

Mercury SYNOP

Automatic weather station for synoptic and climatological network

Description

The versatility of the Mercury SYNOP station allows operators to interface all types of sensors and deploy stations in all environments: isolated site, difficult to access, tropical area, etc.

Main weather measurements

- Air temperature and humidity
- Precipitation: intensity and quantity
- Wind speed and direction
- Absolute pressure and sea level pressure
- Solar radiation (global, diffuse, direct)
- Infrared radiation
- Soil temperature and actinothermic index
- Soil moisture
- Present weather
- Visibility



Advantages

- Modular and scalable stations
- Compliance with WMO recommendation
- High data quality production
- Strong remote maintenance possibilities
- Design for harsh environments
- Protected weather station (Lightning, tamper-proof , ...)

Automatic weather station designed for the acquisition, pre-processing and transmission of high quality weather data to processing centers.



AIR TEMPERATURE AND HUMIDITY SENSOR

Air temperature measurement

- Range: -40 to + 60°C
- Accuracy: $\pm 0,2^{\circ}\text{C}$
- Resolution: $0,1^{\circ}\text{C}$
- PT100 4 Wires

Air humidity measurement

- Range: 0 to 100%
- Accuracy: 2% from 0 to 90% and 3% from 90 to 100%
- Resolution: 1%

Dew Point

PRECIPITATION SENSOR

Double tipping bucket rain gauge

- Range: 0 to 700mm/h
- Accuracy: 3%
- Catch area: 400 cm²
- Resolution: 0,2mm (or 0,5mm)
- Bucket 8g , material black ABS
- Integrated bubble level
- ILS contact output passive Y / N and no rebound
- Breaking capacity: 0,5A, 200Vcc, 10W
- Stainless steel cone Painted in RAL 9010 glossy white

Option : Heater

GLOBAL AND DIFFUSE RADIATION SENSOR

Pyranometer Class B (ISO 9060:2018 Standard)

- Range: 0 to 2000W/m²
- Sensibility: 5 to 20 $\mu\text{V/W/m}^2$
- Response time (95%): < at 18s
- Accuracy:
 - Spectral range : 285 to 2800nm
 - No stability / year: < 1%
 - No linearity: < 1%
 - Temperature dependance (0°C to 100°C) : < 4%
- MTBF > 10 years

Option : Ventilation kit

ULTRASONIC WIND SENSOR

Wind speed measurement

- Range: 0 to + 75 m/s
- Accuracy: $\pm 0,3\text{m/s}$ to $\pm 3\%$ (0...35m/s) $\pm 5\%$ (>35m/s)
- Resolution: 0,1 m/s

Wind direction measurement

- Range: 0 to 359 °
- Accuracy: < 3°
- Resolution: 1°

Option: Heater

PRESSURE SENSOR

Barometer

- Range: 500 to 1100hPa
- Resolution: 0,1hPa
- Accuracy: $\pm 0,01\%$ Full Scale (FS)
- Stability: $\pm 0,01\%$ FS/year
- Technology: TERPS

Sea level pressure calculation

SOIL TEMPERATURE SENSOR

Soil temperature measurement

- at -5cm, -10cm, -20cm, -30cm, -50cm, -100cm
- Resolution: 0,1°C
- Accuracy: $\pm 0,1^{\circ}\text{C}$
- Dim: Length 102cm \varnothing 2cm
- IP68

Option : Auger kit

SOIL TEMPERATURE SENSOR

Actinothermic index (+10cm)

- Range: -40 to + 60°C
- Accuracy: $\pm 0,1^{\circ}\text{C}$
- Resolution: $0,1^{\circ}\text{C}$
- PT100 4 Wires

SOIL MOISTURE SENSOR

Volumetric soil moisture

- Range: 0 to 70% Vol
- Resolution: 1%
- Accuracy: $\pm 3\%$
- IP68

ML200 DATALOGGER

Power supply

- Power input: 9 to 36Vdc
- Solar panel input 12V and integrated solar controller
- Battery protection against deep discharge
- Protection against reverse polarity
- Current consumption measurement

Communication

- GPRS / 3G / 4G or Ethernet modem
- Strength and quality communication signal measurement
- Frequency of data transmission: 1min, 6min, 1h, 3h, 6h, or without
- Remote software upgrade / Remote maintenance

Sensors inputs

- Inputs protection against overvoltage and electromagnetic interference by plug-in fuses
- 9 sensors inputs:
 - 3 inputs PT100/ TOR/ 0_5Vdc/-30_+40mVdc
 - 3 inputs 0_5Vdc / -30_+40mVdc
 - 3 inputs RS232/RS485/RS422
- 24Bits AC/DC controller – High accuracy

Monitoring and maintenance software

- Mercury Maintainer (no license)

PROTECTION ENCLOSURE

Protection box

- Dim : W400xH500xD210mm
- Material : Polypropylene
- IP 66 / IK10
- Closure : 2 key points
- Earth connexion
- Watertight cable routing and glands
- Gel lead battery : 12Vdc 18Ah or 28Ah

Options

- Protective cap against direct radiation
- Tamper-proof solar panel attachment

WIND MAST

Tilting wind mast

- Height: 10m
- Double guying

Options

- Lightning rod kit
- Frangibility
- Color : Red and White
- Solar panel attachment at 8m

GENERAL FEATURES

Mechanical structure

- Material : Galvanized steel and/or ALU
- Painted White
- Corrosion resistant
- UV resistant shielded cables

Environmental features

- Operating temperature: -40 to +65°C
- Storage temperature: -40 to +70°C
- Humidity: 0 to 100%

Conformity

- Standard EN 15518- 1-2-3
- Standard IEC 61000-4-2/4-3/4-4/4-5/4-6



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