1. Safety instructions

The equipment conforms to safety regulations for electrical measuring instruments and control and laboratory equipment as per DIN EN 61010, part 1.

- In order to avoid permanent damage to the built-in NTC sensor, never exceed the maximum temperature of 140°C.
- Never expose the PVC grip or the connecting cable to temperatures above 80°C.

2. Description

The temperature sensor NTC with measurement terminal is used for measuring temperatures ranging from -40°C to +140°C. It is used in conjunction with the VinciLab (1021477) and ©Lab (1021478) interfaces.

The temperature sensor is designed for measuring temperature in the copper piping of heat pumps (1000820 or 1000819). The tip of the thermocouple has a suitably shaped copper clamp for pipes with a diameter of 6 mm.

3. Technical data

<table>
<thead>
<tr>
<th>Measurement range:</th>
<th>-40°C to +140°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor type:</td>
<td>20 kΩ NTC sensing resistor</td>
</tr>
<tr>
<td>Accuracy:</td>
<td>±2°C at -40°C</td>
</tr>
<tr>
<td></td>
<td>±0.6°C at 30°C</td>
</tr>
<tr>
<td></td>
<td>±1.8°C at 140°C</td>
</tr>
<tr>
<td>Resolution:</td>
<td>0.1°C</td>
</tr>
<tr>
<td>Delay (time for measurement to change by 90%):</td>
<td>10 s (in water, stirring needed)</td>
</tr>
<tr>
<td></td>
<td>270 s (in calm air)</td>
</tr>
<tr>
<td></td>
<td>80 s (in draughty air)</td>
</tr>
<tr>
<td>Sensor cable:</td>
<td>PVC-insulated, 1.4 m</td>
</tr>
</tbody>
</table>

4. Operation

- Connect the temperature sensor to the data logger.
- Proceed as specified in the rest of the instructions.
5. Applications

Temperature measurements at the open ends of heat pump (1000820 or 1000819). See Fig. 1 and Fig. 2.
Determination of the temperature of metal tubes in thermal expansion apparatus (1000830)
Observation of freezing and boiling points as well as heat of reaction

Required apparatus:
1 VinciLab 1021477
or
1 €Lab (+ Software „Coach“) 1021478
1 Temperature sensor NTC with measurement terminal 1021797

6. Care and maintenance

- Before cleaning the equipment, disconnect it from the interface.
- Use a soft, damp cloth to clean it.

7. Disposal

- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.