

pen-case 165x32x14 mm
optionally 430202 with two reference capsules



Functions and features

the Hygro-thermometer 430201 (optionally with two reference humidity cells 430202) is a handy precision measuring instrument in the pen-case. The measuring sensor is integrated in the display part. It is thereby very compact, and can be carried along constantly. Because of small dimensions (165 x 32 x 14 mms) it is also possible the measurements at inaccessible places. The big display indicates the temperature and humidity value of the air at the same time. The measuring instrument has a measuring range from 5 to 95% at accuracy $\pm 3\%$ for relative humidity and from -10°C to 50°C at accuracy $\pm 1\text{K}$ for temperature. The capacitive sensor is used for the measuring of the humidity of air, it has a characteristics with long time stability. The display refresh rate is up to 60 seconds (depends on temperature). The humidity measuring resolution is 0.1% of relative humidity.

As a temperature sensor is used a Micro NTC technology which offers a high measuring accuracy and quick scan rate. The resolution in the temperature measuring range is to 0.1K. The minimum and maximum value of a measuring period are automatically stored and can be called away on keystroke. Also the momentary value can be stored in the display what makes easy the measurements at inaccessible places.

The device is CE-Norms correspondent. There is one test report as attachment. The device is calibrated with reference cells in accordance to international standards.

Introduction

you receive the device calibrated. To start a measuring, open the battery mode in the back of the device and insert the supplied battery. Now the Hygrothermometer is ready for use.

Turning on/off

you can switch on the device, if you press the [ON/OFF] button. There follows a selftest with which for a short time all LCD-elements are visible on the display. Afterwards the changes, and temperature and humidity values can be read in the display. In the upper line of the LCD display indicates the relative humidity, in the lower line - the temperature.

To turn on some of the following device functions, you must hold the corresponding button till the confirmation appears in the display.

Min. Max. value storing

The device stores the biggest and smallest measured values of air temperature and humidity from the turning on or from the last operating of the [RST] button. After the first operating of [MN / MX] button the tip appears "MIN" on the display, and indicates the smallest measured humidity value in the upper line. The smallest measured temperature value is indicated in the lower line.

After 40 seconds the actual values will appear again. If within this time you press [MN / MX] button second time, the tip "MAX" appears on the display, and the LCD display indicates the biggest values of air humidity and temperature. By pressure [RST] button you can delete all max and min air humidity and temperature values and begin to store a new interval for extreme worth.

Hold function

If you press the [HOLD] button you can store the momentary values on the display to read it later. In the display appears the tip "HLD". By pressure [RST] button the hold mode finishes.

Automatic switch off

To save a battery energy, the device switches off itself after 20 minutes automatically. This function can be deactivated for long time measurements, as follows:
at first you switch off the device. Press afterwards [MN / MX] button, and hold the key low while you switch on the device with the [ON] button, until the "n" appears in the display. Now you can set free [MN / MX] button. The device is switched on and indicates the actual measuring values.
Now the device can be switched off only by pressure [ON/OFF] button or by interruption of the electricity supply. At the next switching on the automatic switch off mode active again.

Change battery

the batteries give operated time about 200 hours. As soon as the appearance flashes continuously, the battery is exhausted and must be exchanged. In this case you can carry out without measuring mistake about 1 hour of measurements.

Precautions

the measuring feelers may no contact with liquids, otherwise it will be damaged. Nevertheless, a possible water condensate is uncritically.

Care of the device

use for the cleaning of the case no chemical cleaning agents or solvents, but only one moist cloth.

Temperature calibration

the temperature part of the measuring instrument is adjusted in the work and cannot be calibrated by the simple user. Because of the measuring element is long period stabile, no balancing is necessary in general. We would recommend to send us the device for the calibration once yearly. We guarantee the measuring accuracy of the device after a reference.

Switch on °C or °F mode

Device can display the temperature as °C or °F mode, it can be chose by the final user. Switch off the Hygro thermometer at first, afterwards switch on the device again and hold pushing the [CAL]-button during the turning on with the [ON]-button, you are in the calibrate mode. Afterwards press by the ball pan till "CF" on the display appears. Choose now the needing mode with [MN / MX]-button and store the setting afterwards with the [CAL]-button. The display gives a receipt for the process with "S". Switch the device off to leave this mode.

Humidity calibration

Every user can control self the humidity measuring accuracy with use of two humidity reference cells included in supply (for type 430202 only). They contain saturated salt solutions high chemical cleaned which generates a certain humidity value trough the diaphragm. The diaphragm prevents the contact of the sensor with the salt solution and allows to set relative short stabilisation period. After calibration the device has humidity accuracy $\pm 3\%$.

General instruction to the humidity calibration

to storage of reference cells, they should be kept in a close plastic bag. The membrane in the cells is sensitive. Please be very careful when you insert the feeler in the reference cells, any over pressure can make a damage of the diaphragm or change the inside volume of a reference cells. You can balance only, after the system is stabilized thermally, it means, that the reference cell and measuring feeler of the device have the same temperature. This stabilization time lies as a rule more than 30 minutes depends on start temperature and temperature constants of both devices. The provided suitcase (for model 430202) serves during the reference a warm isolation and radiation protection. The suit case has an inside design allows to keep the device with reference cell at calibration. After that you can begin the calibration process, you should lay the device in the suitcase and close it. For a first calibration it is necessary to calibrate both points 33% and 75% of relative humidity. A calibration process usually up to two hours. Please, press no keys, until the stabilization time has passed by. If you break off the reference, you have to start it once more later.

Calibration process

The comparison begins with 33% r. h. point. Switch off the Hygrothermometer at first and put the feeler head in 33% r. h. reference cell. For the good result achievement you have to leave the device during 30 minutes as minimum. Switch afterwards the device in the calibration mode, press [CAL]-button during the turning on with the [ON]-button until "CF" appears. Press afterwards the [RST]-button once. Now on the display must be " % MIN ", as a tip that the lower comparison point is calibrated. Now please, wait for the stabilization time 30 minutes again. Operate no key, if you would not like to break off the process. As soon as the stability of the measuring value is achieved, the display changes, shows shortly "S", and appears " MIN, MAX " as a tip that the value was stored. Now insert the feeler of the device in the reference cells 75% r. h. and wait 30 minutes again. Press [MN / MX]-button. The display changes on "%MAX" it means that the device is in the calibration mode for the second reference point. Wait for the stabilization which lies again about 30 minutes. As soon as the calibration of the upper reference point (75%) is concluded, the display shows shortly "S" as a tip that the new reference point was stored. The process is finished now and the device turn on the measuring mode.

If you would break off the calibration, you can switch off the device any time. You can also interrupt the calibration, pressing three times the [RST]-button. In both cases the reference process must be repeated later.

If the calibration is carried out without reference cells and wrong data stored, the calibration of the device gets lost. The device must be calibrated again.

Technical characteristics:

	relative humidity	temperature
measuring range	0 ... 99,8 % r.h.	-16 ... 50 °C
accuracy	± 3 % r.h.	±1K
resolution	0,1 % r. h.	0,1K
dimension	165 x 32 x 14	
weight	50gr.	

Delivery set incl. 3V battery,
optionally 430202: case with two reference cells.

The Fischer company reserves the right to make changes/improvements to their products and to their specifications at any time without prior notice to anyone.



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