

Mercury ROAD

Road weather station



Description

Modular and scalable, Mercury ROAD weather stations ensure high accuracy and stability measurements. They are designed with specially selected sensors to reduce maintenance operation and ensure reliable information at all times.

Main weather measurements

- Wind speed and direction
- Air temperature and humidity
- Dew point
- Precipitation type, intensity and quantity
- Road surface temperature
- Road depth temperature
- Road condition: Dry/moist/wet/moist with salt/wet with salt/ice
- Ice percentage: Conductivity measurement
- Freezing point
- Visibility
- Snow height

Advantages

- Data reliability and availability
- Scalable weather station
- Low maintenance cost
- Design for harsh environments
- Smartphone App's

Weather stations designed to support road professionals: to improve analysis of winter phenomena, anticipate interventions and reduce maintenance cost.



AIR TEMPERATURE AND HUMIDITY SENSOR

Air temperature measurement

- Range: -40 to + 60°C
- Accuracy: ± 0,2°C
- Resolution: 0,1°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

ULTRASONIC WIND SENSOR

Wind speed measurement

- Range: 0 to + 75 m/s
- Accuracy: ±0.3m/s to ±3% (0...35m/s) ±5% (>35m/s)
- Resolution: 0,1 m/s

Wind direction measurement

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

Operating temperature: from - 50 to + 60 ° C

Option: Heater

ROAD CONDITON SENSOR

Road condition measurement

- Dry/damp/wet/ice or snow/moist with salt/wet with salt
- Water film:
 - Height up to 4 mm
 - Accuracy: < at 30% from 0,2 to 3mm
- % of de-icing materials (NaCl, MgCl, CaCl)
- Freezing temperature (for different de-icing materials)

Road surface temperature

- Range: -40 to + 65°C
- Accuracy: ± 0,1°C (from -20 to +20°C), otherwise ± 0,2°C
- Resolution: 0,1°C

Road depth temperature at -5 and -30cm

- Range: -40 to + 65°C
- Accuracy: ± 0,1°C
- Resolution : 0,1°C

Friction: 0 to 1

Ice pourcentage: 0 to 100%

Dimension: Ø 120mm, Height 50mm

RADAR PRECIPITATION SENSOR

Precipitation measurement

- Rain and precipitation intensity and quantity
- Drop size distribution: 11 drop size classes with bandwidth of 0.5 mm
- Rain/precipitation type (Rain, snow, sleet, freezing rain, hail)
- Measurement technology: 24GHz Doppler Radar

Accuracy

- Rain: ±0,16 mm or ±10 % of the measured value
- Intensity: 0,01 to 200mm/h
- Resolution: 0,1mm

ROAD SURFACE TEMPERATURE SENSOR

Road surface temperature measurement

- Range: -40 to + 80°C
- Accuracy: ± 0,1°C
- Resolution: 0,1°C
- PT100 4 Wires

VISIBILITY SENSOR

Horizontal visibility measurement

- Range: 10 to 7500m
- Resolution: 1m
- Extinction coefficient

ML500 DATALOGGER

Power supply

- Power input: 24 Vdc
- Solar panel input and integred solar controller
- Battery protection against deep discharges
- Protection against reverse polarity

Communication

- GPRS / 3G / 4G / Ethernet / Modbus Modem
- 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
- From 8 to 32 analogue or digital inputs
- Analogue input: PT100 /Pulse Counters /0_5Vdc /-30_+40mVdc /4_20mA
- Digital input: RS232/RS485/RS422 /SDI12 /FSK
- 24Bits AC/DC Converter – high accuracy

Monitoring and maintenance software

- Mercury Maintainer (no license)

PROTECTION ENCLOSURE

Version : 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

Option

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

Version : double envelope cabinet

- Outer envelope
 - Dim: W750 x H1290 x D620mm
 - Material: Glass fiber reinforced polyester IP44 / IK10
 - Closure: 4 points (handle with 5mm double bar insert) and 1 key
- Inner envelope
 - Dim: W590xH1150xD360mm
 - Material: Polypropylene
 - IP45 / IK10
 - Closure: 3 points / 1 key
 - Aluminum extension with inspection hatch
 - Battery: 12Vdc 18Ah or 28Ah

Option : Heater

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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