

# Dewchecker 3.1



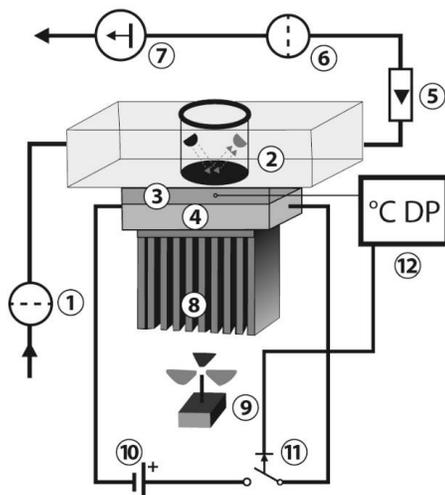
## Features:

The automatic dew point measurement instrument Dewchecker 3.1 is a portable device used for measuring the dew point temperature of gases.

Per definition, the dew point is the temperature of a body at which the water vapours start to condensate on its surface, respectively the balance adjusted between condensing and evaporating water. The level of the dew point depends on the moistness of the measuring gas. Due to the direct measurement of the dew point temperature the measurement is accurate and long-term stable. With this device it is possible to measure dew point temperatures lower than the ambient temperature. Moreover, the device itself requires very low maintenance.

Dewchecker 3.1 measures the dew point value completely automatically. A beam of light, from the emitting diode, is aimed at the mirror's surface and a photodetector monitors the reflected light. The Mirror is constructed from a material with good thermal conductivity and it is cooled down by using a thermoelectric cooler until the condensation begins. As the amount of reflected light decreases, due to the absorption, the photodetector output decreases also. An internal control system monitors the mirror's temperature at the dew point level over reflected photodetector voltage.

The device is available for either 230 V or 115 V supply voltage.



## Principle of Operation:

As described, the measuring gas is conducted through the sintered metal filter (1), which protects the device from contaminants of the measuring gas. The waste heat of the Peltier element is transferred to the ambient air by use of the heat sink (8) and fan (9). The amount of gas flow is indicated via flow meter (5) and adjustable by it. The Peltier element is powered by the current source (10) if the electronic switch (11) is activated. The temperature of the mirror is readable at the indicator (12). Reduced pressure needed for the gas flow is generated by the pump (7), which is protected by an additional internal filter (6).

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## Advantages:

- Automatic dew point measurement instrument
- High measuring certainty and accuracy
- Internal sample pump
- Robust construction and easy handling

## Technical Data

### Design:

Portable steel housing

### Dimensions:

330x310x320 mm (WxHxD)

### Weight:

Approx. 17 kg

### Degree of Protection:

Housing IP 20 according to IEC 60529  
Front panel IP 40 according to IEC 60529

### Power Supply:

230 or 115 VAC  $\pm 10\%$  50...60 Hz (please specify)

### Measuring Range:

25...+25°C

### Resolution in steps of:

0,1°C

### Measuring Gas Connectors (hose connectors):

Input: Tube outer diameter 5...6 mm  
Output: Tube outer diameter 5...6 mm  
Built-in measuring pump

### Analog Output:

-25...+25 °C , 0...20 mA or 4...20 mA or 0...10 V  
galvanic isolated, 4...20 mA is predefined setting

### Communication:

Either RS-485 / RS-422 four-wire or  
RS-485 two-wire (please specify)  
Isolated interface with Modbus-protocol

### Digital Output:

Relay 1; 5A/250V Indication of good measurement result

### Humidity:

Up to 70 %, non condensing

### Ambient Temperature:

10...40 °C during operation  
0...50 °C during storage

### Gas Flow:

Approx. 1l/min.

### Measuring Accuracy:

$\pm 1^\circ\text{C}$

### Measuring Gas Pressure:

$\pm 50$  mbar

### Maintenance Interval:

Every year

### Order number

531-3016

### Device name

Dewchecker 3.1

### Optional accessories

24799

Mirror plate for Dewchecker complete

531-8001

Pump for Dewchecker

24659

A005 for Dew Checker v.3.6

130-6050

Polishing cotton wool

24181

Sinter filter inlet 7  $\mu\text{m}$