

Precision climate measurement instrument Klimet A30 and Klimet A30-I



Precision climate measurement instrument Klimet A30

The precision climate measurement instrument is used for accurate measurement of the air temperature, humidity and barometric pressure.

By using advanced thermometry, state-of-the art electronics (high-resolution Sigma/Delta AD converter) a resolution and accuracy is achieved which in the past was feasible only with much larger and more expensive special measuring instruments used in calibration centers.

Principal application:

- Monitoring of the room climate for process control in cleanrooms.
- Accurate calculation of the weight of the air
- Calibration of measuring instruments used in climatic engineering
- Other applications in industry and research

Data output directly via RS232 interface to PC or printer, or internal storage in unit.

Cyclic operation that allows automatic control of the principal functions. Klimet A30 measures 10 individual values related to air temperature, dew point temperature and barometric pressure every 5 minutes during 70 seconds. The averages are used and the quality of the measurement is checked through the standard deviation.

For special tests continuous measurement can be activated for a limited period.

Thermometry

Sensor:

Copper/Constantan thermocouple type T with standard calibration polynomial. Resistance thermometer for reference soldering point.

Up to 4 temperature sensors measure the temperature. The sensors which have a thickness of only 1.2 mm respond quickly and are influenced little by physical interferences such as radiation, parasitic heat influence, etc. The sensors can be exchanged without recalibration.

(Accuracy divergence better than 0.007 °C)

Temperature differential measurement

Klimet A30 can be programmed via the RS 232 interface in such a way that the temperature gradient between the four thermometers is measured directly. The achievable accuracy is greater than with the conventional method in which the difference is calculated from two separately measured temperatures.

Measurement range: max. 10°C difference, both temperatures within 0...40°C

Accuracy: 0...1°C ± 0.002°C
1...10°C ± 0.02°C

Dew point temperature measurement

Due to the automatically controlled mechanical cleaning of the dew point mirror, no maintenance on the dew point mirror is required in contrary to other systems.

The air sample to be measured is drawn by the built-in ventilator through an 8mm hose nipple on the front panel and exits through a second nipple. Depending on the application, hoses can be connected to the nipples, or the humidity sensor can be removed and installed via the 1.5 m cable in the desired measurement location.

Relative humidity

Calculated from the air temperature and the dew point temperature.

Barometric pressure

A resonance pressure cell ensures maximum stability and accuracy.

Hose connection 6 mm.

Technical data, Klimet A30

	Application	Resolution	Accuracy
Temperature, 4 inputs	15...25°C	0.001°C	±0.05°C
Temperature differences	<10 °C <1 °C	0.001°C 0.001°C	±0.02°C ±0.002°C
Dew point	0...17°C	0.001°C	±0.05°C
Rel. humidity	20...80 %	0.01 %	±0.15 %
Barometric pressure	600...1100 hPa	0.001 hPa	±0.04 hPa

Extended measurement range for temperature and dew point with -60 °C... + 60 °C and for barometric pressures within 600...1200 hPa on request.

Calibration and certification at the Swiss Federal Institute of Metrology or PTB (Germany) on request

Technical data, Klimet A30-I

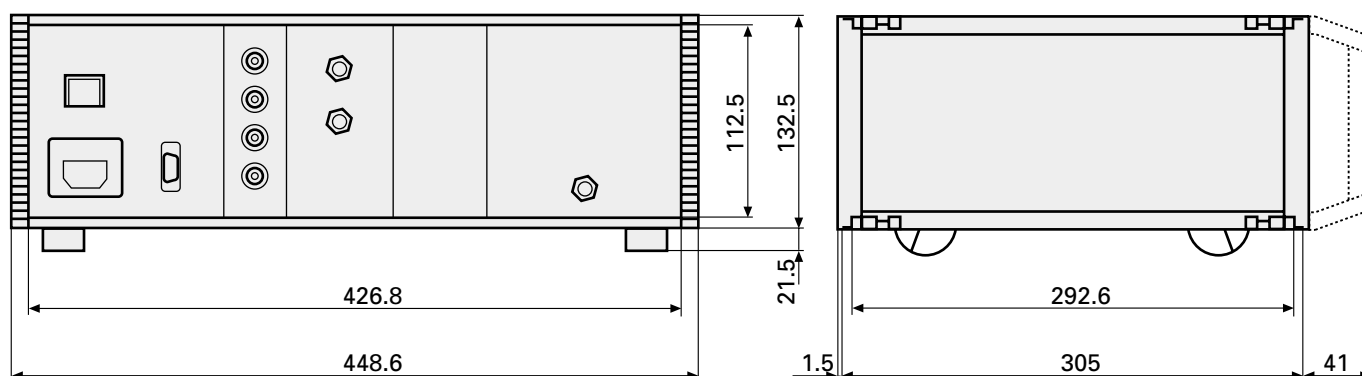
The Industrial Version Klimet A30-I has extended measuring ranges and limited accuracy compared to Klimet A30, all other data as Klimet A30.

	Application	Resolution	Accuracy
Temperature	-20...+60°C -100...+100°C	0.001°C 0.001°C	±0.08 K ±0.10 K
Temperature differences	±10 K	0.001 K	±0.02 K
Dew point	-20...+40°C -60...+40°C	0.001°C 0.001°C	±0.15 K ±0.25 K
relative Humidity	4...100 %	0.01 %	0.5 %
Barometric pressure	600...1100 hPa	0.001 hPa	±0.1 hPa

Electrical requirements, dimensions

Operating voltage	200...250 VAC or 100...130 VAC, 50 / 60 Hz
Power consumption	Typ. 3.8 VA, max. 10 VA
Weight	7.9 kg
Dimensions	450 x 153 x 350 mm (W x H x D) (19" standard rack, 3U vertical rack space)

Dimensions



Ordering information

- Klimet A30 – Operating voltage
- Number of temperature sensors

Options

- Temperature sensor: Air thermometer A30-T
- Calibration at the Swiss Federal Institute of Metrology A30-K
- Klimet A30-I

Special versions

Klimet A30 can also be supplied for measuring only one or two parameters.

If the application requires, we can modify the measurement range and adapt the software.

Meteolabor reserves the right to make changes without further notice