid probe features a rigid, stainless steel stem with a flat tip. Suitable for high accuracy temperature measurement in a wide variety of laboratory applications. ● Response time less than 14 seconds ● Probe temperature range -200 to 200 °C	160-446	

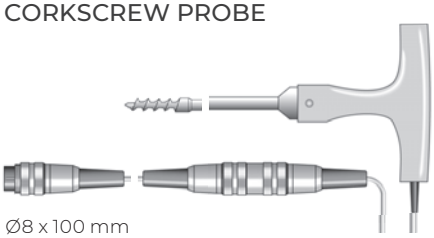
Please note: accuracy of the above PT100 1/10th DIN probes is ±0.03 °C ±0.1 % of reading between -100 °C to 200 °C otherwise ±0.2 % of reading. The above probes are suitable for use with the Precision Plus 0.01 °C thermometer

NTC THERMISTOR PROBES WITH LUMBERG CONNECTOR

		Order code	£ each
PENETRATION PROBE  Ø3.3 x 130 mm	This stainless steel penetration probe is strong, versatile and incorporates a heavy duty, ribbed, polypropylene handle with a colour-coded end cap. Ideal for measuring liquids, semi-solids and granular materials. • Response time less than 5 seconds • Probe temperature range -40 to 150 °C	174-161 174-162 174-164 174-165 174-166 174-167	
PENETRATION PROBE  Ø3.3 x 300 mm	This extended, stainless steel penetration probe is strong, versatile and incorporates a heavy duty, ribbed, polypropylene handle with a white end cap. Ideal for measuring liquids, semi-solids and granular materials. • Response time less than 5 seconds • Probe temperature range -40 to 150 °C	174-168	
FAST RESPONSE PROBE  Ø2.6 x 130 mm	This stainless steel, fast response, needle penetration probe incorporates a heavy duty ribbed, polypropylene handle. The probe is suitable for liquids and soft semi-solids including fish, fruit and other delicate materials. • Response time less than 4 seconds • Probe temperature range -40 to 150 °C	174-100	
RIGID BETWEEN PACK PROBE  Ø6 x 130 mm	This rigid, stainless steel between pack probe is strong, versatile and incorporates a heavy duty ribbed, polypropylene handle. The probe has been specifically designed to measure between packs or boxes of produce. • Response time less than 3 seconds • Probe temperature range -40 to 150 °C	174-060	
AIR OR GAS PROBE  Ø3.3 x 130 mm	This stainless steel, fast response air or gas probe incorporates a heavy duty ribbed, polypropylene handle. The probe is ideal for measuring air temperature in refrigeration units, storage areas and other similar applications. • Response time less than 2 seconds • Probe temperature range -40 to 150 °C	174-300	
PENETRATION PROBE  Ø4 x 100 mm	This robust, stainless steel penetration probe incorporates a heavy duty, T-shaped polypropylene handle. The strong, durable probe is suitable for a wide variety of heavy duty, general purpose industrial or food processing applications. • Response time less than 4 seconds • Probe temperature range -40 to 150 °C	170-169	
REDUCED TIP PROBE  Ø9.5 x 1000 mm	This extended, robust Ø9.5 mm stainless steel reinforced probe incorporates a heavy duty, T-shaped polypropylene handle and a reduced sensing tip (Ø6.35 x 25 mm) for faster response. Ideal for a wide variety of heavy duty, general purpose industrial or food processing applications. • Response time less than 15 seconds • Probe temperature range -40 to 150 °C	170-136	

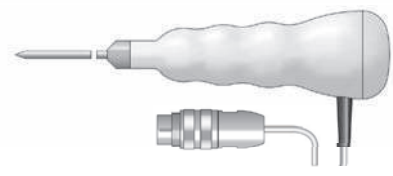
Please note: the above NTC thermistor probes are suitable for use with the Therma 20, 22, 20 Plus, 22 Plus & 8100 Plus

NTC THERMISTOR PROBES WITH LUMBERG CONNECTOR

		Order code	£ each
CORKSCREW PROBE  Ø8 x 100 mm	This frozen food probe incorporates a heavy duty T-shaped, polypropylene handle and a corkscrew design sensing tip. Ideal for measuring deep frozen foods or other frozen materials. Supplied with a one metre PVC detachable lead. ● Response time less than 9 seconds ● Probe temperature range -40 to 150 °C	170-175	
FOOD SIMULANT PROBE  9 x 100 x 100 mm	This polypropylene probe is designed for use in food storage, chill cabinets and refrigeration where simulation of food temperature is required. The probe incorporates a one metre PUR /PVC lead and compatible Lumberg connector. ● Probe temperature range -20 to 100 °C	170-350	
AIR OR GAS WIRE PROBE  Ø3.7 x 30 mm with 1000 mm FEP lead	This fast response, air or gas wire probe is ideal for measuring air temperature in chill cabinets, fridges, freezers, offices, storage areas and similar. Supplied with a one metre FEP lead. ● Response time less than 2 seconds ● Probe temperature range -40 to 150 °C	170-372	
FOIL BETWEEN PACK PROBE  40 x 50 mm with 1000 mm FEP lead	This easy to use, flexible, fast response, foil between pack probe has been designed to measure between packs or boxes of produce in a variety of applications. ● Response time less than 3 seconds ● Probe temperature range 0 to 100 °C	170-090	

Please note: the above NTC thermistor probes are suitable for use with the Therma 20, 22, 20 Plus, 22 Plus & 8100 Plus

WATERPROOF NTC THERMISTOR PROBES

		Order code	£ each
PENETRATION PROBE  Ø3.3 x 130 mm	This waterproof, stainless steel penetration probe with Lumberg connector is versatile, strong and incorporates a heavy duty, ribbed, polypropylene handle with a white end cap. Ideal for measuring liquids, semi-solids and granular materials. ● Response time less than 5 seconds ● Probe temperature range -40 to 150 °C	174-266	
PENETRATION PROBE  Ø3.3 x 100 mm	This waterproof, stainless steel plug-mounted penetration probe with Lumberg connector is versatile and strong. Ideal for measuring liquids, semi-solids and granular materials in a wide variety of applications. ● Response time less than 4 seconds ● Probe temperature range -40 to 150 °C	172-000	

Please note: the above NTC thermistor probes (174-266 & 172-000) are suitable for use with the Therma 20 Plus, 22 Plus & 8100 Plus and are waterproof to IP67 when connected to an instrument

INFRARED THERMOMETERS

The advantage of an infrared thermometer against a conventional probe thermometer is speed and the fact that it is non-contact; but keep in mind, infrared thermometers only measure the surface temperature. Infrared thermometers are easy to use, simply point the instrument at the object you wish to measure and read the temperature on the LCD.

WHAT IS INFRARED?

Infrared energy is emitted from the surface of all objects. This energy is part of the electromagnetic spectrum. Infrared radiation can have a wavelength of a fraction of a micron up to several hundred microns. Infrared thermometers measure infrared with a wavelength of between 4 and 14 microns.

INFRARED THERMOMETER LIMITATIONS

As it is the surface of an object that emits infrared, an infrared thermometer will not measure its internal (core) temperature. You cannot accurately measure through any covering (glass, polythene, cling film etc.). Any surface you are measuring must be clean and dust free. Air temperature cannot be measured by an infrared thermometer.

EMISSIVITY

Emissivity is a measure of the efficiency in which a surface emits thermal energy. It is defined as the fraction of energy being emitted relative to that emitted by a thermal black surface (a black body). A black body is a material that is a perfect emitter of heat energy and has an emissivity value of 1.

A material with an emissivity value of 0 would be considered a perfect thermal mirror. For example, if an object had the potential to emit 100 units of energy but only emits 90 units in the real world, then that object would have an emissivity value of 0.90. In the real world there are no perfect 'black bodies' and very few perfect infrared mirrors so most objects have an emissivity between 0 and 1.

The table below is just a small selection of different emissivity values, for a full listing visit our website etiltd.com/emissivity

Aluminium (anodised)	0.77	Plastic (black)	0.95
Brass (oxidised)	0.61	Porcelain (glazed)	0.92
Brick (red)	0.90	Rubber	0.95
Cement	0.54	Skin (human)	0.98
Copper (oxidised)	0.65	Soil (dry)	0.92
Glass	0.92	Stainless steel	0.59
Paper (white)	0.68	Water	0.95
Perspex	0.86	Water (ice)	0.96
Pipe (galvanized)	0.46	Water (frost)	0.98
Plastic (white)	0.84	Wood (planed)	0.90

LENS CARE

Care must be taken with the infrared thermometer's lens. The infrared waves are focused and filtered by the lens, therefore if the lens gets dirty or damaged in any way (even light scratches) then the accuracy can change at some temperatures.

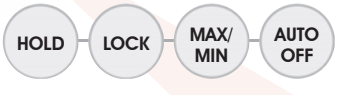
IR-POCKET THERMOMETER

- LED spot alignment - safer than a laser
- Max/min, display hold & lock functions

The IR-Pocket non-contact, infrared thermometer has an easy to read, LCD display with low battery indication and an auto-power off facility that turns the instrument off after 15 seconds.

This thermometer features a two-button keypad, simply aim the thermometer at the target and press the 'measure' button to display the surface temperature instantly. Pressing the 'mode' button allows the user to access a variety of functions, i.e. max/min, °C/°F, lock and emissivity. The lock function allows for continuous temperature measurement and the emissivity is adjustable so the user can measure a variety of surface types.

The unit incorporates LED spot alignment, which allows the user to precisely target the diameter of the area being measured.



Order code	Description
814-060	IR-Pocket

Specification	IR-Pocket
Range	-9.9 to 199.9 °C
Resolution	0.1 °C/°F
Accuracy	±2 °C or ±2 % whichever is greater
Field of view	Target ratio 1:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery & life	2 x 1.5 volt AAA - 20 hours continuous use
Display	Custom LCD
Dimensions	25 x 52 x 100 mm
Weight	88 grams

RAYTEMP® 2 IR THERMOMETER

- High accuracy ±1 °C over a limited range
- FREE traceable certificate of calibration

Designed and manufactured in the UK, the RayTemp 2 infrared, non-contact thermometer features a large, easy to read LCD display and a three-button keypad, incorporating measure, mode and max/min functions. Simply aim at the target and press the measure button to display the surface temperature.

Incorporating a 5:1 optic ratio (target distance ratio) and a fixed emissivity of 0.95 making it suitable for a wide range of food and industrial applications, each RayTemp 2 is housed in a robust ABS case that contains Biomaster Antimicrobial Technology that reduces bacterial growth.

The unit does not incorporate laser alignment, which will appeal to those who are health and safety conscious and do not require this feature.

Order code	Description
228-020	RayTemp 2
830-221	Protective silicone boot - white

Specification	RayTemp 2
Range	-49.9 to 349.9 °C
Resolution	0.1 °C & 1 °C
Accuracy	±1 °C (0 to 100 °C) otherwise ±2 °C or ±2 % of reading whichever is greater
Field of view	Target ratio 5:1
Emissivity	0.95 fixed
Battery & life	3 x 1.5 volt AAA - 5000 hours continuous use
Display	12 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams
FREE traceable certificate of calibration included	

THERMAPEN® IR THERMOMETER

- High accuracy - ideal for HACCP procedures
- Patented, automatic 360° rotational display
- Adjustable emissivity for different surfaces
- Motion-sensing sleep mode - probe only

The Thermapen IR is two instruments in one compact unit, combining the advanced technology of two ETI designed and manufactured products, the RayTemp 2 Plus infrared thermometer and Thermapen Professional thermometer.

Housed in a robust ABS case containing Biomaster Antimicrobial Technology that reduces bacterial growth, the Thermapen IR incorporates a motion-sensing sleep mode (penetration probe only) which automatically turns the instrument on/off when set down or picked up, maximising battery life.

- **Infrared thermometer**
  Simply aim the infrared thermometer at the target and press the scan button to display the surface temperature.
  Please Note: the infrared non-contact function will only measure when the probe is in the closed position.

  The Thermapen IR thermometer incorporates a max/min temperature function accessed via the mode button (IR only). The distance to target ratio is 5:1, therefore the thermometer should be positioned as close to the target as possible. The default emissivity is 0.95 but can be adjusted between 0.1 and 1, if required via the mode button.

- **Penetration probe**
  Alternatively, it is possible to take liquid or the core temperature of semi-solid food products using the fast response, stainless steel penetration probe (Ø3.3 x 110 mm). Displaying the temperature in just 3 seconds. The probe conveniently folds back through 180° into the side of the instrument when not in use.

Stainless steel wall bracket (832-002)

UK Patent No. GB 2504936

Order code	Description
228-065	Thermapen IR
830-480	Protective silicone boot
830-001	Zip pouch
832-002	Stainless steel wall bracket
830-485	Silicone boot - glow in dark

MAX/MIN · AUTO OFF · 360° · HACCP COMPATIBLE · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	Thermapen IR
Range - infrared	-49.9 to 349.9 °C
Range - probe	-49.9 to 299.9 °C
Resolution	0.1 or 1 °C/°F - user selectable
Accuracy - infrared	±1 °C (0 to 100 °C) otherwise ±2 °C or ±2 % of reading whichever is greater
Accuracy - probe	±0.4 °C (-49.9 to 199.9 °C) otherwise ±1 °C
Field of view	Target ratio 5:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery	2 x 3 volt CR2032 lithium coin cell
Battery & life	1000 hours - continuous use
Display	12 mm (horizontal) & 10 mm (vertical) LCD
Dimensions	19 x 50 x 157 mm
Weight	125 grams
FREE traceable certificate of calibration included (probe & IR)	

RAYTEMP® 2 PLUS IR THERMOMETER

- 360° rotating display with backlight
- Adjustable emissivity for different surfaces
- Target distance/diameter ratio 5:1
- FREE traceable certificate of calibration

Designed and manufactured in the UK, the RayTemp 2 Plus infrared non-contact thermometer incorporates all the features of the RayTemp 2, but with the addition of a 360° self-rotating display, backlight and adjustable emissivity. Simply aim the thermometer at the target and press the measure button to display the surface temperature.

The unit incorporates a 5:1 optic ratio (target distance/diameter ratio) and therefore the thermometer should be positioned as close to the target as possible. The default emissivity is 0.95 but can be changed from 0.1 to 1, if required. The unit does not incorporate laser alignment, however this will appeal to those who are health and safety conscious and do not require this feature.

The RayTemp 2 Plus features a three-button keypad, incorporating measure, mode and max/min functions. Pressing the mode button allows the user to select °C/°F, adjust emissivity values and display the ambient temperature. The max/min function displays the highest and lowest recorded temperatures over the measurement period.

Featuring a large, easy to read LCD display with low battery indication and an auto-power off facility that turns the instrument off after 30 seconds, maximising battery life, each unit is housed in a robust ABS case that contains Biomaster Antimicrobial Technology that reduces bacterial growth and is powered by three AAA batteries that give a minimum of 5000 hours battery life.

UK Patent No. GB 2504936

- **Automatic 360° rotational display**
  The RayTemp 2 Plus features an automatic 360° display, which rotates in 90° increments enabling the user to read the temperature in any position i.e. left hand, right hand, vertical or horizontal. This feature can be 'locked' by the user, if required.

MAX/MIN · AUTO OFF · 360° · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	RayTemp 2 Plus
Range	-49.9 to 349.9 °C
Resolution	0.1 °C & 1 °C
Accuracy	±1 °C (0 to 100 °C) otherwise ±2 °C or ±2 % of reading whichever is greater
Field of view	Target ratio 5:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery	3 x 1.5 volt AAA
Battery life	5000 hours (continuous use, w/out backlight)
Display	12 mm (horizontal) & 10 mm (vertical) LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams
FREE traceable certificate of calibration included	

Order code	Description
228-120	RayTemp 2 Plus
830-221	Protective silicone boot - white
814-132	Comparator

MINI RAYTEMP® INFRARED THERMOMETER

- Target distance/diameter ratio 12:1
- Laser dot alignment
- Backlit LCD display
- Compact, lightweight & easy to use

The Mini RayTemp infrared thermometer is a compact, lightweight and low cost infrared thermometer. Simply aim and pull the trigger to display the surface temperature of the item being measured.

Measuring temperature over the range of -50 to 330 °C with an assured accuracy of ±2 °C over the range of 0 to 330 °C, outside of this range (-50 to 0 °C) accuracy is ±4 °C, the Mini RayTemp has a clear, easy to read, LCD display with low battery indication, backlight and an auto-power off facility that turns the instrument off after ten seconds, maximising battery life.

Ideal for numerous temperature measurement applications where contact with the item to be measured is an issue. The Mini RayTemp features laser assisted alignment as standard, to assist in pin-pointing the area of measurement.

The unit incorporates a 12:1 optic ratio (target distance/diameter ratio) and a fixed emissivity of 0.95 making it suitable for a wide range of food and industrial applications.

OPTIONAL ACCESSORY:

- Protective nylon pouch with belt strap (830-040)

- **Low cost calibration checker**
  The Comparator (814-132) provides an inexpensive way of checking the temperature of infrared thermometers when used in conjunction with a Reference thermometer, see pages 97 and 98 for details.

Order code	Description
814-080	Mini RayTemp
830-040	Protective nylon pouch

Specification	Mini RayTemp
Range	-50 to 330 °C
Resolution	0.1 °C/°F
Accuracy	±2 °C (0 to 330 °C) otherwise ±4 °C or ±4 % whichever is greater
Field of view	Target ratio 12:1
Emissivity	0.95 fixed
Battery & life	9 volt PP3 - 80 hours continuous use
Display	Custom LCD
Dimensions	36 x 88 x 131 mm
Weight	143 grams

RAYTEMP® 3 INFRARED THERMOMETER

- High accuracy over the critical food range
- Circular laser for precise targeting
- Temperature range -60 to 500 °C
- Compact, lightweight & easy to use

The RayTemp 3 infrared thermometer is compact, lightweight and easy to use. Simply aim and pull the trigger to display the temperature of the item being measured. In addition the LCD will display the maximum temperature.

The instrument measures temperature over the range of -60 to 500 °C with an assured accuracy of ±1 °C over the critical food range of 0 to 65 °C, outside of this range ±2 °C of reading in an ambient temperature of between 15 °C and 25 °C, with a repeatability of ±1 °C of reading.

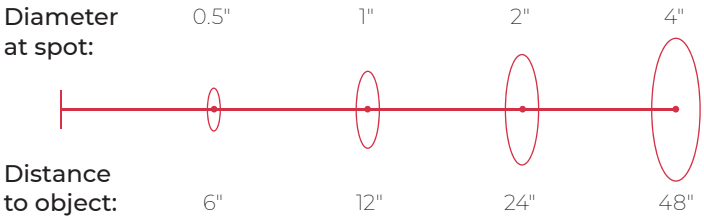
Incorporating a clear, easy to read, LCD display with low battery, laser and backlight indication and an auto-power off facility that turns the instrument off after 15 seconds, maximising battery life. The RayTemp 3 thermometer is ideal for measuring food surface temperatures, eliminating the need to touch or contaminate the food you are measuring, avoiding the risk of cross-contamination. The unit can be used by anyone, as there is no need to focus or adjust the instrument.

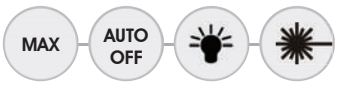
Each RayTemp 3 thermometer features a single push button, allowing the user to select °C or °F. The thermometer also incorporates a circular laser with centre dot indicator, which allows you to precisely target the diameter of the area to be measured. As you move closer or further from the target the laser circle changes diameter. The unit incorporates a 12:1 optic ratio (target distance/diameter ratio) and a fixed emissivity of 0.97 making it more suitable for chilled and frozen foods, although this thermometer can be used for a wide range of other applications.

Comparator

OPTIONAL ACCESSORIES:

- Protective nylon pouch with belt strap (830-040)
- ABS carrying case - ideal for transporting and securely storing the RayTemp 3 thermometer (834-740)





Order code	Description
814-040	RayTemp 3
830-040	Protective nylon pouch
834-740	ABS carrying case
814-132	Comparator

Specification	RayTemp 3
Range	-60 to 500 °C
Resolution	0.1 °C (-9.9 to 199.9 °C) or 1 °C
Accuracy	±1 °C (0 to 65 °C) otherwise ±2 °C or ±2 % whichever is greater
Field of view	Target ratio 12:1
Emissivity	0.97 fixed
Battery	2 x 1.5 volt AAA
Battery life	140 hours continuous use
Display	Custom LCD
Dimensions	40 x 66 x 155 mm
Weight	180 grams

RAYTEMP® 6 INFRARED THERMOMETER

- 8 dot circular laser for precise targeting
- Max/min, display hold & backlight functions
- Adjustable emissivity for multi-surface
- Robust IP54 splashproof casing

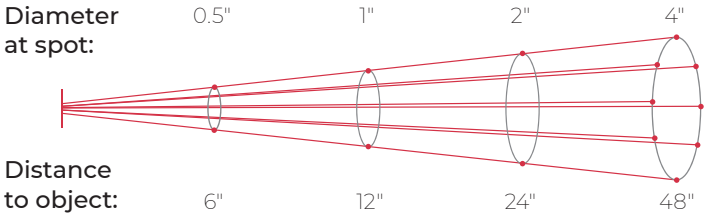
The RayTemp 6 infrared thermometer is a compact, durable and easy to use instrument, simply aim and pull the trigger to display the temperature of the item being measured.

Each thermometer incorporates an eight dot circle laser indicator, which allows you to precisely target the diameter of the area to be measured. As you move closer or further from the target the laser circle changes diameter.

The unit incorporates a 12:1 optic ratio (target distance/diameter ratio) and features an adjustable emissivity which allows the user to measure a variety of surface types.

The RayTemp 6 has a clear, easy to read, custom LCD display that features a backlight for when ambient light levels are low and an auto-power off facility that turns the instrument off after 60 seconds when not in use, maximising battery life.

Housed in a robust IP54 splashproof case with rubberised trigger for increased durability, the RayTemp 6 features a three-button keypad, allowing the user to select °C/°F, display hold or one of the many mode options available, i.e. max, min, differential or average temperature.



OPTIONAL ACCESSORIES:

- Protective nylon pouch with belt strap (830-040)
- ABS carrying case - ideal for transporting and securely storing the RayTemp 6 thermometer (834-740)

- **Low cost calibration checker**
  The Comparator (814-132) provides an inexpensive way of checking the temperature of infrared thermometers when used in conjunction with a Reference thermometer, see pages 97 and 98 for details.

MAX/ MIN | AUTO OFF | IP54

Order code	Description
814-075	RayTemp 6
830-040	Protective nylon pouch
834-740	ABS carrying case
814-132	Comparator

Specification	RayTemp 6
Range	-60 to 550 °C
Resolution	0.1 °C/°F
Accuracy	±2 °C or ±2 % of reading whichever is greater
Field of view	Target ratio 12:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery & life	2 x 1.5 volt AAA - 14 hours continuous use
Display	Custom LCD
Dimensions	40 x 79 x 146 mm
Weight	195 grams

RAYTEMP® 8 INFRARED THERMOMETER

- Integral type K thermocouple socket
- Range IR -60 to 500 °C, probe -64 to 1370 °C
- Includes differential & average temperatures
- Target distance/diameter ratio 12:1

The RayTemp 8 portable infrared thermometer is compact, lightweight and easy to use. Simply aim and pull the trigger to display the temperature of the item being measured. The thermometer displays temperature over the range of -60 to 500 °C.

Featuring a clear, easy to read, LCD display with low battery indication, the RayTemp 8 incorporates an auto-power off facility that turns the instrument off after 60 seconds, maximising battery life. The unit features a circular laser with centre dot indicator, which allows you to precisely target the diameter of the area to be measured. As you move closer or further from the target the laser circle changes diameter.

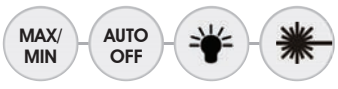
The three-button keypad, allows the user to select °C/°F and max/min. Additionally, the difference between the max and min temperature and the average temperature can be displayed.

- **Two instruments in one**
  The RayTemp 8 incorporates a miniature thermocouple type K probe socket that enables a wide range of type K thermocouple probes to be used for a variety of temperature measurement applications, including air, liquid and surface temperatures. For details of compatible type K thermocouple probes, see pages 75 to 81.

RAYTEMP 8 INFRARED KIT

Each kit contains:

- RayTemp 8 infrared thermometer (814-045)
- Penetration probe (123-160)
- FREE mini tub of 70 Probe Wipes (836-022)
- FREE ABS carrying case (834-740)



Order code	Description
814-045	RayTemp 8
860-845	RayTemp 8 kit
830-040	Protective nylon pouch
834-740	ABS carrying case
The RayTemp 8 is exclusive of probe	

Specification	RayTemp 8
Range - infrared	-60 to 500 °C
Range - probe	-64 to 1370 °C
Resolution	0.1 °C/°F (9.9 to 199.9 °C) or 1 °C
Accuracy - infrared	±2 °C or ±2 % of reading whichever is greater
Accuracy - probe	±1 °C or ±1 % of reading whichever is greater
Field of view	Target ratio 12:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery & life	2 x 1.5 volt AAA - 180 hours continuous use
Display	Custom LCD
Dimensions	40 x 66 x 155 mm
Weight	185 grams

RAYTEMP® 28 INFRARED THERMOMETER

- Integral type K thermocouple socket
- Ideal for high temperature applications
- Dual laser for precise targeting
- Stores the last 12 readings

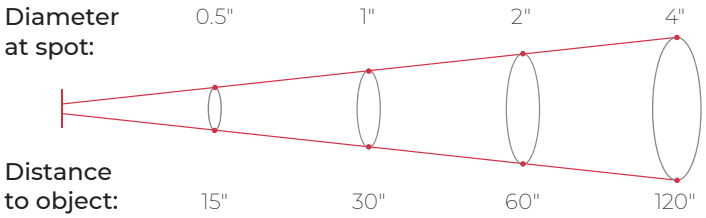
The RayTemp 28 is a professional infrared, non-contact thermometer with dual laser dot alignment, incorporating a 30:1 optic ratio (target distance/diameter ratio), enabling users to measure small targets from a distance or any item that is difficult to reach.

Featuring a three-button keypad, the RayTemp 28 allows the user to select the mode required, i.e. max, min, differential or average temperatures, view the max/min and configurable high/low alarms. Adjustable emissivity enabling the user to measure a variety of surface types.

The unit has a clear, easy to read, custom LCD display that features a backlight for when ambient light levels are low and an auto-power off facility that turns the instrument off after 35 seconds, maximising battery life. The thermometer is housed in a robust IP54 splashproof case to help reduce the possibility of damage in harsh environments and is supplied in a protective ABS carrying case.

- **Two instruments in one**
  The RayTemp 28 incorporates a miniature thermocouple type K probe socket that enables a wide range of type K thermocouple probes to be used for a variety of temperature measurement applications, including air, liquid and surface temperatures. For details of compatible type K thermocouple probes, see pages 75 to 81.

Order code	Description
814-028	RayTemp 28
The RayTemp 28 is exclusive of probe	



Specification	RayTemp 28
Range - infrared	-50 to 1350 °C
Range - probe	-50 to 1370 °C
Resolution	0.1 °C to 1000 °C thereafter 1 °C
Accuracy - infrared	±2 °C (0 to 1350 °C) otherwise ±4 °C or ±4 % of reading whichever is greater
Accuracy - probe	±1 °C or ±1 % of reading whichever is greater
Field of view	Target ratio 30:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery & life	9 volt PP3 - 40 hours continuous use
Display	Custom LCD
Dimensions	83 x 95 x 192 mm
Weight	275 grams

RAYTEMP® 38 INFRARED THERMOMETER

- Wide temperature range -59.9 to 999.9 °C
- Target distance/diameter ratio 50:1
- Robust housing for durability
- Auto-power off & backlight functions

The RayTemp 38 is a professional infrared, non-contact thermometer with dual laser dot alignment that incorporates a 50:1 optic ratio (target distance/diameter ratio), this enables users to measure small targets from a distance. The user stands a safe and comfortable distance from the target, points the thermometer at the surface to be measured, pulls the trigger and instantly reads the temperature. Ideal for measuring the surface temperature of any item that is difficult to reach. This enables the user to measure most surfaces accurately and quickly.

Measuring the surface temperature over the range of -59.9 to 999.9 °C with a 0.1 °C/°F resolution, the RayTemp 38 incorporates an auto-power off facility that turns the instrument off after 60 seconds, this function can be disabled, if required. Each unit incorporates a backlit custom LCD display that indicates both the temperature and the emissivity. The thermometer features a four-button keypad, allowing the user to select the mode required, i.e. max, min, differential and average temperatures, view the max/min high and low alarms and adjust the emissivity from 0.1 to 1.0 in 0.01 increments (default set at 0.95).

- **Two instruments in one**
  The RayTemp 38 is two instruments in one as it incorporates a thermocouple socket that will accept a type K thermocouple probe, see pages 75 to 81 for available probes. Each RayTemp 38 is supplied in a protective ABS carrying case. An optional strong magnetic holder is also available. The holder screws into the bottom of the thermometer's housing, allowing the unit to be mounted onto a metal surface for continuous monitoring.

Order code	Description
814-038	RayTemp 38
814-150	Magnetic holder
The RayTemp 38 is exclusive of probe	

Magnetic holder (814-150)

Specification	RayTemp 38
Range - infrared	-59.9 to 999.9 °C
Resolution	0.1 °C/°F
Accuracy - infrared	±2 °C or ±2 % of reading whichever is greater
Accuracy - probe	±1 °C or ±1 % of reading whichever is greater
Field of view	Target ratio 50:1
Emissivity	0.95 default - adjustable 0.1 to 1
Battery	2 x 1.5 volt AAA
Battery life	180 hours continuous use
Display	Custom LCD
Dimensions	47 x 170 x 240 mm
Weight	395 grams

CALIBRATION EQUIPMENT

Temperature is a critical measurement for ensuring the safety and quality of many products and processes. Whether monitoring temperature at the point of goods in, throughout production, final product storage or during distribution, thermometer calibration is essential.

The food industry, in particular, is very aware of the critical nature of processing temperatures as part of their HACCP procedures. The importance of thermometer calibration is not just a food safety issue, but also an economic consideration, as thermometer accuracy can affect both quality and productivity.

It is recommended that thermometers and temperature monitoring equipment be calibrated regularly. New equipment should be checked for accuracy upon receipt and before being put into service. Thermometers that are in constant use and used in critical areas should be calibrated more regularly. The definition of a regular calibration check is very much at the discretion of the user, for example, a food processing company may well decide to check thermometers daily before use, whereas a restaurant may decide that once a week is adequate.

CALIBRATION CHECKS

Depending on the instrument and its intended temperature and use, an iced water and boiling water method can be used for checking the accuracy of a thermometer and probe.

When used properly and in conjunction with a Reference thermometer, this offers a cost-effective method of calibration and verification.

Other techniques can be employed utilising dry-well and calibration baths in conjunction with a Reference thermometer. These techniques are particularly relevant and often more convenient when several thermometers and temperature probes are to be calibrated at any one time. Dry-wells and calibration baths provide variable and stable heat sources.

A Reference thermometer is an important instrument for checking the calibration of other thermometers and probes. However, it is of paramount importance that this instrument is kept for the sole purpose of verifying the accuracy of thermometers and temperature probes and has a current UKAS Certificate of Calibration.

Temperature simulators are an alternative to real-world temperature checking and are particularly useful for checking thermometers on-site or in-situ. It should be remembered, when using temperature simulators, that you are only checking the calibration of the instrument and not the system.

UKAS CERTIFICATE OF CALIBRATION

Our in-house UKAS calibration laboratory offers certification for both thermometers and probes either individually or as a system. Each UKAS Certificate of Calibration indicates deviations from standards at various temperature points.

REFERENCE THERMOMETERS

UKAS CALIBRATION
0601

- ±0.05 °C high system accuracy
- 5-point UKAS Certificate of Calibration included
- Supplied complete with high accuracy probe
- Ideal for calibration comparison checks

The Reference thermometers are high accuracy PT100 instruments that are supplied with a five-point UKAS Certificate of Calibration. Each certificate indicates deviations from standards at various check points: -18, 0, 40, 70 and 100 °C. Special points may be certified by arrangement with our UKAS calibration laboratory.

The Reference thermometers are ideal for comparison checking of the accuracy of other thermometers and probes, when used in conjunction with a stable temperature heat or chill source, see page 99. The instruments measure temperature over the range of -199.99 to 199.99 °C with a resolution of 0.01 °C and an accuracy of ±0.05 °C.

The units feature a simple on/off push button with open circuit 'Err' and low battery indication, when applicable. The Reference Plus thermometer incorporates the additional features of a max/min and hold function.

The Reference thermometers are supplied with a permanently attached, high accuracy probe incorporating a 1/10th DIN PT100 sensor. The probe measures Ø3.3 x 130 mm and is supplied with a one metre PVC lead.

- **Low cost calibration checker**
  The Comparator (814-132) provides an inexpensive way of checking the temperature of infrared thermometers when used in conjunction with a Reference thermometer.

Order code	Description
222-055	Reference
222-063	Reference Plus
830-221	Protective silicone boot - white
814-132	Comparator

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Specification	Reference & Reference Plus
Range	-199.99 to 199.99 °C
Resolution	0.01 °C
Accuracy	±0.05 °C (-50 to 150 °C) ±0.1 °C (-150 to 200 °C)
Battery & life	3 x 1.5 volt AAA - 2000 hours
Sensor type	PT100 1/10th DIN
Display	10 mm LCD
Dimensions	25 x 56 x 128 mm
Weight	210 grams
UKAS Certificate of Calibration included	

REFERENCE THERMAPEN® THERMOMETER

0601

- High accuracy with 0.01 °C resolution
- 5-point UKAS Certificate of Calibration included
- Compact & lightweight to use
- One-handed operation

The Reference Thermapen thermometer is a high accuracy PT100 instrument that is supplied with a five-point UKAS Certificate of Calibration. Each certificate indicates deviations from standards at various check points: -18, 0, 40, 70 and 100 °C. Special points may be certified by arrangement with our UKAS calibration laboratory.

The Reference Thermapen thermometer is ideal for comparison checking of the accuracy of other thermometers and probes, when used in conjunction with a stable temperature heat or chill source, see opposite. The instrument measures temperature over the range of -69.99 to 199.99 °C with a resolution of 0.01 °C and an accuracy of ±0.07 °C.

The thermometer will power off automatically after ten minutes, maximising battery life. This feature can be disabled if not required. Both low battery (icon) and open circuit indication are displayed, when applicable. Each Reference Thermapen is powered by two lithium coin cell batteries with a minimum life expectancy of 1000 hours.

The Reference Thermapen incorporates a stainless steel, penetration probe (Ø3.3 x 108 mm) that conveniently folds back through 180° into the side of the instrument when not in use.

Supplied in a zip pouch with belt strap

- **Stainless steel wall bracket (832-002)**
  Stores the Reference Thermapen safely when not in use. Keyhole slot for hanging (screws not supplied) Measures 27 x 58 x 115 mm

OPTIONAL ACCESSORIES:

- Glow-in-the-dark silicone boot with magnets (830-265)
- Protective PVC wallet with belt strap (830-110)
- Protect your instrument against high temperatures and accidental damage by fitting a protective silicone boot (830-260)

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Order code	Description
222-213	Reference Thermapen
830-260	Protective silicone boot
830-265	Silicone boot - glow in dark
830-110	Protective wallet
832-002	S/steel wall bracket
The Thermapen is supplied in a zip pouch (830-001)	

Specification	Reference Thermapen
Range	-69.99 to 199.99 °C
Resolution	0.01 °C
Accuracy	±0.07 °C (-30 to 149.99 °C) otherwise ±0.2 °C
Battery	2 x 3 volt CR2032 lithium coin cell
Battery life	1000 hours
Sensor type	PT100
Display	12 mm LCD
Dimensions	19 x 47 x 153 mm
Weight	97 grams
UKAS Certificate of Calibration included	

3000 SERIES LIGHTWEIGHT DRY-WELL CALIBRATORS

- Ideal for checking the accuracy of thermometers
- Portable temperature heat source

The 3000 dry-well calibrators are small and lightweight heat sources, ideal for checking the accuracy of digital thermometers and temperature probes. The units have a temperature range of 33 to 300 °C with a resolution of 0.1 °C.

The dry-wells offer a high level of stability (±0.5 °C) and a stabilisation time of five minutes. Plug it in, switch it on, set the verification temperature with the front panel buttons and insert your probe into the correct size well. Compare the temperature reading of your thermometer against the display and the difference is the error.

The 3001 dry-well will accept probe sizes Ø3.3, 4, 4.76 and 6.35 mm. The 3002 dry-well will accept probe sizes Ø3.3, 4.76, 6.35 and 9.6 mm. The 3003 dry-well will accept probe sizes Ø4.76 and 12.7 mm.

Order code	Description
271-301	3001 dry-well
271-302	3002 dry-well
271-303	3003 dry-well

Specification	3000 series dry-wells
Range	33 to 300 °C
Resolution	0.1 °C
Accuracy	±0.5 °C (33 to 199.9 °C) ±1 °C (200 to 300 °C)
Heating time	Ambient to 300 °C - min. 10 minutes
Well depth	100 mm
Power	230 volt AC (115 volt available)
Dimensions	57 x 125 x 158 mm
Weight	950 grams
FREE traceable certificate of calibration included	

3101 DRY-WELL HEAT/COOL SOURCE CALIBRATOR

- Ideal for checking the accuracy of thermometers
- Accepts a wide variety of probe diameters

The 3101 dry-well features an easy to read LED display with a temperature range of -10 to 110 °C and a resolution of 0.1 °C. Heating time, ambient to 100 °C or cooling time, ambient to 0 °C is ten minutes.

The 3101 is excellent for checking the calibration of a wide range of instrumentation including digital thermometers and temperature probes, either above or below ambient temperature. The unit incorporates two removable wells/inserts, both Ø13 mm in diameter and will accept probe sizes Ø3.3, 4.1, 4.8, 6.4 and 9.6 mm.

Each 3101 is supplied with two inserts of the customer's choice.

Order code	Description
271-401	3101 dry-well
271-321	Ø3.3 mm ID brass insert
271-322	Ø4.1 mm ID brass insert
271-323	Ø4.8 mm ID brass insert
271-324	Ø6.4 mm ID brass insert
271-325	Ø9.6 mm ID brass insert

Specification	3101 dry-well
Range	-10 to 110 °C
Resolution	0.1 °C
Accuracy	±0.5 °C (-10 to 99.9 °C) ±1 °C (100 to 110 °C)
Heating time	Ambient to 100 °C - min. 10 minutes
Cooling time	Ambient to 0 °C - 10 minutes
Well depth	100 mm
Power	12 to 24 volt DC*
Dimensions	110 x 153 x 186 mm
Weight	1800 grams
*Supplied with 230/115 volt AC power adaptor FREE traceable certificate of calibration included	

MICROCAL 1 & 1 PLUS SIMULATORS

- Tests thermocouple type K, J, T, R, N, S & E thermometers
- For frequent checking of thermometer accuracies
- 12 adjustable temperature points
- 2 models - simulator or simulator/thermometer

The MicroCal 1 and 1 Plus thermocouple simulators help ensure that the frequent checking of thermometer accuracies are a routine operation. Both instruments are designed to simulate a chosen temperature to test thermocouple type K, J, T, R, N, S and E thermometers without the need for specialised equipment or conversion tables. The MicroCal 1 Plus also measures and simulates temperature.

Both models feature a custom 10 mm LCD display with alpha-numeric display line to prompt the user when changing parameters. Selectable parameters include: °C/°F, auto-power off - enable/disable, CJC - internal/external and display contrast adjustment.

An optional lead set is also available, that comprises of seven leads, one for each thermocouple type K, J, T, R, N, S and E. Each PVC lead is one metre long and incorporates two miniature thermocouple plugs.

Each MicroCal is supplied with a one metre PVC type K thermocouple lead with miniature connectors and a five-point (type K) UKAS Certificate of Calibration. Each certificate indicates deviations from standards at the various points.

Incorporates a foot stand

Thermocouple type K	Range -200 to 1372 °C
Thermocouple type J	Range -200 to 1200 °C
Thermocouple type T	Range -270 to 400 °C
Thermocouple type R	Range 0 to 1768 °C
Thermocouple type N	Range -200 to 1300 °C
Thermocouple type S	Range 0 to 1768 °C
Thermocouple type E	Range -140 to 1000 °C

A 5-point UKAS Certificate of Calibration is included with each MicroCal simulator

UKAS CALIBRATION
0601

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Order code	Description
271-100	MicroCal 1
271-101	MicroCal 1 Plus
816-100	Lead set (7 types)
830-205	Protective silicone boot
832-115	Acrylic wall bracket

Specification	MicroCal 1 & MicroCal 1 Plus
Range	(see table above)
Temp points	12 adjustable presets
Accuracy	±0.3 °C (dependant upon thermocouple type)
Battery	2 x 1.5 volt AAA
Battery life	300 hours
Sensor type	Thermocouple type K, J, T, R, N, S & E (selectable)
Dimensions	57 x 125 x 158 mm
Weight	175 grams
UKAS Certificate of Calibration included	

MICROCAL 2 & 3 SIMULATORS

- Type K, J or T thermocouple models available
- No need for additional specialised equipment
- 12 variable or 23 fixed temperature points
- 5-point UKAS Certificate of Calibration

The MicroCal 2 and 3 thermocouple simulators help ensure that the frequent checking of thermometer accuracies is a routine operation. Both instruments are designed to simulate a chosen temperature, allowing standard K, J or T thermocouple thermometers to be tested or re-calibrated simply and quickly, without the need for additional specialised equipment or conversion tables.

Both models feature a custom 10 mm LCD display with alpha-numeric display line to prompt the user when changing parameters. Selectable parameters include; °C/°F, auto-power off - enable/disable, CJC - internal/external and display contrast adjustment.

The MicroCal 2 has 12 preset temperatures for type K thermocouple -20, -10, 0, 10, 30, 50, 100, 195, 250, 500, 800 and 1000 °C, any of these temperatures can be modified and saved by the user. The factory default temperatures can be recalled at any time.

Protective silicone boot

The MicroCal 3 has 23 fixed temperature points for type K thermocouple -100, -50, -20, -10, 0, 10, 20, 30, 40, 50, 60, 80, 100, 150, 195, 250, 300, 400, 500, 600, 800, 1000 and 1200 °C.

Each MicroCal is supplied with a one metre PVC lead with miniature thermocouple connectors and a five-point UKAS Certificate of Calibration. Each certificate indicates deviations from standards at the various points.

A 5-point UKAS Certificate of Calibration is included with each MicroCal simulator

UKAS CALIBRATION
0601

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Order code	Description
271-200	MicroCal 2 - type K
271-201	MicroCal 2 - type J
271-202	MicroCal 2 - type T
271-210	MicroCal 3 - type K
271-211	MicroCal 3 - type J
271-212	MicroCal 3 - type T
830-205	Protective silicone boot
832-115	Acrylic wall bracket

Specification	MicroCal 2	MicroCal 3
Range	(see table opposite)	
Temp points	12 adjustable presets	23 fixed temperatures
Accuracy	±0.3 °C	±0.5 °C
Battery	2 x 1.5 volt AAA	
Battery life	300 hours	
Sensor type	Dedicated type K, J, T thermocouple	
Display	Custom LCD	
Dimensions	35 x 73 x 141 mm	
Weight	175 grams	
UKAS Certificate of Calibration included		

MICROCHECK 3-POINT CHECKER/SIMULATOR

- For regular checking of thermometer accuracies
- 3-point UKAS Certificate of Calibration
- Simple & easy to use
- 4 models available

The MicroCheck temperature checkers have been developed to verify the continuing accuracy of type K thermocouple thermometers with a 0.1 or 1 °C resolution.

All checkers feature a custom 10 mm LCD display with alpha-numeric display line to prompt the user when changing parameters. Selectable parameters include: °C/°F, auto-power off - enable/disable, CJC - internal/external and display contrast adjustment.

The MicroChecks simulate three fixed temperatures, enabling users to check the accuracy of each instrument at three known points without the need for specialist equipment.

Each MicroCheck is supplied with a one metre PVC type K thermocouple lead with miniature connectors and a three-point UKAS Certificate of Calibration. Each certificate indicates deviations from standards at the various points.

Acrylic wall bracket

Specification	Range
MicroCheck 1	0 °C, 100 °C & 500 °C
MicroCheck 2	-20 °C, 20 °C & 200 °C
MicroCheck 3	-20 °C, 0 °C & 220 °C
MicroCheck 4	-20 °C, 0 °C & 100 °C
Other ranges are available upon request	

A 3-point UKAS Certificate of Calibration is included with each MicroCheck checker

UKAS CALIBRATION
0601

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Order code	Description
271-011	MicroCheck 1
271-012	MicroCheck 2
271-014	MicroCheck 3
271-015	MicroCheck 4
830-205	Protective silicone boot
832-115	Acrylic wall bracket

Specification	MicroCheck
Range	(see table above)
Temp points	3 fixed temperatures
Accuracy	±0.5 °C
Battery	2 x 1.5 volt AAA
Battery life	300 hours
Sensor type	type K thermocouple
Display	Custom LCD
Dimensions	35 x 73 x 141 mm
Weight	175 grams
UKAS Certificate of Calibration included	

CALIBRATION THERMISTOR TEST CAPS

0601

- Provides assurance that thermometer readings are accurate
- Supplied with a UKAS Certificate of Calibration

These thermistor test caps are suitable for checking the accuracy of the Therma 20, Therma 22 or any equivalent thermistor thermometer.

Simply plug in the desired test cap and the display on the thermometer should show the same temperature as the certified value.

Each test cap is supplied with a UKAS Certificate of Calibration with a guaranteed uncertainty of ±0.1 °C.

Order code	Description
286-001	Thermistor test cap -18 °C
286-002	Thermistor test cap 0 °C
286-003	Thermistor test cap 3 °C
286-004	Thermistor test cap 70 °C
286-005	Thermistor test cap 100 °C
UKAS Certificate of Calibration included	

CALIBRATION PT100 TEST CAPS

0601

- Validates the accuracy of PT100 thermometers
- Supplied with a UKAS Certificate of Calibration

These PT100 test caps are suitable for checking the accuracy of the Precision PT100 thermometer or any platinum resistance thermometer fitted with a Binder connector.

Simply plug in the test cap and the display on the thermometer should show the same temperature as the certified value.

Each test cap is supplied with a UKAS Certificate of Calibration with a guaranteed uncertainty of ±0.1 °C.

Order code	Description
282-001	PT100 test cap -18 °C
282-002	PT100 test cap 0 °C
282-003	PT100 test cap 3 °C
282-004	PT100 test cap 70 °C
282-005	PT100 test cap 100 °C
UKAS Certificate of Calibration included	

UKAS CALIBRATION, SERVICE & REPAIR

0601

The United Kingdom Accreditation Service (UKAS) is the UK national accreditation body responsible for assessing and accrediting the competence of organisations in the fields of measurement, testing, inspection and certification of systems, products and personnel. It operates under a Memorandum of Understanding with the Secretary of State for Department for Business, Energy & Industrial Strategy, who has licensed UKAS to use accreditation symbols that feature the Royal Crown, and to confer the use of these symbols to UKAS accredited organisations.

Having achieved accreditation to UKAS, our in-house laboratories are inspected on a regular basis to ensure that our calibration methods, equipment and personnel are maintained to the standards required by UKAS and ISO/IEC 17025.

Our UKAS accredited calibration laboratory is also capable of calibrating non-ETI manufactured temperature and humidity instruments and data-loggers. Please contact our sales department for more information. The following are just a few examples of frequently asked questions;

THE DIFFERENCE BETWEEN CALIBRATION & CERTIFICATION?

Calibration means "to measure". The instrument being tested is calibrated against a known source. A certificate shows which results have been obtained during calibration and certifies the accuracy of the instrument.

WHAT IS MEANT BY UNCERTAINTY OF MEASUREMENT?

When anything is measured there is a probability that there will be some inaccuracies. Perhaps the test instrument is not entirely accurate; perhaps ambient temperatures are not conducive to accurate measurement; possibly the operator has not followed correct procedures. Each measurement has an "uncertainty" factor, and this can be calculated by a combination of all potential errors. This is then stated as a tolerance, i.e. plus or minus the measured figure.

HOW OFTEN SHOULD WE HAVE OUR THERMOMETER CHECKED?

It depends on a number of factors. How important is temperature in your process? How often do you use your thermometer? How roughly is the instrument treated? Do you have the opportunity to check against other thermometers? For continued confidence in the accuracy of measurement, and to assist in compliance with HACCP and other legislation, it is recommended that you obtain a certificate of calibration at 12-month intervals.

CAN MY DATA-LOGGERS BE CALIBRATED?

Yes. We can issue UKAS Certificates for both temperature and humidity data-loggers with internal or external probes. The standard certificate includes three different temperature or humidity points. For temperature calibration and measurement capability, see opposite, for humidity and air temperature, see page 106.

UKAS TEMPERATURE CALIBRATION

- Thermometer temperature range -100 to 200 °C
- Rapid turnaround - normally within 5 days
- Certified uncertainties (CMCs) from ±0.02 °C
- 1 to 5-point UKAS Certificates

Our in-house UKAS accredited calibration laboratory for temperature has a wide measurement range of -100 to 200 °C with a calibration and measurement capability of 0.02 °C. The laboratory can also measure resistance up to 16 MΩ (i.e. resistance decade boxes and PT100/RTD temperature simulators) and DC voltage 0 to 200 mV (i.e. thermocouple simulators and calibrators). Original UKAS Certificates provide proof that instruments and probes have been calibrated against nationally approved standards.

- **Thermometers & Probes**
  Each UKAS Certificate indicates the deviations from standards at various check points, the standard being -18, 0, 40, 70 and 100 °C with a guaranteed uncertainty, dependant on the probe type. See calibration and measurement capability table below.

- **Test caps & Simulators**
  Each UKAS Certificate indicates the deviations from standards at specific check points (-18, 0, 3, 70 and 100 °C) to an uncertainty of ±0.1 °C (resistance) or ±0.15 °C (thermocouple).

- **Data-loggers**
  Each UKAS Certificate indicates the deviations from standards at three check points (-18, 0 and 40 °C) to an uncertainty of ±0.04 °C.

UKAS CALIBRATION
0601

Order code	UKAS Certificate - Temperature
890-200	Instrument only standard 5-point
890-210	Instrument & probe system 5-point
890-215	Checker 3-point
890-230	Test cap 1-point
890-235	Simulator 5-point
890-240	Data-logger 3-point

CALIBRATION & MEASUREMENT CAPABILITY (CMC)

Thermistor thermometer & probe	
-50 to 150 °C	CMC 0.02 °C
-100 to -50 °C	CMC 0.13 °C
PT100 (resistance sensors) thermometer & probe	
-50 to 200 °C	CMC 0.02 °C
-100 to -50 °C	CMC 0.13 °C
Thermocouple thermometer & probe	
-50 to 120 °C	CMC 0.15 °C
-100 to -50 °C	CMC 0.17 °C
120 to 200 °C	CMC 0.2 °C
Temperature data-loggers	
-50 to 100 °C	CMC 0.04 °C
Thermistor & PT100 test caps	
-18 to 100 °C	CMC 0.1 °C
Thermocouple simulators	
-200 to -50 °C	CMC 0.25 °C
-50 to 1372 °C	CMC 0.15 °C

UKAS HUMIDITY CALIBRATION

0601

- Certified uncertainties (CMCs) from 0.6 %rh, 0.18 °Cdp & 0.15 °C Air
- Flexible certification - select the points you need
- Qualified & experienced laboratory personnel
- Rapid turnaround

Our in-house humidity laboratory is equipped with one of the world's premier humidity chambers together with a high accuracy mirror hygrometer. The Thunder Scientific 2500 humidity chamber uses two-pressure technology to generate controlled humidity conditions, which has long been the recognised standard for instrument calibration, test and verification. This method of generation is a fundamental technology, enabling confidence in traceability to National Standards. This, combined with an MBW referenced mirror hygrometer, ensures the standard of calibration is to a very high level. If you then combine this with UKAS Accreditation, and a rapid turnaround of your instrument, you can be sure that the service offered by our humidity laboratory will meet your requirements.

Accurate monitoring of humidity can increase the efficiency of productivity in many aspects of production. An increasing number of employers are also realising the importance of healthy working environments, which includes the control of humidity to help prevent airborne bacteria, eliminate static shocks and reduce eye-strain.

As with most digital equipment, but even more so with hygrometers, there is a tendency for drift over a period of use. Therefore a regular calibration by comparison against Standards, traceable to National Standards, provides confidence in the continued accuracy of your instrument.

- **Air temperature capability**
  Our humidity laboratory is also UKAS accredited for air temperature measurement certification. Please see below for calibration and measurement capability (CMC).

Order code	UKAS Certificate - Humidity
890-110	3-point 25, 50 & 75 %rh
890-112	1-point customer specified
890-114	5-point customer specified

Order code	UKAS Certificate - Air Temperature
890-120	2-point 10 & 40 °C
890-132	1-point customer specified
890-134	Additional specified point

CALIBRATION & MEASUREMENT CAPABILITY (CMC)

Humidity	
10 to 90 %rh @ 0 to 65 °C	CMC 1.2 %rh
10 to 90 %rh @ 20 to 24 °C	CMC 0.6 to 1.0 %rh

Air temperature	
0 to 65 °C	CMC 0.15 °C

Alternative temperature points can be offered to customer requirements, please contact our Service department for further details.

SERVICE & REPAIR OF THERMOMETERS & PROBES

- Additional one year's guarantee on repaired instruments
- Thermometer, probe & re-calibration service available
- Rapid turnaround - normally within 5 days
- Qualified & experienced technicians

One of the true advantages of being a manufacturer is that we know how our instruments work and how to repair them. We are fully committed to supporting our customers, no matter which instrument they have chosen. Our service department is equipped with the best of resources and all repairs are undertaken in-house to give an unrivalled after-sales-service.

The vast majority of instruments that are damaged through use in busy commercial environments can be repaired. Naturally, if the instrument is outside the warranty period, there is a charge. But we wish to make customers aware that it can be cost-effective to repair an instrument, rather than throw it away and buy a new one.

Whilst an annual calibration check is all you may need for continued confidence in your instrument, there are times when you may wish for the added assurance of a full service, which includes a re-calibration and the added benefit of a further one year's guarantee.

Instruments for service or repair should be sent to your local distributor or direct to ETI, carriage paid and labelled with the sender's name, address, telephone number and a brief description of the problem to assist with rapid diagnosis.

Contact our service department for advice on any non-ETI units you wish to have repaired or calibrated. The prices quoted in our price list below are a guide, for a more comprehensive price structure, please contact our service department.

Order code	Description - Repair
890-254	Waterproof thermometers
890-257	Thermamite thermometer
890-295	ThermaData loggers
890-303	Thermapen Classic thermometers
890-310	Therma series thermometers
890-318	CaterTemp Plus thermometer
890-319	Therma Plus thermometer
890-403	Thermapen Pro/IR thermometers
890-500	TempTest thermometers
890-570	BlueTherm thermometers
890-670	RayTemp infrared thermometers
890-690	ThermaData WiFi loggers
890-695	ThermaGuard thermometers

Order code	Description - Re-calibration
894-254	Waterproof thermometers
894-257	Thermamite thermometer
894-303	Thermapen thermometers*
894-305	Food Check thermometer
894-310	Therma series thermometers
894-318	CaterTemp Plus thermometer
894-319	Therma Plus thermometer
894-331	MicroTherma thermometers
894-500	TempTest thermometers
*excludes Thermapen IR	

Order code	Description - Probe repair
890-400	Thermocouple probe
890-410	Thermistor probe
890-420	PT100 probe

HYGROMETERS FOR HUMIDITY MEASUREMENT

In many manufacturing processes the measurement of relative humidity (%rh) is important, as many products are sensitive to variations in humidity. Therefore humidity needs to be measured and controlled for the end products to be consistent in both quality and performance.

WHAT IS A HYGROMETER?

A hygrometer is an instrument used to measure the quantity of water vapour present in air. Hygrometers can measure relative humidity over the range of 0 to 100 %rh but in most instruments, this range may be more limited depending on the sensor type. Relative humidity is expressed as the ratio of the amount of water vapour present in the air or gas, to the quantity which would reach saturation, saturation being 100 %.

APPLICATIONS

There are a wide range of applications for %rh measurement in the following industries:

- Pharmaceutical
- Paper mills
- Computer rooms
- Healthcare
- Livestock
- Food processing
- Building & Construction
- Electronics production

The pharmaceutical industry is one of the largest users of humidity instrumentation as products can be sensitive to variations in humidity levels. Food manufacturing processes rely on humidity control, as food preservation techniques are often focused on limiting the activity of water.

The humidity is an essential element of climate control in buildings for optimum comfort and energy conservation. Paper and paper based products are highly sensitive to humidity and moisture levels. During production, storage and distribution, the monitoring of humidity can have significant benefits on quality.

MONITOR HUMIDITY LEVELS FOR BETTER HEALTH

If a building is too damp and the humidity level is too high (above 70 %rh), not only does mould develop but it can encourage dust mites to breed in carpets and mattresses. Conversely, if the humidity level is too low (below 25 %rh), it can cause respiratory discomfort. The regular monitoring of humidity levels in buildings can improve health

DEW POINT

The dew point is defined as the lower temperature to which air must be cooled in order for condensation (saturation) to occur. The dew point is dependent on the concentration of water vapour (%rh) present.

UKAS CERTIFICATES OF CALIBRATION

Our in-house UKAS calibration laboratory offers certification for both temperature and humidity instruments. Each certificate indicates deviations from standards at various temperature or humidity check points. See pages 105 and 106 for more information.

6000 SERIES THERMA-HYGROMETERS

- High accuracy ±2 %rh & ±1 °C
- Remote or integral %rh & temperature probe
- Displays max/min humidity or temperature
- Optional backlit display

The 6000 series therma-hygrometers are easy to use, relative humidity and air temperature measuring instruments. The units measure %rh over the range of 0 to 100 %rh with a resolution of 0.1 %rh and temperature over the range of -20 to 70 °C (-20 to 50 °C with a fixed probe) with a resolution of 0.1 °C.

The therma-hygrometers incorporate a custom LCD, displaying %rh, °C/°F, dew point indication, max/min and hold. There is an automatic display of both open circuit and low battery. The 6000/6100 display the temperature and humidity at the push of a button separately, whereas the 6002/6102 display humidity and temperature simultaneously and additionally incorporates a backlit display.

All units are powered by three AAA batteries with a minimum life expectancy of 10000 hours. An auto-power off facility turns the therma-hygrometer off automatically after ten minutes, maximising battery life.

- **6100/6102 therma-hygrometers with remote probe**
  These therma-hygrometers utilise an interchangeable probe that incorporates a one-metre lead with a 6-pin Lumberg connector.

- **Optional UKAS Certificate of Calibration**
  An optional three-point UKAS Humidity Calibration Certificate is available at a preferential price when purchased with these units.

UKAS CALIBRATION
0601

- **Protective silicone boot (830-227)**
  The Therma series is splashproof to IP64 when used in conjunction with this boot. Various colours are available - see page 13 for details

DEW POINT | HOLD | MAX/MIN | AUTO OFF | 2 YEAR GUARANTEE | MADE IN BRITAIN

Order code	Description
224-600	6000 therma-hygrometer
224-610	6100 therma-hygrometer
224-602	6002 therma-hygrometer
224-612	6102 therma-hygrometer
224-615	6100/6102 spare probe
830-227	Protective silicone boot - black
890-111	*UKAS 3-point Certificate

6100/6102 are supplied inclusive of probe
*Price when purchased with a new instrument

Specification	Temperature	Humidity
Range - 6000/6002	-20 to 50 °C	0 to 100 %rh
Range - 6100/6102	-20 to 70 °C	0 to 100 %rh
Resolution	0.1 °C/°F	0.1 %rh
Accuracy	±1 °C ±1 digit*	±2 %rh (10 to 90 %rh)
Hysteresis	N/A	±1 %rh
Sensor type	Silicon bandgap	Capacitance polymer
Battery & life	3 x 1.5 volt AAA - 10000 hours	
Display	12 mm LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130/160 grams	

*Accuracy ±0.4 °C over the range 10 to 40 °C otherwise ±1 °C

6500 THERMA-HYGROMETER

- High accuracy ±3 %rh & ±1 °C
- Remote %rh & temperature probe

The 6500 therma-hygrometer measures both relative humidity and air temperature. The clear, easy to read LCD displays %rh over the range of 0 to 100 %rh with a resolution of 0.1 %rh and temperature over the range of -20 to 70 °C with a resolution of 0.1 °C.

The unit incorporates a custom LCD with %rh, °C/°F, dew point indication, max/min and hold. An auto-power off facility turns the therma-hygrometer off automatically after ten minutes, maximising battery life.

The 6500 therma-hygrometer incorporates four, easy to use, push buttons allowing the user to select on/off, hold, max/min and mode functions. Each unit is supplied with a remote sensor and integral PVC lead.

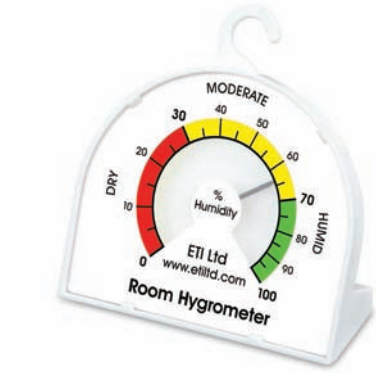
Order code	Description
224-655	6500 therma-hygrometer
830-227	Protective silicone boot - black
890-111	*UKAS 3-point Certificate

*Price when purchased with a new instrument

Specification	Temperature	Humidity
Range	-20 to 70 °C	0 to 100 %rh
Resolution	0.1 °C/°F	0.1 %rh
Accuracy	±1 °C ±1 digit*	±3 %rh (20 to 80 %rh)
Hysteresis	N/A	±1 %rh
Sensor type	Silicon bandgap	Capacitance polymer
Battery & life	3 x 1.5 volt AAA - 10000 hours	
Display	12 mm LCD	
Dimensions	25 x 56 x 128 mm	
Weight	185 grams	

*Accuracy ±1 °C over the range 5 to 45 °C otherwise ±1.7 °C

DIAL HYGROMETER



The general purpose hygrometer incorporates a 70 mm diameter dial with arrow indicator and colour-coded zones to display humidity levels e.g. dry, moderate and humid. The hygrometer indicates the level of humidity in 5 % divisions over the range of 0 to 90 %rh.

The unit is housed in an ABS case, measuring 70 x 60 mm and can be free-standing or hung by the hook from a shelf.

Order code	Description
800-125	Dial hygrometer - room

POCKET HYGROMETER

The pen-shaped hygrometer simultaneously displays both humidity and temperature over the range of 20 to 95 %rh and 0 to 49.9 °C.

The hygrometer incorporates a max/min button which allows the user to display the maximum and minimum humidity and temperature simultaneously.

The unit is housed in a slim, ABS case measuring 20 x 23 x 130 mm and incorporates a pocket clip.

Order code	Description
810-190	Pen-shaped hygrometer

THERMA-HYGROMETER - COMFORT

- Displays both humidity & temperature
- Helps maintain a healthy living & work environment

These therma-hygrometers display both the humidity and temperature in addition to indicating and recording the maximum and minimum readings. Each unit features an analogue arrow indicator and a colour-coded bar to display either humidity comfort levels e.g. dry, comfort and wet (810-130) or temperature comfort levels eg. cold, comfort and hot (810-135).

These therma-hygrometers are ideal for monitoring both temperature and humidity in rooms, offices, factories and similar to ensure optimum environmental conditions are maintained.

Each unit is housed in an ABS case, measuring 20 x 100 x 110 mm, that incorporates a useful foldaway stand and a keyhole slot for hanging on a wall.

MAX/ MIN

Order code	Description
810-130	Therma-hygrometer
810-135	Comfort thermometer

Specification	Temperature	Humidity
Range	0 to 50 °C	10 to 99 %rh
Resolution	0.1 °C/°F	1 %rh
Accuracy	±1 °C	±5 %rh (30 to 70 %rh)
Battery & life	2 x 1.5 volt AAA - 10000 hours	
Display	Dual custom LCD	
Dimensions	20 x 100 x 110 mm	
Weight	142 grams	

THERMA-HYGROMETER - ALARM

- Integral %rh & remote temperature probe
- Large LCD with max/min & alarm functions

This therma-hygrometer simultaneously displays both the humidity and temperature in addition to indicating and recording the maximum and minimum readings.

The instrument measures both humidity and temperature over the range of 0 to 49.9 °C and 20 to 99 %rh via the internal sensors. Using the external temperature sensor the temperature range is extended to -49.9 to 69.9 °C.

The unit features a temperature alert alarm that will sound when the external remote temperature probe indicates the temperature is 0 °C or below. This feature is ideal for frost/freeze alert in horticulture and similar.

The unit is housed in an ABS case, measuring 20 x 65 x 97 mm, that incorporates a useful foldaway stand and a keyhole slot for hanging on a wall.

MAX/ MIN

Order code	Description
810-155	Therma-hygrometer - alarm

Specification	Temperature	Humidity
Range - internal	0 to 49.9 °C	20 to 99 %rh
Range - external	-49.9 to 69.9 °C	N/A
Resolution	0.1 °C/°F	1 %rh
Accuracy	±1 °C	±5 %rh
Sensor type	Thermistor	Capacitance
Battery & life	1.5 volt AAA - 10000 hours	
Display	Dual custom LCD	
Dimensions	20 x 65 x 97 mm	
Weight	70 grams	

THERMA-HYGROMETER

- Max/min temperature & humidity function
- Integral %rh & temperature

This therma-hygrometer simultaneously displays both the humidity and temperature in addition to indicating and recording the maximum and minimum temperature and humidity readings.

The hygrometer measures both humidity and temperature over the range of 0 to 50 °C and 10 to 99 %rh utilising the internal sensors. A comfort icon is displayed to show if the surrounding atmosphere is dry, just right or too wet.

This therma-hygrometer is ideal for monitoring both temperature and humidity in rooms, offices, factories and similar to ensure optimum environmental conditions are maintained.

The unit is housed in an ABS case, measuring 20 x 100 x 110 mm, that incorporates a useful foldaway stand and a keyhole slot for hanging on a wall.

MAX/ MIN

Specification	Temperature	Humidity
Range	0 to 50 °C	10 to 99 %rh
Resolution	0.1 °C/°F	1 %rh
Accuracy	±1 °C	±5 %rh (30 to 70 %rh)
Battery & life	1.5 volt AAA - 10000 hours	
Display	Dual custom LCD	
Dimensions	20 x 100 x 110 mm	
Weight	135 grams	

Order code	Description
810-145	Therma-hygrometer

THERMA-HYGROMETER - PANEL MOUNTING

- Displays both humidity & temperature
- Easy panel-mounting installation

This panel-mounted therma-hygrometer simultaneously displays both humidity over the range of 20 to 99 %rh and temperature over the range of 0 to 49.9 °C with a resolution of 1 %rh and 0.1 °C. This instrument is ideal for OEMs for installing into equipment, i.e. vivariums, incubators and similar.

The therma-hygrometer is easily installed into a panel via a mounting hole with a minimum Ø33 mm cut-out. The unit incorporates a screw clamp with a maximum panel thickness of 7 mm.

The therma-hygrometer features a max/min memory function for both temperature and humidity. The unit is powered by a CR2032 coin cell battery with a life expectancy of 5000 hours continuous use.

MAX/ MIN

Specification	Temperature	Humidity
Range	0 to 49.9 °C	20 to 99 %rh
Resolution	0.1 °C	1 %rh
Accuracy	±1 °C	±5 %rh
Sensor type	Thermistor	Capacitance
Battery	3 volt CR2032 lithium coin cell	
Battery life	5000 hours	
Display	Dual custom LCD	
Dimensions	Ø50 x 41 mm	
Weight	42 grams	

Order code	Description
810-180	Therma-hygrometer - panel

THERMA-HYGROMETER - WITH PROBE

- Displays both humidity & temperature
- Large, easy to read LCD display

The therma-hygrometer simultaneously displays both the humidity and temperature in addition to indicating and recording the maximum and minimum readings.

Using the external remote probe with integrated three metre lead the unit measures both temperature and humidity over the range of -20 to 70 °C and 10 to 99 %rh. Alternatively using the internal sensor the unit measures temperature over the range of 0 to 50 °C.

This therma-hygrometer is ideal for monitoring both temperature and humidity in rooms, offices, factories and similar to ensure optimum environmental conditions are maintained.

The unit is housed in an ABS case, measuring 20 x 100 x 110 mm, that incorporates a useful foldaway stand and a keyhole slot for hanging on a wall.

Order code	Description
810-140	Therma-hygrometer - with probe

Specification	Temperature	Humidity
Range - internal	0 to 50 °C	N/A
Range - external	-20 to 70 °C	10 to 99 %rh
Resolution	0.1 °C/°F	1 %rh
Accuracy	±1 °C	±5 %rh (30 to 70 %rh)
Battery & life	1.5 volt AAA - 10000 hours	
Display	Dual custom LCD	
Dimensions	20 x 100 x 110 mm	
Weight	170 grams	

THERMA-HYGROMETER - WITH PROBE

- Remote %rh & temperature probe
- Frost/freeze audible alarm feature

This therma-hygrometer simultaneously displays both the humidity and temperature in addition to indicating and recording the maximum and minimum readings.

Utilising the internal sensor the instrument measures temperature over the range of 0 to 49.9 °C. The external remote probe with integrated three metre lead measures both temperature and humidity over the range of -49.9 to 69.9 °C and 20 to 98 %rh.

The unit features a temperature alert alarm that will sound when the external remote probe indicates the temperature is 0 °C or below. This feature is ideal for frost/freeze alert in horticulture and similar.

The therma-hygrometer is housed in an ABS case measuring 18 x 41 x 76 mm, that incorporates a foldaway stand. Each unit is supplied with a probe wall bracket.

Order code	Description
810-195	Therma-hygrometer - with probe

Specification	Temperature	Humidity
Range - internal	0 to 49.9 °C	N/A
Range - external	-49.9 to 69.9 °C	20 to 98 %rh
Resolution	0.1 °C/°F	1 %rh
Accuracy	±1 °C	±5 %rh @ 25 %rh
Sensor type	Thermistor	Capacitance
Battery & life	1.5 volt AAA - 10000 hours	
Display	Dual custom LCD	
Dimensions	18 x 41 x 76 mm	
Weight	90 grams	

MOISTURE METERS FOR MEASURING DAMP

We manufacture a range of portable, pin-type (resistance) moisture meters for both the professional and the craftsman. Pin-type moisture meters are acknowledged as a reliable way to obtain percentage moisture readings in a wide range of building materials. The relationship between moisture content and electrical resistance provides consistent and accurate results over the range of 4 % to the fibre saturation point, which is approximately 30 %, dependant on the material.

BUILDING MATERIALS

Some moisture is unavoidable and may even be necessary in certain building materials, but too much can cause mould, decay and other problems. Our moisture meters are cost-effective instruments that can easily determine moisture levels - allowing the user to diagnose problems and make informed decisions with regard to remedial actions.

PROBLEMS IN MEASURING MOISTURE

The main problems arise from the 'structure' of the material being tested, in particular, the presence of other conductive material that can affect the reading.

Therefore when measuring the moisture content of a material it is important to appreciate a number of factors:

- Surrounding environment
- Density of the material
- Grain size or direction
- Ability of a material to absorb moisture

WHY MEASURE MOISTURE IN FLOORS & WALLS?

Many of today's flooring materials use water-based adhesives, which are more likely to fail than the older, traditional, solvent-based adhesives. Moisture can cause laminates to fail, tiles to lift and hardwood floors to warp or split. A newly poured concrete floor slab is usually the slowest-drying element of a building. Therefore it is important to measure the moisture content accurately to ensure a successful floor. Measuring the moisture content of walls is a traditional method for locating damp and other related problems, i.e. damaged pipework, breached damp-proof courses etc. It is important to ascertain the cause of the dampness, i.e. rising damp, penetrating damp or condensation before any remedial action is undertaken.

7250 MOISTURE METER

- 20-LED bar graph displays moisture levels for quick diagnosis
- Specifically designed for the building professional
- 5 scales - concrete, plaster, reference & 2 timber
- Compact & robust design

The 7250 is a compact, general purpose moisture meter designed specifically for building professionals and tradesmen to check the moisture content in a variety of construction materials. The moisture meter features a 20-LED bar graph within the keypad which displays current moisture levels; green for OK, amber for WARNING or red for DAMP. The digital meter incorporates five scales of measurement.

Scale 1 - Wood 1 (W1)	6.0 to 40.0 %
Scale 2 - Wood 2 (W2)	8.0 to 40.0 %
Scale 3 - Plaster (P1)	0.1 to 15.0 %
Scale 4 - Concrete (C1)	0.5 to 12.0 %
Scale 5 - Linear or Reference (Lin)	0 to 1000

The unit is housed in a robust ABS case and is powered by three AAA batteries that give a minimum of 350 hours battery life. The instrument will power off automatically after ten minutes, maximising battery life. This feature can be disabled by the user, if required.

Each meter incorporates two Ø1.2 x 7 mm pointed, replaceable pins and is supplied in a zip wallet complete with 50 spare pins (602-530). The 7250 moisture meter is an essential tool for flooring surveyors and building and construction engineers.

Order code	Description
224-075	7250 moisture meter
830-222	Protective silicone boot - yellow
832-222	s/steel wall bracket & boot
Supplied with spare pins - pack of 50 (602-530)	

LED MOISTURE INDICATION BAR GRAPH:

Damp Warning Ok

- **Protective silicone boot**
  Fitting a boot will make your instrument splashproof to IP64 and help prevent against accidental damage. Various colours are available - see page 13.

HOLD AUTO OFF 2 YEAR GUARANTEE MADE IN BRITAIN

Specification		7250 moisture meter
Range	Scale 1	6.0 to 40.0 %
	Scale 2	8.0 to 40.0 %
	Scale 3	0.1 to 15.0 %
	Scale 4	0.5 to 12.0 %
	Scale 5	0 to 1000
Resolution		0.1 % or 1 (Linear Scale)
Accuracy		±1 % moisture content
Battery & life		3 x 1.5 volt AAA - 350 hours
Display		12 mm LCD
Dimensions		25 x 56 x 128 mm
Weight		130 grams

7000 MOISTURE METER

- 20-LED bar graph indicates OK, WARNING or DAMP levels
- Specifically designed for the building professional
- 5 scales - concrete, plaster, reference & 2 timber
- Interchangeable 2-pin probes

The 7000 is a compact, general purpose moisture meter designed specifically for building professionals and tradesmen to check the moisture content in a variety of construction materials for moisture content diagnosis.

The instrument features a 20-LED bar graph within the keypad which displays current moisture levels; green for OK, amber for WARNING or red for DAMP. The instrument incorporates a large, easy to read, LCD display with low battery indication. The 7000 digital meter incorporates five scales of measurement.

Scale 1 - Wood 1 (W1)	6.0 to 40.0 %
Scale 2 - Wood 2 (W2)	8.0 to 40.0 %
Scale 3 - Plaster (P1)	0.1 to 15.0 %
Scale 4 - Concrete (C1)	0.5 to 12.0 %
Scale 5 - Linear or Reference (Lin)	0 to 1000

Each unit is housed in a robust ABS case and is powered by three AAA batteries that give a minimum of 350 hours battery life. The instrument will power off automatically after ten minutes, maximising battery life. This feature can be disabled by the user, if required.

Each moisture meter comes complete with a general purpose two-pin probe, having a one metre PVC lead and BNC connector, all supplied in a handy-sized protective zip wallet and 50 spare pins (602-530). For alternative moisture probes available, see opposite page.

Order code	Description
224-070	7000 moisture meter
830-222	Protective silicone boot - yellow

The 7000 moisture meter is inclusive of probe

LED MOISTURE INDICATION BAR GRAPH:

Damp Warning Ok

- **Protective silicone boot**
  Fitting a boot will make your instrument splashproof to IP64 and help prevent against accidental damage. Various colours are available - see page 13.

HOLD AUTO OFF 2 YEAR GUARANTEE MADE IN BRITAIN

Specification		7000 moisture meter
Range	Scale 1	6.0 to 40.0 %
	Scale 2	8.0 to 40.0 %
	Scale 3	0.1 to 15.0 %
	Scale 4	0.5 to 12.0 %
	Scale 5	0 to 1000
Resolution		0.1 % or 1 (Linear Scale)
Accuracy		±1 % moisture content
Battery & life		3 x 1.5 volt AAA - 350 hours
Display		12 mm LCD
Dimensions		25 x 56 x 128 mm
Weight		130 grams

MOISTURE METER KIT

- Heavy duty, designed for the construction industry
- Excellent value-for-money

This moisture meter kit is a complete solution for measuring the moisture and dampness in a variety of building materials. This kit is supplied in a robust ABS carrying case and includes a two-pin probe, two packs of pins and a protective silicone boot.

Each kit contains:

- 7000 moisture meter (224-070)
- General purpose two-pin probe (180-160)
- Heavy duty hammer probe (180-170)
- General purpose pins - pack of 50 (602-530)
- Hammer probe pins - pack of 10 (602-537)
- Protective silicone boot - yellow (830-222)
- ABS carrying case (834-715)

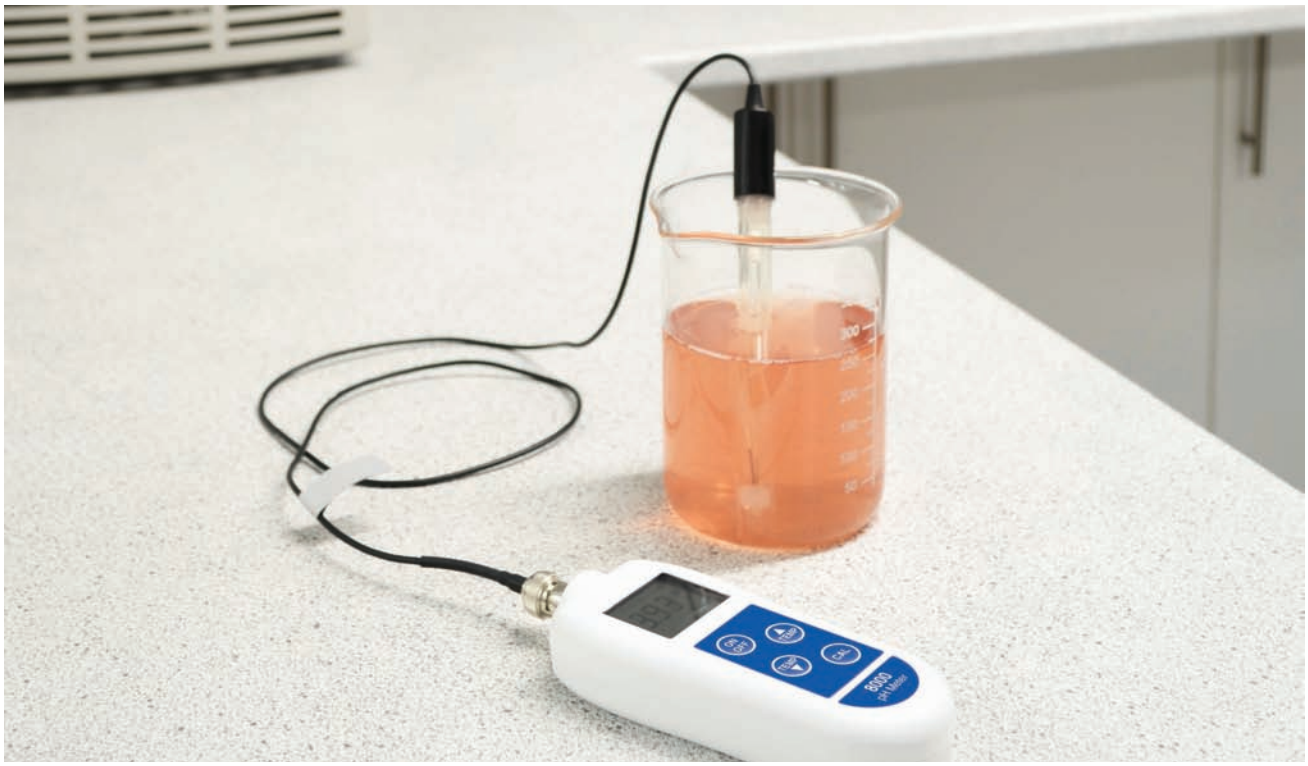
HOLD AUTO OFF MADE IN BRITAIN

Order code	Description
224-079	Moisture meter kit

7000 MOISTURE METER PROBES

		Order code	
GENERAL PURPOSE PROBE  26 x 33 x 60 mm overall	This standard, general purpose, two-pin (12.7 mm spacing) moisture meter probe is ideal for measuring moisture in a variety of building materials. Supplied with a one metre PVC lead and BNC connector.	180-160	
 Ø1.2 x 7 mm (fitted)	Spare general purpose probe pins - pack of 50	602-530	
HEAVY DUTY HAMMER PROBE  Ø40 x 290 mm overall	This probe is designed for measuring moisture in wood and similar materials. The pin's insulated shanks ensure measurements are taken at the pin tip, allowing varying of depth measurements. Supplied with a one metre PVC lead and BNC connector.	180-170	
 Ø2.4 x 30 mm (fitted)	Spare hammer probe pins - pack of 10	602-537	
DEEP WALL PROBE  Ø3 x 150 mm overall	This insulated deep wall probe measures moisture deep within walls, regardless of surface dampness. The insulated shanks should be inserted into pre-drilled holes. Each pair of probe assemblies is supplied with a one metre PVC lead and BNC connector.	180-180	
 Ø3 x 130 mm	Spare insulated shanks - pack of 2	602-539	

PH INSTRUMENTATION



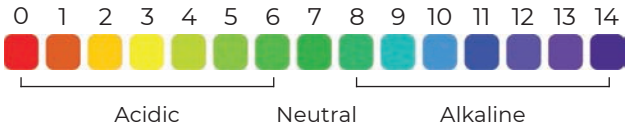
PH METERS

The pH (potential hydrogen) level of any material or substance is defined by the acidity or alkalinity of that substance and is represented on a scale of 0 to 14; 7 pH being neutral, 0 pH acidic and 14 pH alkaline.

APPLICATIONS

These analytical meters can be used in many areas, for example:

- Food production
- Water quality
- Process industry
- Laboratories
- Fish farming
- Agriculture
- Horticulture
- Hydroponics



MAINTAINING YOUR PH METER

If you don't look after your pH meter then incorrect measurements of pH levels may occur.

As a minimum you must always clean the pH electrode by holding it under a running tap, if the pH electrode is excessively dirty a cleaning solution can be used or alternatively use de-ionised water.

Leave the electrode in the cleaning solution for at least half an hour, preferably overnight to ensure a thorough clean.

After soaking overnight, rinse the electrode and then soak in a 4 pH buffer solution before giving the electrode a final rinse. The electrode should then be ready for use.

When not in use, ensure the pH meter electrode is kept moist in either storage solution or a 4.01 pH solution. If the sensor is allowed to dry out completely, the instrument's performance will be affected and its guarantee invalidated.

If an electrode has been allowed to dry out or becomes slow to respond it may be rejuvenated by soaking the electrode overnight in a cleaning solution. Avoid touching the glass bulb at the end of the pH electrode at all times as this can easily cause damage.

CALIBRATING YOUR PH METER

To ensure accurate measurements, it is necessary to calibrate/standardise pH meters on a regular basis. For this you will require pH buffer solutions. These standard, inexpensive solutions are used to check that the pH reading is correct. If it is not, it can be easily corrected following the procedure for the specific instrument.

Generally pH electrodes have a limited working life, dependant on the frequency of use. This life is approximately 12 months or 365 measurements.

PH PAL PLUS PH TESTER

- Pocket-sized meter, ideal for everyday use
- Automatic re-calibration feature
- Easy to read 8 mm LCD display
- Display hold function

The pH Pal Plus pH tester is a user-friendly, simple to use pocket-sized pH meter that incorporates an automatic re-calibration feature. At the touch of a button, the instrument will automatically re-calibrate itself when used in conjunction with a 7.00 pH buffer solution.

The unit is housed in a water resistant case and features an easy to read 8 mm LCD display indicating pH over the range of 0 to 14 pH with a resolution of 0.1 pH and an accuracy of ±0.2 pH.

The pH Pal Plus tester will power off automatically after ten minutes, maximising battery life. This pH Pal is ideal for measuring the pH in food processing, hydroponics and water testing applications. The pH tester is an invaluable tool when mixing concentrates with water.

The unit is powered by four LR44 button cell batteries (supplied) and includes a protective cap. For pH buffer solutions and capsules, see page 122.

Order code	Description
813-513	pH Pal Plus pH tester
816-051	7.00 pH buffer solution

OPTIONAL ACCESSORY:

- This ready-made 7.00 pH buffer solution ensures the pH meter is reading correctly

HOLD | AUTO OFF | IP65

Specification	pH Pal Plus pH tester
Range	0 to 14 pH
Resolution	0.1 pH
Accuracy	±0.2 pH
Battery	4 x 1.5 volt LR44 button cell
Battery life	150 hours
Display	8 mm LCD
Dimensions	15 x 32 x 170 mm
Weight	70 grams

8000 PH METER

- Easy to use 2-point re-calibration function
- Supplied complete with a pH electrode

Budget pH electrode (823-500)

AUTO OFF

Biomaster

2 YEAR GUARANTEE

MADE IN BRITAIN

The 8000 pH meter features an easy to read, LCD display and is supplied with a budget pH electrode.

The 8000 pH meter indicates pH over the range of 0 to 14 pH with a resolution of 0.01 pH and an accuracy of ±0.05 pH. The pH readings are manually temperature compensated over the range of 0 to 60 °C (default 25 °C).

The unit will power off automatically after ten minutes, maximising battery life.

At the touch of a button, the instrument will automatically re-calibrate itself when used in conjunction with pH buffer solutions. See page 122 for pH electrodes, buffer solutions and capsules.

Specification	8000 pH meter
Range	0 to 14 pH
Resolution	0.01 pH
Accuracy	±0.05 pH
Battery & life	3 x 1.5 volt AAA - 5000 hours
Sensor type	Combination electrode
Display	Custom LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams

Order code	Description
860-800	8000 pH meter
The 8000 pH meter is inclusive of pH electrode	

8100 PH & TEMPERATURE METER KIT

- Simultaneously displays pH & temperature
- Automatic temperature compensation (ATC)

Temperature probe (170-101)

Budget pH electrode (823-500)

AUTO OFF

Biomaster

2 YEAR GUARANTEE

MADE IN BRITAIN

The 8100 pH meter features an easy to read, LCD display and is supplied as a kit which includes an 8100 pH meter, budget pH electrode, temperature probe, 4.01 and 7.00 pH buffer solutions and zip pouch for easy transportation and storage.

The 8100 pH meter indicates pH over the range of 0 to 14 pH with a resolution of 0.01 pH and temperature over the range of 0 to 99.9 °C with a resolution of 0.1 °C.

The pH readings are automatically temperature compensated over the operating range of 0 to 60 °C utilising the temperature probe supplied.

At the touch of a button, the instrument will automatically re-calibrate itself when used in conjunction with pH buffer solutions. See page 122 for pH electrodes, buffer solutions and capsules.

Specification	pH meter	Temperature
Range	0 to 14 pH	0 to 99.9 °C
Resolution	0.01 pH	0.1 °C
Accuracy	±0.05 pH	±0.5 °C
Battery & life	3 x 1.5 volt AAA - 5000 hours	
Sensor type	Combination electrode / Thermistor	
Display	Custom LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130 grams	

Order code	Description
860-810	8100 pH kit
170-101	Spare temperature probe

8100 PLUS PH METER

- Manual/automatic temperature compensation
- Easy to use 2-point re-calibration function
- High accuracy ±0.02 pH
- Waterproof IP66/67, robust design

The 8100 Plus pH meter is a three-in-one instrument that features a large easy to read, LCD display that indicates pH over the range of -2 to 16 pH with a resolution of 0.01 pH, mV over the range of -1000 to 1000 mV and temperature over the range of -39.9 to 149.9 °C with a resolution of 0.1 °C. The LCD display features both low battery indication and a user selectable backlight.

The pH readings are either manually or automatically temperature compensated over the range of 0 to 80 °C. To automatically compensate, it is necessary to utilise a thermistor temperature probe. Each unit incorporates an auto-power off facility that automatically turns the instrument off after ten minutes, maximising battery life.

The 8100 Plus has an integrated rubber seal to ensure complete water resistance and helps to reduce the possibility of damage in harsh environments. At the touch of a button, the instrument will automatically re-calibrate (two-point autocal) itself when used in conjunction with pH buffer solutions. For pH electrodes, buffer solutions and capsules, see overleaf.

Each unit incorporates an easy to use BNC connector and Lumberg screw-locking type connector, allowing a wide range of interchangeable thermistor probes to be used. We offer an extensive range of temperature probes, see pages 84 and 85 for full details.

The 8100 Plus is available as a meter only or as a complete kit.

Order code	Description
225-085	8100 Plus pH meter*
860-820	8100 Plus kit
170-100	Temperature probe
830-231	Protective silicone boot - white
832-015	Stainless steel wall bracket

*The 8100 Plus is exclusive of pH electrode & probe

General purpose electrode (823-501)

Temperature probe (170-100)

8100 PLUS PH METER KIT

Each kit contains:

- 8100 Plus pH meter (225-085)
- Temperature probe (170-100)
- General purpose pH electrode (823-501)
- 4.01 pH buffer solution (816-050)
- 7.00 pH buffer solution (816-051)
- Zip pouch (830-080)

AUTO OFF · IP66/ IP67 · Biomaster · 2 YEAR GUARANTEE · MADE IN BRITAIN

Specification	pH	mV	Temperature
Range	-2 to 16 pH	± 1000 mV	-39.9 to 149.9 °C
Resolution	0.01 pH	1 mV	0.1 °C
Accuracy	±0.02 pH	±1 mV	±0.4 °C (-9.9 to 69.9 °C)
Battery & life	3 x 1.5 volt AAA - 2500 hours		
Sensor type	Combination electrode / Thermistor		
Display	12 mm LCD		
Dimensions	32 x 71 x 141 mm		
Weight	230 grams		

PH ELECTRODES WITH BNC CONNECTOR

pH meters are only part of the system, of equal importance is the design of the pH electrodes that are used to physically measure the product. This range of standard hand held pH electrodes are fully interchangeable via a BNC connector and are designed for use with the 8000/8100 and 8100 Plus pH meters or similar.

		Order code	
BUDGET PH ELECTRODE  Ø12 x 120 mm	This plastic bodied electrode is ideal for measuring the pH in liquids and semi-solids, in a variety of industries including hydroponics, education and scientific.	823-500	
GENERAL PURPOSE ELECTRODE  Ø12 x 120 mm	This plastic bodied electrode is ideal for measuring the pH in liquids and semi-solids in a wide variety of industries including food processing, agriculture and pharmaceutical.	823-501	
SPEAR-SHAPED ELECTRODES  Ø6 or Ø12 x 120 mm	These glass penetration pH electrodes measure pH in semi-solid and soft materials. Ideal for use in a wide variety of industries including food processing and agriculture.	823-502 (Ø12 mm) 823-503 (Ø6 mm)	
KNIFE PROBE ELECTRODE  Ø15 x 150 mm	This stainless steel, sheathed glass electrode is ideal for insertion into meat, cheese or similar. The knife probe can also be used in a variety of applications in food processing and agriculture.	823-510	

Please note: maximum operating temperature range of pH electrodes is 80 °C. Each electrode is supplied with a one metre lead.

CALIBRATION SOLUTIONS & CAPSULES

pH buffer, cleaning & storage solutions

These ready-made solutions are suitable for checking and cleaning pH instrumentation and pH electrodes.

Buffer solutions are available for 4.01, 7.00 and 10.01 pH.

Order code	Description
816-050	4.01 pH buffer solution - 100 ml
816-051	7.00 pH buffer solution - 100 ml
816-052	10.01 pH buffer solution - 100 ml
816-040	Cleaning solution - 500 ml
816-041	Storage solution - 500 ml

pH buffer capsules

These DIY pH buffer capsules are available in four standard values, 4.00, 7.00, 9.00 and 10.00 pH.

Each capsule makes 100 ml of solution when mixed with de-ionised water. Supplied in packs of ten capsules.

Order code	Description
816-004	4.00 pH buffer capsules (10)
816-007	7.00 pH buffer capsules (10)
816-009	9.00 pH buffer capsules (10)
816-010	10.00 pH buffer capsules (10)

TDS CONDUCTIVITY TESTERS

- Accuracy of ±2 % of full scale
- Automatic temperature compensation (ATC)
- Water resistant to IP65
- Easy to use, pocket-sized meter

These TDS conductivity testers indicate ppm (parts per million) or µS (micro-siemens), ideal for monitoring a variety of applications including the amount of salts, nutrients or dissolved solids in water. At the touch of a button the readings are automatically temperature compensated over the range of 0 to 50 °C.

There are four models, two TDS and two conductivity testers, suitable for testing either low or high concentrations of total dissolved solids in liquids.

Housed in a water resistant case that features an easy to read 6 mm LCD display, each meter is powered by four LR44 button cell batteries (supplied) and is supplied with a protective cap.

See below for our range of ppm, µS and mS calibration solutions, all supplied in 90 ml bottles.

- **TDS calibration solutions**
  These ready-made solutions are suitable for checking TDS and conductivity instrumentation and electrodes. Calibration solutions are available for 1382 ppm, 6440 ppm, 1413 µS and 12.88 mS

AUTO OFF IP65

Order code	Description
813-525	TDS1 ppm tester
813-526	TDS2 ppm tester
813-527	COND3 µSiemen tester
813-528	COND4 µSiemen tester
816-055	1382 ppm solution - 90 ml
816-057	6440 ppm solution - 90 ml
816-054	1413 µS solution - 90 ml
816-056	12.88 mS solution - 90 ml

Specification	TDS1	TDS2	COND3	COND4
Range	10-1990	100-9999	10-1990	100-19900
Resolution	10 ppm	100 ppm	10 µS	100 µS
Accuracy	±2 % of full scale			
Battery & life	4 x 1.5 volt LR44 - 100 hours			
Display	6 mm LCD			
Dimensions	15 x 32 x 147 mm			
Weight	70 grams			

PRESSURE METERS

The range of ETI pressure meters are designed for use in measuring non-corrosive gauge or differential air or gas pressure in a wide range of industries.

APPLICATIONS

- Flue draught measurement
- Gas pressure in heating appliances
- Air conditioning ducts
- Monitoring of filter differential pressure
- Velocity measurement with a pitot tube

ABSOLUTE, GAUGE OR DIFFERENTIAL

If serious errors are to be avoided, it is important when taking pressure measurements to be clear which mode of measurement is to be used: absolute, gauge or differential.

ABSOLUTE PRESSURE

If a vessel were to contain no molecules whatsoever, the pressure would be zero. Pressure measured on a scale which uses this zero value as its reference point is said to be absolute pressure.

GAUGE PRESSURE

In everyday life, however, many applications of pressure are not so dependent on the absolute pressure value, but the difference between the absolute and the pressure of the atmosphere. For example, a punctured tyre with no air in it would read 'zero' on a tyre pressure gauge, even though still containing atmospheric air. Such gauges are designed to measure pressure values that are expressed with respect to atmospheric pressure and thus indicate zero when the measurement port 'merely' contains molecules at atmospheric pressure. These measurements are known as gauge pressure measurements. Thus the difference between an absolute pressure value and a gauge pressure value is the variable value of the atmospheric pressure.

DIFFERENTIAL PRESSURE

In other applications, where knowledge of the pressure difference between two places or systems is needed, the reference pressure may not necessarily be either zero or the atmospheric pressure but some other value. These are known as differential pressures. For example, the flow of gas along a pipeline depends on the pressure difference between the ends of the pipe and, in practice, both ends are usually at comparatively high pressures.

MANOMETERS

A manometer is a pressure measuring instrument that measures low pressure and is used, primarily, for measuring gas pressure or low atmospheric pressure and normally measures in mbar.

PRESSURE METERS

A pressure meter is a pressure measuring instrument that measures high pressure, non-corrosive air or gas and normally measures in psi (pounds per square inch).

9202 MANOMETER

- High accuracy, performance & repeatability
- Robust water resistant case offering IP65 protection
- Zeroing functionality
- 11 selectable units of measurement

The 9202 digital manometer allows the user to measure positive and negative differential pressure over the range of -137 to 137 mbar with a resolution of 0.1 mbar and features over pressure protection to at least twice the measuring capacity.

These easy to use manometers are ideal for plumbers and gas engineers to measure domestic gas pressures and low pressure, non-corrosive air or gases in HVAC applications. The units can be used to measure air pressure in ductwork or pressure drops across filters to determine performance.

The 9202 manometer features a custom, LCD display with P1, P2, diff, hold, open circuit, low battery indication and a user selectable backlight. The unit incorporates an auto-power off facility that automatically turns the instrument off after approximately 25 minutes, maximising battery life.

Each unit is housed in a durable, ABS case that has an integrated rubber seal to ensure complete water tightness and help reduce the possibility of damage in harsh environments. Supplied complete with batteries, operation manual and two 500 mm long x 6 mm ID connection hoses.

OPTIONAL ACCESSORIES:

- Protective silicone boot - black c/w foot stand and magnet for mounting on pipes, metallic surfaces etc.. (830-258)
- Stainless steel wall bracket (832-015) screws not supplied - see page 34 for details
- Anti-bacterial Probe Wipes - helps reduce bacterial growth - see page 35

HOLD | MAX/MIN | AUTO OFF | IP65

Order code	Description
825-902	9202 manometer
825-998	500 mm connection hoses (2)
830-258	Protective silicone boot - black
832-015	S/steel wall bracket

Specification	9202 manometer	
	Range	Resolution
psi	±2	0.01
inH2O	±55.36	0.01
mbar	±137.9	0.1
kPa	±13.79	0.01
inHg	±4.07	0.001
mmHg	±103.4	0.1
ozin2	±32.00	0.01
ftH2O	±4.613	0.001
cmH2O	±140.6	0.1
kgcm2	±0.1406	0.001
bar	±0.1379	0.001
Accuracy	±0.5 %FS or better (25 °C)	
Repeatability	±0.2 % (Max. 0.5 %FS)	
Battery	3 x 1.5 volt AAA	
Battery life	100 hours	
Display	Custom LCD	
Dimensions	32 x 71 x 141 mm	
Weight	185 grams	

9200 SERIES PRESSURE METERS

- High accuracy, performance & repeatability
- Robust, water resistant case offering IP65 protection
- 11 selectable units of measurement
- 4 models available ±5 to ±75 psi

This range of four industrial differential pressure meters offer high accuracy, performance and repeatability. The pressure meters allow the user to indicate the positive and negative differential pressure over the range of ±5, ±15, ±30 or ±75 psi.

All instruments feature over pressure protection to at least twice the measuring capacity. These easy to use pressure meters are ideal for measuring non-corrosive gauge or differential air/gas pressure in a wide variety of industries.

Each pressure meter features a custom, LCD display with P1, P2, diff, hold, open circuit, low battery indication and a user selectable backlight. The unit incorporates an auto-power off facility that automatically turns the instrument off after approximately 25 minutes, maximising battery life.

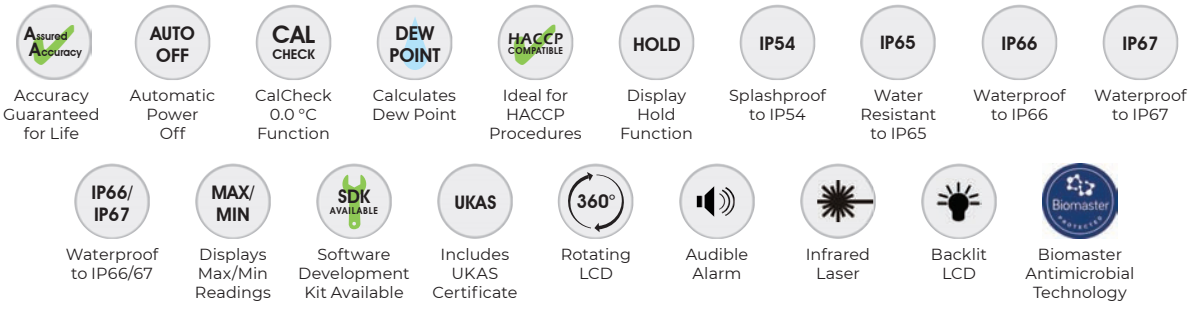
Each unit is housed in a durable, ABS case that has an integrated rubber seal to ensure complete water tightness and help reduce the possibility of damage in harsh environments. Supplied complete with batteries, operation manual and two 300 mm long x 4 mm ID connection hoses.

Specification	9205 meter		9215 meter		9230 meter		9275 meter	
	Range	Resolution	Range	Resolution	Range	Resolution	Range	Resolution
psi	±5	0.01	±15	0.01	±30	0.01	±75	0.1
inH2O	±138.4	0.01	±415.2	0.1	±830.4	0.1	±2076	1
mbar	±344.7	0.1	±1034.2	1	±2068.4	1	±5171	1
kPa	±34.47	0.01	±103.4	0.1	±206.8	0.1	±517.1	0.1
inHg	±10.18	0.001	±30.54	0.01	±61.08	0.01	±152.7	0.1
mmHg	±258.5	0.1	±775.7	0.1	±1551.4	1	±3879	1
ozin2	±80.0	0.01	±240.0	0.1	±480.0	0.1	±1200	1
ftH2O	±11.53	0.001	±34.60	0.01	±69.20	0.01	±173.0	0.1
cmH2O	±351.5	0.1	±1055	1	±2109	1	±5273	1
kgcm2	±0.351	0.001	±1.055	0.001	±2.109	0.001	±5.273	0.001
bar	±0.344	0.001	±1.034	0.001	±2.068	0.001	±5.171	0.001
Accuracy	±0.5 %FS or better (25 °C)				±1 %FS or better at 25 °C			
Repeatability	±0.2 % (Max. 0.5 %FS)							
Battery & life	3 x 1.5 volt AAA - 100 hours							
Display	Custom LCD							
Dimensions	32 x 71 x 141 mm							
Weight	185 grams							

Order code	Description
825-905	9205 ±5 psi
825-915	9215 ±15 psi
825-930	9230 ±30 psi
825-975	9275 ±75 psi
825-990	Connection hoses 300 mm (2)
830-257	Protective silicone boot - black
832-015	S/steel wall bracket

- **Connection hoses included**
  All units are supplied with high pressure, barbed connectors

PRODUCT INDEX





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