The MM2000 series carry a two year warranty as standard. All instruments are microprocessor driven, providing exceptionally high accuracy and long term stability. They also feature a very wide operating range (-30 to 50°C), have a resolution of 0.1 to 1000 and are autoranging.

All instruments are designed to be waterproof to IP67 standards. All instruments are supplied complete with a thermoplastic rubber boot.

**Hand Held Thermometers 2000 Series**

**ALL THERMOCOUPLE INSTRUMENTS GIVE A CHOICE OF SEVEN THERMOCOUPLE TYPES:**

**Single Input Thermocouple Thermometer**
- Seven thermocouple types
- °C/°F selectable
- Self calibrating
- Refer to pages B1-6 to B1-9 for compatible probes

**Multi Function Thermocouple Thermometer**
- Max/Min functions
- Hold function
- Dual display
- °C/°F/°A selectable
- Simultaneous display of real time
- Max/Min/Hold measurement
- Self calibrating
- Refer to pages B1-6 to B1-9 for compatible probes

**Dual Input Thermocouple**
- Dual input
- Seven thermocouple types
- Differential display
- °C/°F/°A selectable
- Simultaneous display of both inputs or differential and input 1
- Self calibrating

**Thermocouple Thermometer/Simulator**
- Simulation of thermocouple output
- Seven thermocouple types
- Millivolt measurement/output
- °C/°F/°A selectable
- Self calibrating

**Thermistor Thermometer**
- °C/°F selectable
- Wide measurement range (-50 to 150°C)
- Very high accuracy
- Self calibrating
- Refer to page B1-10 for compatible probes
PT100 Thermometer

- Two/three/four wire measurement
- Max/Min functions
- Hold function
- Dual display
- °C/°F/°A selectable
- Simultaneous display of real time and max/min/hold measurement
- Self calibrating
- Refer to page B1-10 for compatible probes

<table>
<thead>
<tr>
<th>Parameters</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
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<tbody>
<tr>
<td>Operating Ambient</td>
<td>-20 to 50°C</td>
<td>-20 to 50°C</td>
<td>-20 to 50°C</td>
<td>-20 to 50°C</td>
<td>-20 to 50°C</td>
<td>-20 to 50°C</td>
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<tr>
<td>Range</td>
<td>200 to 1372°C</td>
<td>200 to 1372°C</td>
<td>200 to 1372°C</td>
<td>200 to 1372°C</td>
<td>-200 to 150°C</td>
<td>200 to 850°C</td>
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<tr>
<td>Temperature Scales</td>
<td>°C/°F</td>
<td>°C/°F/°A</td>
<td>°C/°F/°A</td>
<td>°C/°F/°A</td>
<td>°C/°F/°A</td>
<td>°C/°F/°A</td>
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<tr>
<td>Features</td>
<td>Max, Min, Hold</td>
<td>Dual Input Diff, Hold</td>
<td>Simulate</td>
<td>Max, Min, Hold</td>
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<tr>
<td>Accuracy @ 23°C</td>
<td>±0.2°C ±0.15% of reading</td>
<td>±0.2°C ±0.1% of reading</td>
<td>±0.2°C ±0.15% of reading</td>
<td>±0.2°C ±0.15% of reading</td>
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</tr>
<tr>
<td>Cold Junction Compensation</td>
<td>0.075°C/°C</td>
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<td></td>
<td></td>
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<td>Characterising Error</td>
<td>Less than 0.05°C</td>
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<tr>
<td>Temperature Coefficient</td>
<td>0.01% of reading °C</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Resolution</td>
<td>0.1°C to 1°C above 1000°C (auto ranging)</td>
<td></td>
<td></td>
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<td>Battery</td>
<td>9V PP3</td>
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<tr>
<td>Battery Life</td>
<td>Greater than 200 Hours</td>
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<tr>
<td>Dimensions</td>
<td>130x70x33 mm</td>
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<tr>
<td>Weight</td>
<td>155g</td>
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<td></td>
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</tbody>
</table>
The hand held sensors come in two types, a ball shape for ease of penetration and a straight handle for greater control. Both styles are made from polypropylene. They are totally encapsulated, increasing strength, durability and ensuring the sensor is entirely waterproof. Polyurethane cables are used as standard (as opposed to PVC) for the enhanced memory of their curl, greater retractability and strength.

**Frozen Food Probe**
- Designed to measure semi solid/ solid frozen food temperature
- Corkscrew design to allow ease of penetration
- Detachable curly lead prevents entanglement

**Heavy Duty Probe**
- Designed for use in food storage, cooking and chilling
- 6 mm diameter shaft and pencil point tip allow ease of penetration
- Supplied with detachable curly lead and fitted plugs

**Extended Heavy Duty Needle Probe**
- Designed for deep penetration into semi-solid products
- 6 mm shaft, 430 mm long with pencil tip for easy penetration
- Supplied with detachable curly lead and fitted plugs

**Hand Held Needle Probes**

**Small Diameter Needle Probe**
- Designed for use in semi-solid materials
- Fitted with 2 m curly cable and miniature plug
- Waterproof

**General Purpose Needle Probe**
- Designed for cooked/chilled products, or any semi-solid material
- Waterproof
- For use wherever penetration of semi-solid product is required

**Extended Needle Probe**
- Extended version of the standard needle probe
- Ideal for applications requiring extended penetration
- Waterproof

**Heavy Duty Needle Probe**
- Designed with 6 mm diameter shaft
- With pencil point tip for ease of penetration
- Ideal for measurement of semi-solid or solid materials
- Waterproof

**Extended Heavy Duty Needle Probe**
- Ideal for deep penetration and measurement of semi-solid material
- Ideal for below surface applications
- Waterproof
Hand Held Surface Probes

Fast Response Ribbon Probe
- Excellent accuracy
- Fast response
- Ideal for measurement of surface temperatures below 250°C
- Fitted with 2 m curly cable

General Purpose Sprung Shield Surface
- Designed for surface measurement in type ‘T’ material
- Has spring loaded shield allowing surface measurement without damage to sensing wires
- Fitted with 2 m curly cable plus miniature plug

High Temperature General Purpose Probe
- Ideal for measuring surfaces up to 600°C
- Fast response
- Fitted with a small spring loaded shield
- Fitted with 2 m curly cable and miniature plug

Extra High Temperature Probe
- Spring loaded tip housed in ceramic
- Extended shaft
- Ideal for high temperature measurement at a safe distance
- Fitted with 2 m curly cable and miniature plug

Magnetic Surface Probe
- Button type magnet
- Spring loaded thermocouple junction
- 2 m of PTFE twin twisted cable plus miniature plug

Pipe Clamp Probe
- Ideal for measurement of pipe temperatures, flow and return and radiator balancing
- Supplied with 2 m of curly cable plus miniature plug
- Other sizes available

Velcro Probe
- Designed to measure the temperature of pipes
- The probe may be wrapped around pipes of varying sizes
- The design ensures that the sensor is kept in good thermal contact with the surface of the pipe

Specifications subject to change without notice
Hand Held Air Probes

Fine Wire Thermocouple Sensors
- Allow fast response and excellent repeatability
- Used for applications such as air, liquid or surface temperatures
  P.T.F.E. insulation 0.2mm dia wire
- Glass fibre insulation 0.2mm dia wire

Air Probe (Moving Air)
- Ideal for the measurement of air and gases
- Funnelled shield allows maximum airflow across measuring junction
- Supplied with 2 m curly cable plus miniature plug

General Purpose Air Probe (Still Air)
- Designed for measuring air or gas temperatures in ducts or pipes
- Ideal for temperature measurement in small openings
- Fitted with sensor protection shield
- Supplied with 2 m curly cable plus miniature plug

Flat Food Probe
- Designed for measuring temperature between boxes
- Ideal for air and liquid measurement
- Supplied with 2 m curly cable plus miniature plug

Fast Response Flat Food Probe
- Designed for measuring temperature between boxes
- Ideal for air and liquid measurement
- Supplied with 2 m curly cable with miniature plug

High Accuracy Black Body
- Designed to give a true reflection of temperature by imitating a black body
  i.e absorbs all radiation incident upon it
- Supplied with 2m glass fibre S/S over-braided plus miniature plug

Specifications subject to change without notice
Hand Held Mineral Insulated Probes

Ideal for temperatures up to 1100°C. The material can be bent without affecting performance. Excellent for measurement of air, gas, liquid and applications requiring difficult access. Supplied with 2 m curly cable with miniature plug. Other thermocouple types and lengths can be supplied upon request.

<table>
<thead>
<tr>
<th>Type</th>
<th>Temp Range</th>
<th>Order Code</th>
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</thead>
<tbody>
<tr>
<td>K</td>
<td>-50 to +1100</td>
<td>KMO1</td>
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<tr>
<td>T</td>
<td>-50 to +400</td>
<td>TMO1</td>
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<tr>
<td>K</td>
<td>-50 to +1100</td>
<td>KMO2</td>
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<tr>
<td>T</td>
<td>-50 to +400</td>
<td>TMO4</td>
</tr>
</tbody>
</table>

Hand Held Plug Mounted Probes

These probes are moulded directly into miniature thermocouple plugs, giving a waterproof and robust assembly. A handle is available which includes a thermocouple socket and a flexible holding piece that ensures the probe is held in place.

Handle Probe
- These probes are used in conjunction with the range of plug-mounted probes.
- They provide a handle for all the plug-mounted probes.

Air Probe
- Fast response sensor
- Comprising an exposed thermocouple junction protected by a perforated stainless steel sheath
- Ideal for use in heating and ventilation work allowing for temperature measurement with a simple one-handed operation.

General Purpose Probe (Mineral Insulated)
- A 3 mm diameter mineral insulated probe
- 100 mm long
- Stainless steel sheath

Insertion Probe
- Features a pencil tip
- Ideal for measuring temperatures of semi-solids
Hand Held General Purpose Probes

Surface Probe (Band)
- Fast response for surface temperature measurement
- Uses a thin stainless steel band for contacting the surface

Surface Probe (Sprung Shield)
- Features a sprung draught shield which serves to protect the tip when not in use
- Also features a thin metal disc giving a low thermal mass, providing a fast response

Spatula Probe
- Designed to take the temperature between cartons
- Constructed from food grade stainless steel

Penetration Probe
- Ideal for measurement of semi-solid products
- Fitted with 2 m curly cable plus jack plug

Air Probe (Moving Air)
- Ideal for measurement of air and gases
- Funnelled shield allows maximum air flow across measuring junction
- Supplied with 2 m curly cable plus jack plug

Flat Food Probe
- Designed for measuring temperatures between boxes
- Ideal for air and liquid measurement
- Supplied with 2 m of curly cable plus jack plug

Hand Held Thermistor Probes

Penetration Probe
- Ideal for measurement of semi-solid products
- Fitted with 2 m curly cable plus jack plug

Air Probe (Moving Air)
- Ideal for measurement of air and gases
- Funnelled shield allows maximum air flow across measuring junction
- Supplied with 2 m curly cable

Flat Food Probe
- Designed for measuring temperatures between boxes
- Ideal for air and liquid measurement
- Supplied with 2 m of curly cable plus jack plug

Hand Held Platinum Resistance Probes

Immersion Probe
- High accuracy probe for temperature measurement of gas or liquid
- Standard sensors are calibrated to class ‘B’. Class ‘A’ can be supplied upon request
- Supplied with 2 m curly cable

Penetration Probe
- Ideal for measurement of semi-solid products
- Supplied with 2 m curly cable

Air Probe (Moving Air)
- Ideal for the measurement of air and gases
- Funnelled shield allows maximum air flow across measuring junction
- Supplied with 2 m curly cable