MC810B Controller
Technical Note: T03-001

Uses for the MC810B Digital Temperature Controller

Introduction
The MC810B Digital Heating Controller is compatible with several Electrothermal heating products and can be used in a number of different ways:

- In On/Off mode with the hysteresis loop controlling power switching.
- As a PID (Proportional, Integrated, Derivative) controller.
- As a temperature measuring device up to 800°C or more, depending upon the probe accessory used.

Programming is performed via the Up/Down controls on the front panel and the 3 digit LED display allows you to set a 1°C resolution over a range of -10°C to 800°C. Temperature sensing is performed by a plug-in PTFE covered platinum resistance thermometer probe which is suitable for measurements up to 250°C. There is a 5 pin DIN socket for the temperature probe. The sample temperature is displayed on the 3-digit LED display.

Uses
The MC810B can be used with any Electrothermal CMU or EM mantle with a single IEC socket input, controlled or uncontrolled. There are however some points to consider:

- The MC810B controller is best used on uncontrolled mantles.
- If the MC810B controller is used on a controlled mantle, then the mantle’s control knob must be turned to the maximum/‘fully on’ position, in this circumstance the MC810B will work as if it were connected to an uncontrolled mantle.

Does this controller work with a stirring mantle?
It is possible to use the MC810B with any Electrothermal EMA stirring mantle; however when the controller switches the power on and off to control the temperature, the stirring will also turn on/off. A solution to this problem would be to consider using the OMCA Digi-Mantle
instead, which has an inbuilt temperature feedback circuit controller into which an optional PT100 temperature probe may be connected to gauge the temperature of the flask contents.

**Does this controller work with EME multi-mantles?**
The MC810B controller only has one temperature probe for controlling by contents so using the MC810B on an EME3 product, for example, would only effectively control the temperature of one flask. The other two positions may be a similar temperature, but it would certainly not be good practice to assume they were all the same.

**Can the MC810B be used with the HT9 series heating tapes?**
Yes, the controller is compatible with the HT9 heating tapes but must be installed by a competent electrician. Contact electrothermalhelp@bibby-scientific.com for further information.

**What type of temperature probe does the MC810B use?**
The MC810B is supplied with a PTFE covered platinum resistance thermometer which can be used up to measure solutions up to 250°C. Three other probes are available for use with the controller which differ in their maximum temperature capabilities. Listed below are some brief specifications and the approximated lengths for the three probes available.

**Electrothermal temperature probes:**

<table>
<thead>
<tr>
<th>Part number</th>
<th>Maximum temperature</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ6705</td>
<td>250°C</td>
<td>11” (28cm)</td>
</tr>
<tr>
<td>AZ6706</td>
<td>400°C</td>
<td>12” (30cm)</td>
</tr>
<tr>
<td>AZ6741</td>
<td>800°C</td>
<td>6” (15cm)</td>
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