YaliTech®
INSTRUMENTS
FOOD & WATER

FULL PRODUCT CATALOGUE

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Specialists in the design & manufacture of
temperature measuring equipment since 1983

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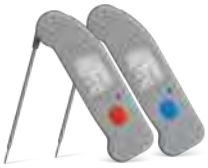

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HACCP
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CALIBRATION EQUIPMENT

Accurate temperature measurements are crucial for ensuring optimal performance, reliable data, and, most importantly, the well-being and safety of individuals.

However, over time, thermometers can experience deviations in accuracy due to factors such as how often they're used and the type of the environment they're used in.

Checking the accuracy of your thermometers can be done yourself using specialised equipment, or it can be sent to a laboratory for professional calibration and certification. Recalibration will need to take place in a laboratory.

CALIBRATION FREQUENCY

In many industries, the general recommendation is to calibrate your thermometers at least once a month. But certain situations may require more frequent calibration, such as high usage or particular regulatory requirements.

However often you calibrate your thermometers, it's essential to record the date and results of every test.

TYPES OF CALIBRATION EQUIPMENT

There are many ways to calibrate thermometers. The different methods available depend on your thermometer type, budget, the quantity and frequency of your thermometer calibration, and how accurate you would like the process to be.

For probes, an ice bath is a great budget method, but for higher accuracy and usage, a dry block calibrator is more reliable.

To calibrate a thermometer with switchable probes, test caps and Microcals are quick, economical and reliable.

For infrared and reference thermometers, the comparator is a reliable budget option when used with care. For a more accurate solution that is suitable for checking multiple devices regularly, choose a black body calibrator.

In addition, most users will need a high-accuracy reference thermometer to carry out the processes above.

CERTIFIED RECALIBRATION

If your tests show that your thermometer readings have drifted, you'll need to send them to a laboratory for recalibration. Our in-house UKAS laboratory recalibration offers certification for temperature probes, humidity meters and infrared thermometers at your desired checkpoints.

REFERENCE THERMOMETERS

- 5-point UKAS Certificate of Calibration included
- ±0.03 °C high system accuracy
- 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 105. 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 ±0.03 °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.

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- **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 cover - white
814-132	Comparator

HOLD | MAX/MIN | AUTO OFF | UKAS

Specification	Reference & Reference Plus
Range	-199.99 to 199.99 °C
Resolution	0.01 °C
Accuracy	±0.03 °C (-49.99 to 149.99 °C) otherwise ±0.1 °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

- High accuracy ±0.05 °C
- 5-point UKAS Certificate of Calibration included
- Compact, lightweight and easy-to-use
- Backlight display

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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.

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, featuring a user selectable resolution of 0.01 or 0.1 °C and an accuracy of ±0.05 °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 a single AAA battery with a life expectancy of 500 hours (without backlight).

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.

- **ACCESSORIES**
  See page 7 for details

- **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

- **Silicone cover with magnets (830-455)**

Supplied in a 830-001 zip pouch with belt loop

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Order code	Description
222-215	Reference Thermapen
830-455	Silicone cover with magnets
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 or 0.1 °C - user selectable
Accuracy	±0.05 °C (-30 to 149.99 °C) otherwise ±0.2 °C
Battery	1 x 1.5 volt AAA
Battery life	500 hours (without backlight)
Sensor type	PT100
Display	9.8 mm LCD
Dimensions	19.3 x 48.2 x 156.2 mm
Weight	115 grams
UKAS Certificate of Calibration included	

3000 SERIES LIGHTWEIGHT DRY-WELL CALIBRATORS

- Ideal for checking thermometer accuracy
- Portable temperature heat source

The 3000 series 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 250 °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 ten 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 250 °C
Resolution	0.1 °C
Accuracy	±0.5 °C (33 to 199.9 °C)
	±1 °C (200 to 250 °C)
Heating time	Ambient to 250 °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

*Supplied with 230/115 volt AC power adaptor
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	1.8 kilograms

*Supplied with 230/115 volt AC power adaptor
FREE traceable certificate of calibration included

IR-500 BLACK BODY CALIBRATOR

- Ideal for checking the accuracy of infrared thermometers
- Wide temperature range 50 to 500 °C

The IR-500 Black Body Calibrator is a stable heat source for checking the calibration of infrared digital thermometers that require regular temperature calibration checks or validation. The unit features an easy to read LED display, and controls the black body surface temperature over the range of 50 to 500 °C. It reaches an upper temperature of 500 °C in about 40 minutes.

Simply set the verification temperature on the digital display of the IR-500 Calibrator, allow time to stabilise and then point your infrared thermometer at the Ø58 mm black body. Compare the temperature readings on the IR-500 Calibrator display and the infrared thermometer under test, and the difference is the error. The isothermal Ø58 mm black body target is manufactured to an emissivity of approximately 0.95, which is ideal for most industrial infrared thermometers.

For increased accuracy checks, use a Reference thermometer (see page 103 for more details), insert the fixed Ø3.3 mm precision PT100 probe into the pre drilled calibration well. UK power lead included.

Order code	Description
822-400	IR-500 Black Body Calibrator

Specification	IR-500 Black Body Calibrator
Range	50 to 500 °C
Resolution	0.1 °C/ °F
Accuracy	±1 °C below 100 °C ±2 °C from 100 to 200 °C ±3 °C from 200 to 500 °C*
Heating time	40 minutes to max
Cooling time	30 minutes max to 100 °C
Emissivity	0.95
Target size	Ø58 mm
Power	110 volt AC, 3A or 230 volt AC (±10%), 1.5A
Dimensions	114 x 180 x 233 mm
Weight	2.682 kilograms
FREE traceable certificate of calibration included	

*It is possible to achieve a higher level of accuracy, better than ±0.5 °C if the IR-500 Calibrator is used in conjunction with a certified Reference Thermometer (see page 103 for details).

CALIBRATION WATER BATH

- Ideal for checking the accuracy of probe thermometers
- Temperature range 25 to 95 °C

The Calibration Water Bath offers a compact, accurate and reliable system which can be used for the temperature calibration of thermometers and temperature probes using the comparison method. The bath operates over the range 25 °C to 95 °C with a temperature accuracy of ±1 °C (25 to 70 °C) * and stability of ±0.1 °C with a bath uniformity of ±0.1 °C when measured from centre to any corner.

The water bath features a user friendly LED display, with minimal setup required. The stainless steel bath capacity is 5 litres, and incorporates a variable flow/speed pump of 0 to 20 litres per minute. For increased accuracy checks, it is recommended that a Reference thermometer is used as a calibration reference. (See page 103 for more details).

For continuous use in the temperature range 25 to 60 °C we recommend the bath be filled with distilled water, between 60 to 80 °C 15% glycerine water solution and between 80 to 95 °C a suitable silicone oil.

Each bath is supplied complete with lid, drain tap and carry handles. UK power lead included.

Order code	Description
822-950	Calibration Water Bath

Specification	Calibration Water Bath
Range	25 to 95 °C
Resolution	0.1 °C/ °F
Accuracy	±1 °C (+25 to 70 °C)*
Bath capacity	5 litres
Pump flow/speed	0 to 20 litres per minute
Bath stability	±0.1 °C over a 45 minute period
Bath uniformity	±0.1 °C when measured from centre to any corner
Power	230 volt AC (±10%) 1.5A
Internal dimensions	130 x 130 x 260 mm
External dimensions	318 x 380 x 445 mm
Weight	12 kilograms

*It is possible to achieve a higher level of accuracy, better than ±0.2 °C if the calibration bath is used in conjunction with a certified Reference Thermometer (see page 103 for details).

MICROCAL SIMULATORS

- Test thermocouple type K, J, T, R, N, S & E thermometers
- For frequent checking of thermometer accuracies
- 12 adjustable or 23 fixed temperature points
- 4 models available – Simulator or Simulator/thermometer

The MicroCal thermocouple simulators help ensure that the frequent checking of thermometer accuracies are a routine operation. These instruments are designed to simulate a chosen temperature to test thermocouple thermometers without the need for specialised equipment or conversion tables. The MicroCal 1 Plus also measures and simulates temperature.

The MicroCal 1, MicroCal 1 Plus & the MicroCal 2 have 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.

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.

All 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.

Each MicroCal is supplied with a one metre PVC thermocouple lead with miniature thermocouple connectors and a five-point UKAS Certificate of Calibration. Each certificate indicates deviations from standards at the various points.

An optional lead set is available for the MicroCal 1 and MicroCal 1 Plus comprising of six leads, one for each thermocouple type K, J, T, R/S, N and E.

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

Incorporates a foot stand

Lead Set (6 leads) 816-100

Order code	Description
271-100	MicroCal 1
271-101	MicroCal 1 Plus
271-200	MicroCal 2 - type K
271-210	MicroCal 3 - type K
816-100	Lead set (6 leads)
830-205	Protective silicone cover
832-115	Acrylic wall bracket

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Specification	MicroCal 1 & 1 Plus	MicroCal 2	MicroCal 3
Range	(see table above)		
Temp points	12 adjustable presets	12 available	23 fixed presets
Accuracy	±0.3 °C (dependant upon tc type)	±0.3 °C	±0.5 °C
Battery	2 x 1.5 volt AAA		
Battery life	300 hours		
Sensor type	Thermocouple type K, J, T, R, N, S & E (selectable)	Dedicated type K thermocouple	
Display	Custom LCD		
Dimensions	35 x 73 x 141 mm		
Weight	175 grams		
5-point UKAS Certificate of Calibration included			

For more information on the above simulators please visit our website or contact our sales office.

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.

A 3-point UKAS Certificate of Calibration is included with each MicroCheck checker

Acrylic wall bracket (832-115)

Protective silicone cover (830-205)

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

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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 cover
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

- Provides assurance that thermometer readings are accurate
- Supplied with a UKAS Certificate of Calibration

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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

- Validates the accuracy of PT100 thermometers
- Supplied with a UKAS Certificate of Calibration

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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

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Regular thermometer calibration promotes safety, quality control and helps prevent potential issues that may arise from inaccurate temperature measurements.

UKAS is the National Accreditation Body for the United Kingdom. When UKAS accredits a laboratory, its tests are completed to the highest standard in the country.

At ETI, we have a calibration laboratory for temperature and humidity measurements, which is accredited to UKAS ISO/IEC 17025 standards. Customers can send the following instruments to us for UKAS calibration:

- Thermometers and probes
- Temperature data loggers
- Humidity meters and loggers
- Test caps

CALIBRATION VS CERTIFICATION

A calibration test compares your thermometer measurements with a traceable device or reference thermometer. The test is carried out using a known temperature source, such as ice water at 0 °C. A calibration certificate shows the results of the test and certifies the accuracy of the instrument.

HOW OFTEN TO CALIBRATE THERMOMETERS

How often you check your thermometer accuracy depends on several factors, including industry standards, regulatory requirements, and frequency of use.

In many industries, including food service, the general recommendation is to check them at least once a month. You can do this yourself using calibration equipment, such as ice baths.

It's recommended to send your thermometer to a laboratory for certification every 12 months. Keeping a calibration record is essential for demonstrating compliance with regulatory requirements.

CALIBRATION POINTS

Calibration points are the temperatures at which the thermometer has been calibrated to. The number of checkpoints you opt for depends on your requirements, and we can complete as many as you need.

A common number of checkpoints to choose from is 3 or 5. It's customary to choose a 5-point certificate for thermometers where high accuracy is critical. The more checkpoints there are, the more confident you can be that your thermometer is accurate across a range of temperatures.

UKAS TEMPERATURE CALIBRATION

- Thermometer temperature range -100 to 250 °C
- Rapid turnaround
- Certified uncertainties (CMCs) from ±0.027 °C
- Custom points available

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Our in-house UKAS accredited calibration laboratory for temperature has a wide measurement range of -100 to 250 °C with a calibration and measurement capability of ±0.027 °C. The laboratory can also measure resistance up to 1 MΩ (i.e. resistance decade boxes and PT100/RTD temperature simulators) and DC voltage 0 to 100 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 ±0.06 °C (resistance) or ±0.18 °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 ±0.06 °C.

Order code	UKAS Certificate - Temperature
890-200-5	Instrument only standard 5-point
890-210-5	Instrument & probe system 5-point
890-215	Checker 3-point
890-230	Test cap 1-point
890-235	Simulator 5-point
890-240-3	Data logger 3-point

CALIBRATION & MEASUREMENT CAPABILITY (CMC)

Thermistor thermometer & probe	
-40 to 150 °C	CMC ±0.06 °C
PT100 (resistance sensors) thermometer & probe	
-80 to 250 °C	CMC ±0.06 °C
-100 to -80 °C	CMC 0.16 °C
Thermocouple thermometer & probe	
-80 to 250 °C	CMC 0.15 °C
-100 to -80 °C	CMC ±0.19 °C
Temperature data loggers	
-40 to 100 °C	CMC ±0.06 °C
Thermistor & PT100 test caps	
-18 to 100 °C	CMC 0.06 °C
Thermocouple simulators	
-200 to -50 °C	CMC ±0.42 °C
-50 to 1760 °C	CMC 0.15 °C

UKAS HUMIDITY CALIBRATION

- Certified uncertainties (CMCs) from 0.2 %rh & 0.18 °C Air
- Flexible certification - select the points you need
- Qualified & experienced laboratory personnel
- Rapid turnaround

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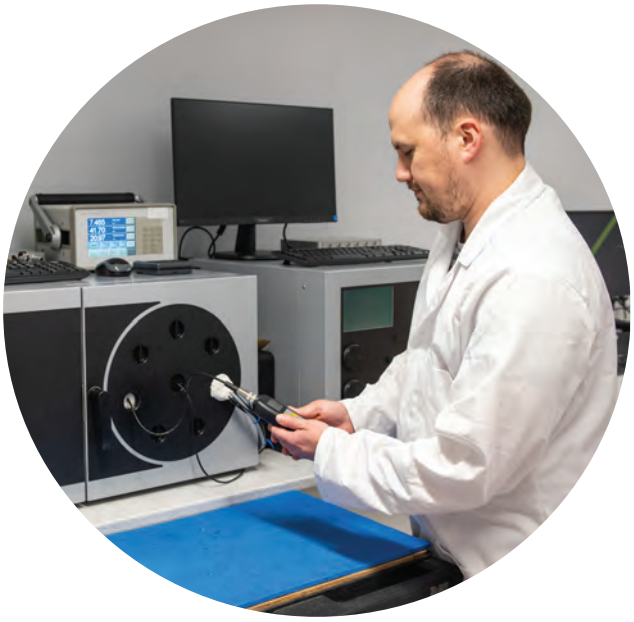
Our in-house humidity laboratory is equipped with two of the world's premier state-of-the-art HYGROGEN2 - HG2-XL humidity chambers which generate stable temperatures and humidity conditions in rapid time. These methods of generation are a fundamental technology, enabling confidence in traceability to National Standards. This, combined with MBW referenced mirror hygrometers, 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 requirement.



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 60 °C	CMC 1.8 %rh
10 to 90 %rh @ 20 to 25 °C	CMC 0.2 to 1.1 %rh

Air temperature	
0 to 60 °C	CMC 0.2 °C

Alternative temperature points can be offered to customer requirements, please contact our After-sales team for further details.

SERVICE & REPAIR OF THERMOMETERS & PROBES

- Additional one year's guarantee on repaired instruments
- Thermometer, probe & recalibration service available
- Rapid turnaround
- 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.

Order code	Description - Repair
890-103	Thermapen ONE thermometers
890-254	Waterproof thermometers
890-257	Therma Series probe thermometer
890-295	ThermaData loggers
890-303	Thermapen Classic thermometers
890-310	Therma series thermometers
890-318	CaterTemp Metal thermometer
890-319	Therma Metal thermometer
890-403	Thermapen IR thermometers
890-500	TempTest thermometers
890-570	Bluetooth thermometers
890-670	RayTemp infrared thermometers
890-690	ThermaData WiFi loggers
890-700	Reference Thermometer
890-800	8000/8100 pH Meters
890-850	8100 Plus pH Meter

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 recalibration 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, following our online returns form on our website, You will then receive a confirmation email with a unique case number and details of how to return your instrument to us.

Contact our after-sales team 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 after-sales team.

Order code	Description - Recalibration
894-254	Waterproof thermometers
894-257	Therma series probe thermometer
894-303	Thermapen thermometers*
894-310	Therma series thermometers
894-318	CaterTemp Metal thermometer
894-319	Therma Metal 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

HUMIDITY METERS

Monitoring climate conditions is important for many industries, for both the comfort of their staff and clientele, storing goods and carrying out processes. Keeping track of humidity makes it easy to see when adjustments need to be made to prevent discomfort and damage.

THE IMPORTANCE OF HUMIDITY

High or low humidity inside buildings can damage human health and the storage of goods such as wooden construction materials, food products, pharmaceuticals, fuels, paper, and electronic components.

High humidity (above 70 %rh) causes dampness and condensation, leading to mould and dust mites. Humidity levels below 25 %rh can cause respiratory discomfort.

Using a hygrometer for regular monitoring helps to maintain a healthy humidity level. This can be done by opening windows, adjusting heating settings or using humidifiers and dehumidifiers.

MEASURING HUMIDITY

Humidity is the level of water vapour or moisture in the air. Humidity is usually measured using relative humidity, also known as %rh. It is measured on a scale of 0 to 100 %rh.

100% refers to the maximum amount of water that can be present in the air at the current temperature. So if a hygrometer measures 50 %rh, the air currently contains 50% of the maximum amount of water it could contain.

DEW POINT

Some hygrometers also measure dew point. This is the temperature at which water vapour will turn into a liquid form, whether this is condensation, fog, rain or snow. It is calculated using the %rh. The dew point is a good indicator of how muggy the atmosphere will feel.

HUMIDITY CALIBRATION

The best way to check hygrometer accuracy is by sending it to an accredited humidity laboratory for testing. At ETI we have a UKAS calibration laboratory for temperature and humidity, which is accredited to UKAS ISO/IEC 17025. Please see pages 111 and 112 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
- Dew point calculation

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 10,000 hours. An auto-power-off facility turns the therma-hygrometer off automatically after ten minutes, maximising battery life.

- **6100/6102 therma-hygrometers with interchangeable remote probes**
  The 6000 series hygrometer has an integral humidity and temperature sensor. The 6100 has a wired humidity and temperature sensor. If you select the 6002/6102 version, you will see both temperature and humidity simultaneously on the LCD display.
- **Optional UKAS Certificate of Calibration**
  An optional three-point UKAS Humidity Calibration Certificate is available at preferential price when purchased with these units.

ilac-MRA

UKAS CALIBRATION
0601

Sintered brass nickel plated probe (224-618)
This product prevents dust from reaching the sensor, reducing contamination. It is suitable for use in harsh environments.

Order code	Description
224-600	6000 therma-hygrometer
224-602	6002 therma-hygrometer
224-610	6100 therma-hygrometer - standard*
224-612	6102 therma-hygrometer- standard*
224-680	6100 therma-hygrometer - sintered*
224-682	6102 therma-hygrometer - sintered*
224-618	6100/6102 spare sintered probe
224-617	6100/6102 spare standard probe
830-227	Protective silicone cover - black
890-111	UKAS 3-point Certificate**

*6100/6102 are supplied with either a standard or sintered probe.
**Price when purchased with a new instrument

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

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	±0.4 °C (0 to 40 °C) otherwise ±1 °C	±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 - 10,000 hours	
Display	12 mm LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130/160 grams	

6500 THERMA-HYGROMETER

- Dew point calculation, max/min & hold functions
- 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/ °F.

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 cover - 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 - 10,000 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

Pocket Hygrometer

The pen-shaped hygrometer incorporates a large, clear LCD that 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 pocket hygrometer

Therma-hygrometer - panel mounting

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.

The unit features a max/min memory function for both temperature and humidity and is powered by a CR2032 coin cell battery, providing up to 5,000 hours of continuous use.

Designed for easy installation, it fits a minimum Ø33 mm panel cut-out and secures with a screw clamp for panels up to 7 mm thick.

Order code	Description
810-180	Therma-hygrometer - panel

THERMA-HYGROMETER - WITH PROBE

- Remote %rh & remote 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

MAX/ MIN

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 (30 to 80 %rh)
Sensor type	Thermistor	Capacitance
Battery & life	1.5 volt AAA - 10,000 hours	
Display	Dual custom LCD	
Dimensions	18 x 41 x 76 mm	
Weight	90 grams	

THERMA-HYGROMETER - ALARM

- Integral %rh & remote temperature probe
- Large LCD with max/min & alarm functions

Remote probe

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.

Order code	Description
810-155	Therma-hygrometer - alarm
810-158	Replacement probe for 810-155

MAX/ MIN

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 (30 to 80 %rh)
Sensor type	Thermistor	Capacitance
Battery & life	1.5 volt AAA - 10,000 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 sensor

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 - 10,000 hours	
Display	Dual custom LCD	
Dimensions	20 x 100 x 110 mm	
Weight	135 grams	

Order code	Description
810-145	Therma-hygrometer

THERMA-HYGROMETER - COMFORT

- Save on energy bills
- Coloured dial shows temperature or humidity comfort levels

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 e.g. 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

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 - 10,000 hours	
Display	Dual custom LCD	
Dimensions	20 x 100 x 110 mm	
Weight	142 grams	

Order code	Description
810-130	Therma-hygrometer
810-135	Comfort thermometer

THERMA-HYGROMETER - WITH PROBE

- Versatile humidity & temperature monitoring
- Integral sensor & remote probe

MAX/ MIN

Remote probe

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 - 10,000 hours	
Display	Dual custom LCD	
Dimensions	20 x 100 x 110 mm	
Weight	170 grams	

HUMIDITYTAG THERMA-HYGROMETER

NEW

- Portable and versatile therma-hygrometer
- Max/min function

MAX/ MIN

The new HumidityTag measures both humidity and temperature in addition to recording the maximum and minimum readings. The unit measures humidity and temperature over the range of 0 to 99 %rh and 0 to 50 °C with a resolution of 1 %rh and 0.1/1 °C.

Featuring a clear, easy-to-read LCD display and a convenient °C/°F switchable function, HumidityTag offers versatility across a wide range of applications. From factories and offices to laboratories and storage facilities, it ensures reliable monitoring of ambient conditions to maintain optimal quality, comfort, and safety.

This compact unit is powered by a single CR2032 battery with a life expectancy of 5,000 hours normal use.

Order code	Description
810-233	HumidityTag

Specification	Temperature	Humidity
Range	0 to 50 °C	0 to 99 %rh
Resolution	0.1/1 °C	1 %rh
Accuracy	±1 °C (0 to 40 °C) otherwise ±2 °C	±5% rh (30 to 70 %rh) otherwise ±8 %rh
Battery	3 volt CR2032 lithium coin cell	
Battery life	5,000 hours	
Sensor type	Thermistor	
Display	Custom LCD	
Dimensions	10 x 38 x 54 mm	
Weight	25 grams	

DAMP & MOISTURE METERS

Moisture meters, otherwise known as damp testers, are important tools for professionals responsible for construction, building maintenance and surveying.

Common applications include assessing whether materials are fit for use and whether a building has been damaged by the presence of moisture. In addition, they can help with monitoring processes such as restoration.

The presence of moisture can be difficult to detect without a damp tester, as there can be no visible signs, and some damp materials can even feel dry to the touch. However, an invisible damp problem can lead to serious and costly issues later on, such as mould growth and rot.

Common reasons for moisture in building materials include:

- Leaks in the building envelope
- Releases from plumbing or HVAC systems
- Humid air condensing on surfaces
- Extensive periods of humid weather
- A lack of ventilation

PIN-TYPE MOISTURE METERS

Moisture meters tend to come in two main types: pin-type and pinless. Pin-type meters create holes in materials, so they might not be the best choice for applications like fine furniture. However, they are generally a more accurate method of testing than pinless meters.

Our range of cost-effective pin-type moisture meters is designed for the accurate monitoring of a wide range of materials.

When the pins are inserted into a damp material, they produce an electrical current which determines the quantity of moisture present. This is displayed on the meter as a percentage.

The colour-coded damp indicator also shows whether the material has a good, cautionary or high level of moisture.

Our moisture meters read in five scales:

Wood 1	6.0 to 40.0 %
Wood 2	8.0 to 40.0 %
Plaster	0.1 to 15.0 %
Concrete	0.5 to 12.0 %
Linear or Reference	0 to 1000

When measuring materials for damp, be sure to consider other factors that could impact the reading - such as the material's density and ability to absorb moisture, and the conditions of the surrounding environment.

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 of 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.

LED MOISTURE INDICATION BAR GRAPH:

Damp Warning Ok

- **Protective silicone cover**
  Fitting a cover will make your instrument splashproof to IP64 and help prevent against accidental damage. Various colours are available - see page 14.

Order code	Description
224-075	7250 moisture meter
830-222	Protective silicone cover - yellow
832-222	s/steel wall bracket & cover
890-270	3-point traceable calibration cert
602-530	Spare pins - pack of 50

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 of 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.

LED MOISTURE INDICATION BAR GRAPH:

Damp Warning Ok

- **Protective silicone cover**
  Fitting a cover will make your instrument splashproof to IP64 and help prevent against accidental damage. Various colours are available - see page 14.

HOLD AUTO OFF 2 YEAR GUARANTEE MADE IN BRITAIN

Order code	Description
224-070	7000 moisture meter
830-222	Protective silicone cover - yellow
890-270	3-point traceable calibration cert
602-530	Spare pins - pack of 50

The 7000 moisture meter is inclusive of probe

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
- For consistently accurate readings

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 cover.

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 cover - yellow (830-222)
- ABS carrying case (834-715)

Heavy-duty hammer probe (180-170)

General purpose two-pin probe (180-160)

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 measure the acidity or alkalinity of a solution. Frequently used in agriculture, food processing, laboratories and aquariums, pH meters test the quality of water, soil, food and other substances.

ETI offers a range of pH meters for different budgets and applications, from easy-to-use pocket testers to pH and temperature meters with interchangeable electrodes.

MAINTAINING YOUR PH METER

pH meters and electrodes require good maintenance and care in order to get accurate readings.

PROPER STORAGE

When not in use, your pH meter should be stored in a clean and dry environment. Fill the electrode cap with storage solution to keep it hydrated and store it upright.

AVOID CONTAMINATION

Always rinse the electrode with distilled or deionised water before and after each measurement. Use separate containers for different samples to prevent cross-contamination, and avoid touching the electrode membrane with your fingers.

GENTLE HANDLING

Handle your pH meter and electrode with care - the electrode's glass membrane is fragile and can be easily damaged. Never force the electrode into a sample; instead, gently immerse it to prevent damage.

REPLACE ELECTRODES AS NEEDED

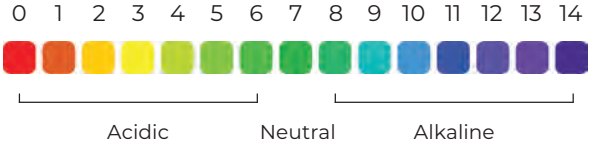
Over time, the electrode's performance can degrade. If you notice slower response times, erratic readings, or difficulty calibrating, it may be time to replace it.

BUFFER SOLUTIONS

pH buffers are solutions that have a specific pH value. All pH meters have a calibration function that will automatically recalibrate the instrument when used with a pH buffer.

A neutral solution with a pH of 7 is typically used, but some pH meters or applications will require a two-point calibration method using an additional buffer solution, usually pH 4 or 10.

This makes the instrument more accurate at the values it has been calibrated to. Therefore, if your application is typically more acidic or more alkaline, you should choose a pH buffer to reflect this.



pH PAL PLUS pH METER

- Pocket-sized meter, ideal for everyday use
- Automatic recalibration feature
- Easy-to-read 8 mm LCD display
- Display hold function

The pH Pal Plus pH meter is a user-friendly, simple-to-use pocket-sized pH meter that incorporates an automatic recalibration feature. At the touch of a button, the instrument will automatically recalibrate 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.

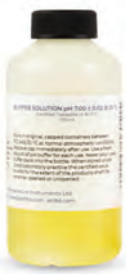
The pH Pal Plus meter will power-off automatically after ten minutes, maximising battery life. This pH Pal is ideal for measuring the pH in food processing, hydroponics and water testing applications. The pH meter is an invaluable tool when mixing concentrates with water.

The unit is powered by four LR44 button cell batteries (supplied) and includes a protective cap. For pH buffer solutions and capsules, see page 129.

Order code	Description
813-513	pH Pal Plus pH meter
816-051	7.00 pH buffer solution - 100 ml

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 meter
Range	0 to 14 pH
Resolution	0.1 pH
Accuracy	±0.2 pH
Battery & life	4 x 1.5 volt LR44 button cell - 150 hours
Display	8 mm LCD
Dimensions	15 x 32 x 170 mm
Weight	70 grams

8000 pH METER

- Easy-to-use 2-point recalibration function
- ±0.05 pH accuracy
- 2 year guarantee
- Supplied complete with a pH electrode

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 recalibrate itself when used in conjunction with pH4 and pH7 buffer solutions. See page 129 for pH electrodes, buffer solutions and capsules.

In order to calibrate this instrument before use, pH7 buffer solution or capsules must be purchased alongside this instrument, plus either a pH4 or pH10 buffer solution or capsules depending on your application.

Budget pH electrode (823-504)
Supplied with 8000 pH meter

Order code	Description
860-800	8000 pH meter
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

A certificate of analysis is available upon request for all buffer solutions.

- These ready-made solutions are suitable for checking and cleaning pH instrumentation and pH electrodes.

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

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 - 5,000 hours
Sensor type	Combination electrode
Display	Custom LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams

The 8000 pH meter is inclusive of pH electrode

8100 pH & TEMPERATURE METER KIT

- Simultaneously displays pH & temperature
- Automatic temperature compensation (ATC)
- Complete with pH electrode and temperature probe
- 2 year guarantee

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 recalibrate itself when used in conjunction with two pH buffer solutions. We offer a range of pH electrodes, buffer solutions and capsules. Please see page 129 for details.

8100 pH METER KIT

Each kit contains:

- 8100 pH meter
- Temperature probe (170-101)
- Budget pH electrode (823-504)
- 4.01 pH buffer solution (816-050)
- 7.00 pH buffer solution (816-051)
- Zip pouch (830-080)

Temperature probe (170-101)

Budget pH electrode (823-504)

Order code	Description
860-810	8100 pH kit
170-101	Spare temperature probe
823-504	Budget pH electrode
Kit inclusive of temperature probe and electrode	

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 - 5,000 hours	
Sensor type	Combination electrode / Thermistor	
Display	Custom LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130 grams	
A certificate of analysis is available upon request for all buffer solutions.		

8100 PLUS pH METER

- Manual/automatic temperature compensation
- Easy-to-use 2-point recalibration function
- High accuracy ±0.02 pH
- Waterproof IP67, 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 recalibrate (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 for the pH electrode and a Lumberg screw-locking type connector for the temperature probe, allowing interchangeable thermistor probes to be used. We offer a wide range of temperature probes, see pages 90 and 91 for full details.

The 8100 Plus is available as a meter only or as a complete kit.

General purpose electrode (823-501)

Temperature probe (170-100)

Order code	Description
225-085	8100 Plus pH meter*
860-820	8100 Plus kit
170-100	Temperature probe
823-501	General purpose pH electrode
830-231	Protective silicone cover - white
832-015	Stainless steel wall bracket

*The 8100 Plus is exclusive of pH electrode & probe

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 · 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 - 2,500 hours		
Sensor type	Combination electrode / Thermistor		
Display	12 mm LCD		
Dimensions	32 x 71 x 141 mm		
Weight	230 grams		

A certificate of analysis is available upon request for all buffer solutions.

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.	823-504
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  Ø20 x 145 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.	823-514

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
816-027	7.00 pH buffer solution - 1 Ltr
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)

8500 CONDUCTIVITY METER

- Measures ppm, mS/cm & temperature
- Automatic temperature compensation
- Easy-to-use 1-point recalibration function
- Compact & robust design

The 8500 Conductivity Meter is a three-in-one instrument that features an easy-to-read LCD display that indicates parts per million over a range of 0 to 3500 ppm with a resolution of 1 ppm, millisiemens/cm over a range of 0.00 to 5.00 mS/cm with a resolution of 0.01 mS/cm, and temperature over the range of 0 to 50 °C with a resolution of 0.1 °C.

Both the ppm and mS/cm readings are automatically temperature compensated over the operating range of 0 to 50 °C, utilising the temperature sensor in the probe.

Each unit is housed in a robust ABS case and powered by three AAA batteries that give a minimum of 5,000 hours of battery life.

The unit will power-off automatically after ten minutes, maximising battery life.

At the touch of a button, the instrument will recalibrate itself when used in conjunction with 816-071 calibration solution.

- **816-071 Calibration Solution**
  To maintain accurate readings, use this calibration solution in conjunction with your Conductivity Meter.

HOLD IP65 AUTO OFF Biomaster 2 YEAR GUARANTEE MADE IN BRITAIN

Order code	Description
225-528	8500 Conductivity meter
816-071	Calibration solution - 100 ml
830-231	Protective silicone cover - white
830-080	Zip pouch
Certificate of analysis is available upon request	

Specification	mS/cm	ppm	Temperature
Range	0.00 to 5.00 mS/cm	0 to 3500 ppm	0.0 to 50.0 °C
Resolution	0.01 mS/cm	1 ppm	0.1 °C
Accuracy	± 2% F.S mS/cm	± 2% F.S ppm	± 0.5 °C
Battery	3 x 1.5 volt AAA		
Battery life	5,000 hours (normal use)		
EC Calibration	Manual, 1 point		
Display	Custom LCD		
Dimensions	25 x 56 x 128 mm		
Weight	130 grams		

PRESSURE & AIR FLOW METERS

ETI's range of pressure meters is designed for 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

To get a correct and accurate pressure measurement, first identify whether you need to measure the absolute, gauge or differential pressure.

ABSOLUTE PRESSURE

In a perfect vacuum, zero is the complete absence of pressure. This is referred to as absolute zero pressure. Absolute pressure is the pressure being measured from absolute zero pressure. It is most commonly used for meteorological applications like weather stations.

GAUGE PRESSURE

Atmospheric pressure is the pressure caused by the earth's atmosphere - it's commonly affected by altitude, wind velocity, and temperature. Most pressure gauges read zero at atmospheric pressure. Gauge pressure is the pressure being measured from atmospheric pressure. It is often used to measure car tyres, water levels, chamber pressure and hydraulic applications.

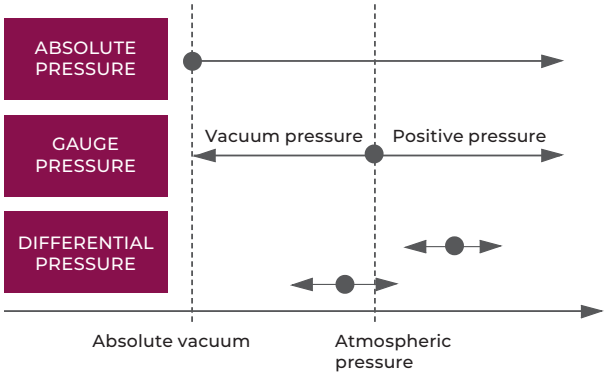
DIFFERENTIAL PRESSURE

Differential pressure is the difference between two different pressure measurements. It is commonly used for HVAC applications and filter monitoring.

MANOMETERS AND PRESSURE METERS

Pressure is usually measured using manometers and pressure meters. Manometers are used to measure gas pressure or low atmospheric pressure, while pressure meters measure high-pressure, non-corrosive air or gas.

Our range of u-gauge manometers and pressure meters display the differential pressure and feature 11 selectable units of measurement, including psi and mbar.



9202 MANOMETER

- Robust water-resistant case offering IP65 protection
- Zeroing functionality
- 11 selectable units of measurement
- Automatic temperature compensation

The 9202 digital manometer allows the user to measure positive and negative differential pressure over the range of -137.9 to 137.9 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. The instrument automatically compensates for changes in temperature.

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 cover - 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 45 for details

HOLD | MAX/MIN | AUTO OFF | IP65

Order code	Description
825-902	9202 manometer
825-998	Connection hoses 500 mm x 6 mm ID (2)
830-258	Protective silicone cover - black
832-015	S/steel wall bracket
890-280	3-point traceable calibration certificate*
*unit of measure mbar	

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

- Robust, water-resistant case offering IP65 protection
- 11 selectable units of measurement
- 4 models available ±5 to ±75 psi
- Automatic temperature compensation

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. The instrument automatically compensates for changes in temperature

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 at 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 x 4 mm ID (2)
830-258	Protective silicone cover - black
832-015	S/steel wall bracket
890-280	3-point traceable calibration certificate**

**unit of measure mbar

* Excluding 825-905 which is supplied with two 500 mm long x 6 mm ID connection hoses (see page 132).

- **Connection hoses included**
  All units are supplied with high pressure, barbed connectors

9035 ANEMOMETER

- Displays the air velocity and temperature simultaneously
- Five scales m/s, km/h, ft/min, knots and mph
- Max/Min and average reading functions
- Remote vane for precise measurements and easy reading

The 9035 hand held combined anemometer and thermometer is a general purpose vane air speed meter that simultaneously displays air flow/velocity measurement and temperature over the range 0.4 to 30 metres per second or 0.9 mph to 67 mph and -10 to 50 °C.

The instrument displays the air flow/velocity in five different modes/scales, metres per second (m/s), kilometres per hour (km/h), feet per minute (ft/min), knots and miles per hour (mph). The temperature can be displayed over the range -10 to 50 °C in either °C or °F with a resolution of 0.1 °C/°F.

The unit incorporates an auto-power-off facility, backlit display, average reading (last 10) and max/min functions. The 9035 Anemometer is housed in a robust ABS case and features an easy-to-read custom LCD.

MAX/ MIN AUTO OFF

Offering an effective way of measuring air velocity, volume and temperature in many industries. Anemometers are most commonly used for testing the efficiency of ventilation, heating and air-conditioning systems, but are regularly used in controlled laboratory testing applications such as wind tunnels. Further uses include measuring outdoor wind conditions as part of health and safety checks as well as in many manufacturing processes.

Order code	Description
825-835	9035 Anemometer
890-290	3-point traceable calibration certificate*
*unit of measure m/s	

Specification	9035 Anemometer
Range flow/ velocity	0.4 to 30 metres per second
Range temperature	-10 to 50 °C
Resolution	0.1 °C/°F
Scales	m/s, km/h, ft/min, knots & mph
Accuracy flow/velocity	±3 % of Full scale ±0.5
Accuracy temperature	±1.5 °C
Battery	3 x 1.5 volt AAA
Battery life	100 hours with backlight 1,000 hours without backlight
Display	Custom LCD
Dimensions	Unit only: 32 x 71 x 141 mm Vane unit: 35 x 76 x 155 mm
Weight	270 grams unit & vane

PRODUCT INDEX

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771-2601/2026