# SMART MULTISENSOR

**Model PTHR-4000 / PTH-4000 / TH-4000**

Independent Barometric Pressure, Temperature, Relative Humidity & Solar Radiation sensors plus Dew Point (calculated)

Industry’s most compact, lowest-power, lowest-cost multisensor for professional Meteorological and Earth Sciences applications, integrating:

<table>
<thead>
<tr>
<th>Measure</th>
<th>Range</th>
<th>Accuracy</th>
<th>Resolution</th>
<th>Time Constant</th>
<th>Stability</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Temperature (dry bulb temp.)</td>
<td>-40°C to +60°C</td>
<td>±0.1°C @ 23°C ± 5°C</td>
<td>0.01°C</td>
<td>4 sec.</td>
<td>0.1°C/year</td>
<td>PT-100 IEC751 Class A (optional Class B)</td>
</tr>
<tr>
<td>Relative Humidity (%RH)</td>
<td>0% to 100% RH</td>
<td>±0.8 % RH @ 23°C ± 5°C</td>
<td>0.1%</td>
<td>10 sec.</td>
<td>1%/year</td>
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<tr>
<td>Wet-bulb temp. (calculated)</td>
<td>-80°C to +100°C</td>
<td></td>
<td>0.01°C</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Atmospheric pressure at site</td>
<td>260 to 1260 hPa</td>
<td>±0.1 hPa typ @ 25°C in the range 800 – 1100 hPa</td>
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<td></td>
<td></td>
<td>Piezoresistive (MEMS)</td>
</tr>
<tr>
<td>Atmospheric pressure at sea level</td>
<td>260 to 1260 hPa</td>
<td>±0.1 hPa</td>
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<td>0.1 hPa/year</td>
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</tbody>
</table>

**Global Solar Radiation (only model PTHR-4000)**

- Spectral Range: 400 to 1100 nm
- Sensitivity: 50 µV/W/m² typically
- Linearity: < 0.2% at 1000 W/m²
- Stability: < ±2% change over a 1 year period
- Range: 0 to 2000 W/m²
- Response time: Less than 1 µs
- Temp. dependence: 0.15% per °C maximum
- Directional response: <10 W/m² at 10000W/m²
- Tilt Response: 0 %
- Operating temperature: -30°C to 70°C

Models TH-4000, PTH-4000 and PTHR-4000 have direct connection to METEODATA / HYDRODATA Datalogger with Integrated Comms (3G / GPRS, Modbus, Line, Radio or Satellite)
TECHNICAL SPECIFICATIONS

- **Selectable serial communication interface:**
  Interfaces: RS-232 (three wires), RS-485 (two wires)
  Protocols: SDI-12, MODBUS-RTU, Geonica Binary

- **Configuration interface:**
  Standard PC serial port (no case opening or soldering required)
  Internal USB port

- **Power consumption:**
  Ultra-low power consumption
  43 mW typ. @ 12V

- **12V Power supply:**
  Wide range from 3.7V to 30V
  Inverse voltage protection
  Undervoltage brownout protection
  Overvoltage / overcurrent protection with IEC/EN 61000-4-5 compliant varistor plus matched resettable polyfuse.

- **Compact form factor** using similar case and connector as GEONICA legacy temperature/relative humidity sensor.

- **Warming period:**
  Pressure: 200 ms
  All parameters: 2 sec.

- **Factory quality control**, ready to use

- **Chip replaceable at site** for Temperature and Relative Humidity sensor.

- **Non-volatile memory** to store configuration parameters such as altitude above sea level, serial port settings, RS485 bus ID and calibration coefficients.

- **Sampling rate:**
  1 Hz (it can be customized for specific client needs)

- **Operating / Storage temperature:**
  -40°C to +85°C / -60°C to +85°C

- **Degree of protection:**
  IP66

- **Physical characteristics:**
  Dimensions
  PTH-4000/TH-4000:
  Internal housing: 235.4mm x 40mm ø
  Radiation shield: 270mm x 130mmø
  PTHR-4000 (Radiation shield included):
  306mm x 130mmø
  Weight (Radiation shield included)
  PTH-4000/TH-4000: 815g
  PTHR-4000: 950 g

AVAILABLE MODELS

<table>
<thead>
<tr>
<th>MULTISENSOR MODEL</th>
<th>AIR TEMPERATURE</th>
<th>RELATIVE HUMIDITY</th>
<th>WET BULB TEMPERATURE</th>
<th>DEW POINT</th>
<th>ATMOSPHERIC PRESSURE</th>
<th>ATM. PRESSURE (SEA LEVEL)</th>
<th>SOLAR RADIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTHR-4000</td>
<td>X</td>
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<td>PTH-4000</td>
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<td>TH-4000</td>
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APPLICABLE STANDARDS

- **Designed and manufactured in Spain** by GEONICA following strict ISO 9001 quality standards.

- **Meteorological:**
  WMO No.8
  UNE 500520/30/50

- **EMI/ESD:** in accordance with IEC/EN 61326

- **Safety:** in accordance with IEC/EN 61010

- **EC directives:**
  2006/95/EC
  2004/108/EC
  2002/95/EC
  2004/22/EC