# Spécifications techniques des capteurs de la stations météo Vaisala du Pic du Midi

Située sur le toit du bâtiment T55, la station météorologique P2OA du Pic du Midi est constituée, autour d'une centrale météo Vaisala HydroMet MAWS 301, des capteurs suivants :

- Capteur de température et d'humidité Vaisala QMH 102
- Capteur de pression Vaisala PMT16A
- Capteur de rayonnement global Vaisala CM6B
- Capteur de vent sonique Vaisala WS 425 jusqu'au 24/09/2014 (remplacé par la suite par un capteur 3D Metek USA-1).

| Référence capteur | QMH102 (HMP45D) | | PMT16A (MAWS301) | CM6B | WS425 | |
|---|---|---|---|---|---|---|
| No. série | Y3140006 | | Y17505 | 026136 | A3950007 | |
| Variable | **Température** (Pt 1000 – IEC 751 1/3 Class B) | **Humidité relative** (HUMICAP 180 ) | **Pression** | **Irradiance solaire globale** | **Direction du vent** | **Force du vent** |
| Incertitude absolue (accuracy) | **< ±0,4°C** entre -20 et +60°C | **< ±3 %RH** à 20°C (dépendance en température ±0,05%RH / °C => <±5%RH à -20°C) | **< ±0,3 hPa** entre 600 et 1100 hPa (Pic du Midi à ~ 720 hPa) | **< 20 W/m²** (First Class Standard ISO9060 / WMO) | <**±2°** (vent > 1 m/s) | **< 0,135 m/s ou 3 %** de la lecture (vent entre 0 et 65 m/s) |

**Capteur de température et d'humidité Vaisala QMH 102**

Basé sur une sonde de température et d'humidité HMP45D :



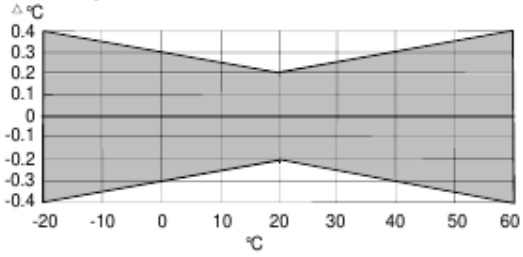
## 11.2 HMP41and HMP45 probes

### 11.2.1 Relative humidity

| | |
|---|---|
| Measurement range | 0...100 %RH non-condensing |
| Accuracy (at +20 °C) | |
| when calibrated against | |
| salt solutions (ASTM E104-85): | ±2 %RH (0...90 %RH) |
| | ±3 %RH (90...100 %RH) |
| Temperature dependence | |
| of electronics | ±0.05 %RH/ °C |
| Typical long-term stability | better than 1 %RH per year |
| Response time (90%) at 20 °C | |
| in still air with sintered filter | 15 s |
| Humidity sensor | HUMICAP® 180 |

### 11.2.2 Temperature

| | |
|---|---|
| Measurement range | |
| (for which accuracy is specified): | -20...+60 °C |
| Temperature sensor | Pt 1000 (IEC 751 1/3 Class B) |
| Accuracy: | |




### 11.2.3 General

| | |
|---|---|
| Typical ranges of calculated variables | |
| dewpoint temperature | -40...+60 °C |
| absolute humidity | 0...160 g/m$^3$ |
| wet bulb temperature | 0...+60 °C |
| mixing ratio | 0...160 g/kg d.a. |
| Cable length (HMP45) | 1500 mm; extended spiral cable |
| Connector type (HMP45) | modular connector |
| Operating temperature range | -40...+60 °C |
| Storage temperature range | -40...+70 °C |
| Housing material | ABS plastic |
| Housing classification (electronics) | IP65 (NEMA 4) |
| Sensor protection | plastic grid, part no. HM46717 |
| Weight: | |
| HMP41 | 30 g |
| HMP45 | 160 g |

**Capteur de pression Vaisala PMT16A**

| Vaisala Pressure Sensor PMT16A | |
|---|---|
| Performance (accuracy) | < ± 0.3 hPA, incl. one year drift (with factory calibration) |
| Pressure range | 600 ... 1100 hPa |
| Temperature range | -40 °... +60 °C (operating) |

**Capteur de rayonnement global (pyranomètre) Vaisala CM6B**

VAISALA www.vaisala.com

# CMP6 Solar Radiation Sensor

**Features/Benefits**

- First Class standard (ISO 9060/WMO)
- Reliable all weather performance
- For atmospheric research and meteorology

The CMP6 pyranometer is intended for routine global solar radiation measurement research on a plane/ level surface.

Fully compliant with ISO-9060 specification for a First Class pyranometer, the CMP6 features a sixty-four thermocouple junction (series connected) sensing element.

The sensing element is coated with a highly stable carbon based non organic coating, which delivers excellent spectral absorption and long-term stability characteristics.

CMP6 has improved performance due to the increased thermal mass and the double glass dome construction. It is ideal for good quality measurements in meteorological networks.

The integral bubble level is raised to the top of the housing and can be viewed without removing the redesigned snap-on sun shield, which also covers the connector. The connector with gold-plated contacts allows for easy exchange and re-calibration.

The screw-in drying cartridge is easy to remove and the replacement desiccant is supplied in convenient refill packets.

# Technical data

| General | |
|---|---|
| Spectral range | 285 to 2800 nm |
| Sensitivity | 5 to 20 µV/W/m² |
| Response time | 18 s |
| Zero offset A | ± 15 W/m² |
| Zero offset B | ± 4 W/m² |
| Directional error (up to 80 ° with 1000 W/m² beam) | < 20 W/m² |
| Temperature dependence of sensitivity (-10 °C to +40 °C) | ± 4 % |
| Operating temperature range | -40 °C to +80 °C |
| Maximum solar irradiance | 2000 W/m² |
| Field of view | 180 ° |

VAISALA

For more information, visit www.vaisala.com or contact us at sales@vaisala.com



CE

**Anémomètre sonique Vaisala WS425**

# Specifications

**Table 16 Technical Specifications**

| | |
|---|---|
| **Wind Speed** | |
| Measurement range<br>serial output<br>analog output | <br>0 ... 65 m/s (0 ... 144 mph, 0 ... 125 knots)<br>0 ... 56 m/s (0 ... 124 mph, 0 ... 107 knots) |
| Starting threshold | virtually zero |
| Delay distance | virtually zero |
| Resolution | 0.1 m/s (0.1 mph, 0.1 knots, 0.1 km/h) |
| Accuracy (range 0 ... 65 m/s) | ±0.135 m/s (0.3 mph, 0.26 knots) or 3 % of reading, whichever is greater |
| **Wind Direction** | |
| Measurement range | 0 ... 360° |
| Starting threshold | virtually zero |
| Delay distance | virtually zero |
| Resolution | 1° |
| Accuracy (wind speed over 1 m/s) | ±2° |