
Barograph

1.080x.10.000



ADOLF THIES GmbH & Co. KG

Hauptstraße 76

Box 3536 + 3541

Phone ++551 79001-0

www.thiesclima.com

37083 Göttingen Germany

37025 Göttingen

Fax ++551 79001-65

info@thiesclima.com

Contents

1	Models available	2
2	Application	3
3	Set-up and Mode of Operation.....	3
4	Preparation for Use.....	4
5	Maintenance	6
5.1	Changing the recording strip	6
5.2	Changing the Recording Pen	7
5.3	Checking and resetting the air pressure.....	7
6	Technical Data.....	8
7	Scale Drawing.....	9

Figures

Figure 1: Barograph	4
---------------------------	---

Tables

Table 1: Models available.....	2
Table 2: Recording strips	6

1 Models available

Order-No.	Recording Time	Clockwork	Lockable Housing
1.0800.10.xxx	1 day / 7 days, switchable	Spring clockwork mechanism	
1.0804.10.xxx	14 days / 31 days, switchable	Spring clockwork mechanism	
1.0805.10.xxx	1 / 7 / 31 days, switchable	Quartz clockwork mechanism	
...000			no
...900			yes

Table 1: Models available

Attention:

■ **Barographs with Quartz clockwork mechanism are applicable only within the temperature range from $-20 \dots +60^{\circ}\text{C}$!**

2 Application

The barograph measures and records the air pressure of the atmosphere of the surroundings. The recording drum is driven with utmost precision either by a manual spring clockwork mechanism or a battery-operated quartz clockwork.

The barograph is set to the air pressure reduced to sea level by the manufacturer, (qff) taking the on-site elevation indicated by the user into consideration and it displays this value. This guarantees that the instrument is operational at the indicated elevation. (If no elevation has been given by the user, then the instrument is set at the factory to the absolute air pressure.

The exact measurement and continuous control of the air pressure is important especially for airports, weather stations, health resorts, laboratories, industry and weather forecast for agriculture.

Remark: For transportation of the instrument in higher areas the following has to be considered:

- remove the transmission strip under the pressure case
- up to a height of 4000 m transportation without pressure compensation
- above 4000 m transportation only in a pressurized cabin

3 Set-up and Mode of Operation

The clockwork and the column with the aneroid-capsules are mounted to a base plate. The instrument is protected by a tiltable transparent hood with a viewing window.

A set of 8 copper beryllium aneroid capsules serves as the measuring element, which changes its length with air pressure fluctuations. A system of levers transfer the changes in length of the measuring elements onto the recording arm which has been provided with felt-tipped pen.

The user can set the instrument to the on-site elevation by means of the baro setting-screw and a scale above the aneroid capsules.

A time-controlled registration is possible through the drum rotation.

4 Preparation for Use

Unscrew the knurled-head screw and open the hood. Remove the foam rubber from the hood (transport protection). Push the switch-off lever to the left to raise the recording pen from the recording strip.

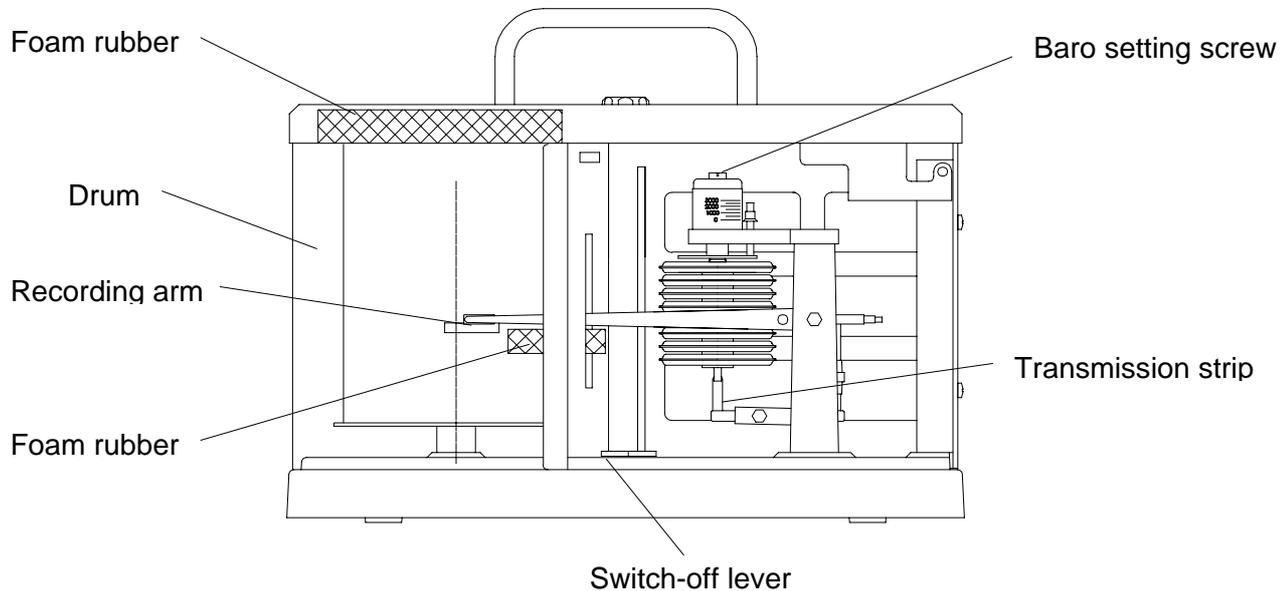
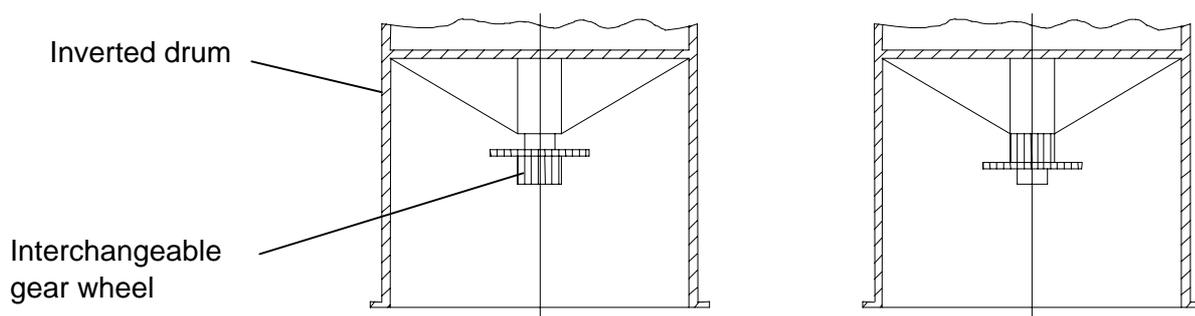


Figure 1: Barograph

Setting the desired recording time

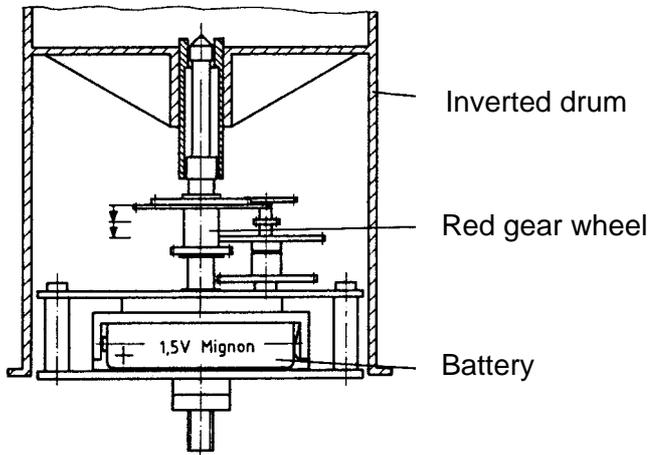
For instruments with a spring clockwork mechanism, unscrew the winding key by turning it towards the right and remove the inverted drum from the drive mechanism. The desired recording time can be set by changing the interchangeable gear wheel on the drum.



Order-No.	Recording Time	Recording Time
1.0800.10.xxx	1 day	7 days
1.0804.10.xxx	14 days	31 days

Instrument with Quartz Clockwork

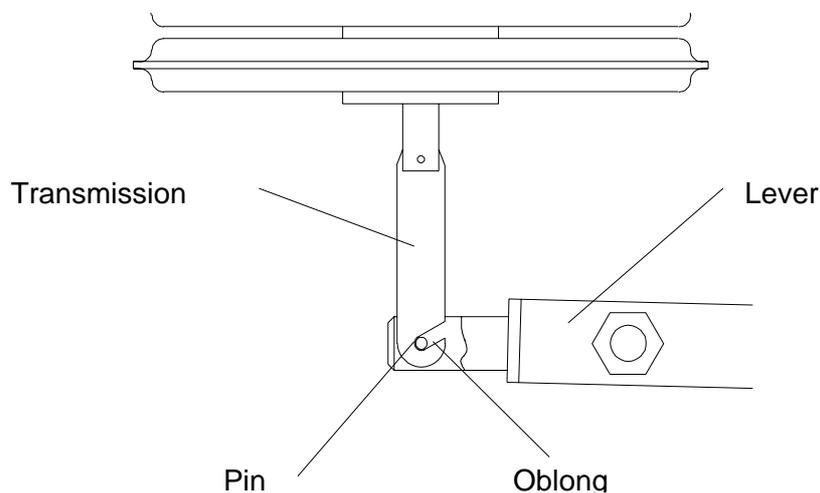
Remove the inverted drum from the drive mechanism and set the recording time with the red gear wheel by clicking it into place at the appropriate height. Make sure that the yellow gear wheel is properly engaged. Place the enclosed battery into the recess provided with the poles in the correct direction.



Position of the red gear wheel	
up	7 days
middle	31 days
down	1 day

Place the recording strip onto the inverted drum (see 5.1 Changing the recording strip) and insert this onto the drive mechanism until it locks into place!

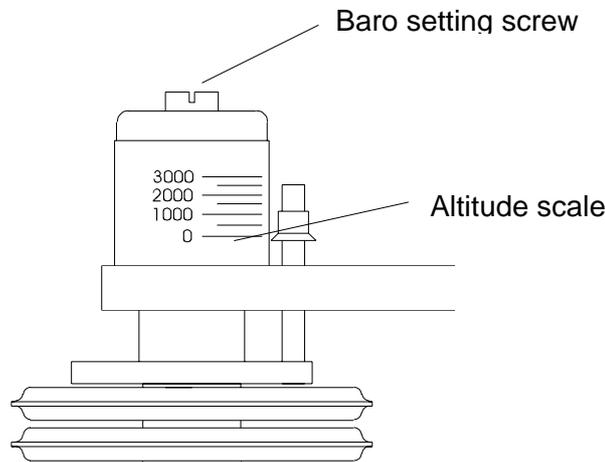
Remove the recording arm from the foam rubber (transport safety device). Check whether the transmission strip and the shift lever are in position beneath the pressure case as shown in the illustration. If necessary, raise the recording arm and suspend the pin in the oblong hole.



Remove the tip protection from the felt pen. For instruments with a spring clockwork mechanism, wind the clockwork with the key in the drum, turning it to the left. Rotate the drum counterclockwise to the correct time. Close the hood and tighten knurled-head screw. Press the switch-off lever to the right stop in order to move the recording pen onto the recording strip.

Adjusting the Instrument

Atmospheric pressure is dependent on the elevation of the mounting site above sea level (over normal zero). In order to be able to compare the measured values obtained at different sites, the barograph must be set to the respective height at the site where it is to be mounted. If this was not done at the time of ordering or if the mounting site has been changed, then the instrument must be reset to the correct elevation. A reference instrument is required for this. Or you can ask a neighbouring weather station for the air pressure reduced to sea level (reference value).



Turn the baro setting screw for setting the recording arm of the barograph to the actual reference value. The scale under the setting screw serves as orientation for the on-site elevation.

5 Maintenance

5.1 Changing the recording strip

This should be done regularly at the time where the recording strip starts; for example if you are using a 7 day recording period, then change the strip every Monday morning. After swinging the recording arm forwards, raise the chart holder and remove the recording strip. Place the new recording strip onto the drum and fix it into position by inserting the chart holder. Make sure that the new recording strip fits snugly and smoothly against the lower edge of the drum. Rewind the clockwork mechanism every time you change the recording strip. Swing the recording arm back to its original position and rotate the drum counter-clockwise to the correct time. The instrument is now ready for use.

Recording Strips(1 set = 100 sheets), Order-No. key

Recording time	1 day	7 days	14 days	31 days
Order- No.	205184	205182	205185	205186

Table 2: Recording strips

5.2 Changing the Recording Pen

Remove the inserted recording pen carefully from the recording arms after consumption. Remove the tip protection from the new pen. Make sure that you do not touch the recording tip when you place the new pen into position.

Spare Recording pen (minimum order of 6) Order-No. 500 847

5.3 Checking and resetting the air pressure

As already described in chapter 2 „Range of Application“ , when the elevation is not known, the barograph is set such that it indicates the air pressure at the measuring site. If you want this instrument to indicate the air pressure reduced to sea level, then you will have to reset it ! A change in elevation of 10 meters changes the air pressure by 1.2 hPa. The instrument must also be reset if the site of an instrument indicating air pressure reduced to sea level is changed.

Setting process:

1. First determine the current prevailing air pressure at the site P_{qfe} , for example, with the aid of mercury barometer
2. Then determine elevation Z
3. Calculate the air pressure P_{qff} reduced to sea level.

$$P_{qff} = \frac{Zm \times 1,2 \text{ hPa}}{10m} + P_{qfe} \text{ [hPa]}$$

Example:

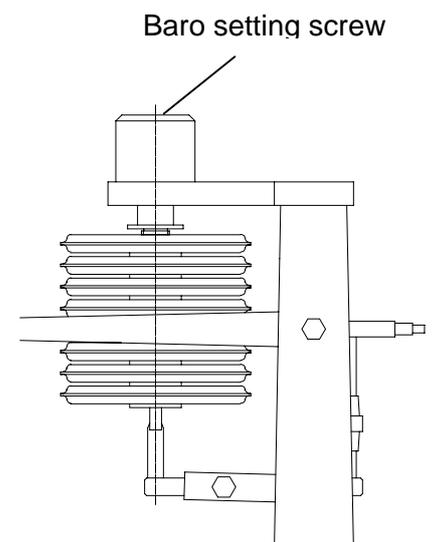
Site : Nürnberg
Elevation Z : 309 m
Air pressure P_{qfe} : 920,3 hPa (mercury barometer)

$$P_{qff} = \frac{309 \text{ m} \times 1,2 \text{ hPa}}{10 \text{ m}} + 920,3 \text{ hPa} = \underline{957,38 \text{ hPa}}$$

The instrument must be set to this value.

For your information:

The telephone service of the Weather Service will be glad to give you the air pressure reduced to sea level. If you make use of this service, then you won't have to carry out the above calculation.



6 Technical Data

Atmospheric air pressure

Measuring range	945...1052 hPa
Graduation	1 hPa
Measurement accuracy	± 0.8 hPa + 1 scale division @ 65% rel. h. and room temperature
Above sea level	0...3000 m
Temp.- working range	-10... +45°C

CLOCKWORK

Spring clockwork mechanism

Recording time	1 day / 7 days or resp. 14 days / 31 days; (see models available)
Thrust	11,45 mm/h.; 40,01 mm/day or resp. 20 mm/day; 9 mm/day
Temperature range	-35...+80°C
Gear accuracy	± 60 s/Tag at 20°C acc. to DIN 8300

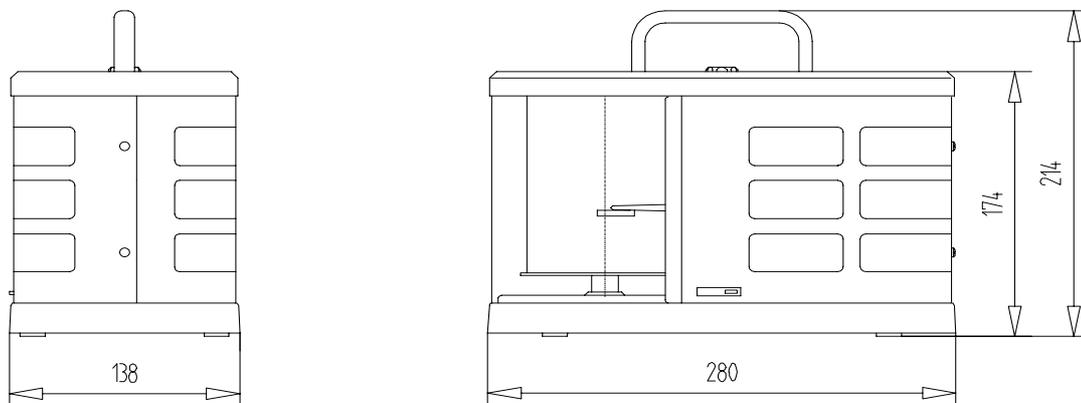
Quartz clockwork

Recording time	1 day / 7 days / 31 days
Thrust	11,45 mm/h.; 40,01 mm/day; 9 mm/day
Temperature range	-20...+60°C sim. DIN 8300 B
Gear accuracy	± 2 s/day
Battery capacity	> 1 year at 20°C (Mignon battery 1,5 V)

GENERALLY

Clockwork drum	$\varnothing 93 \times 93$ sim. DIN 58658
Recording strip	sim. DIN 16232
Recording width	82 mm
Weight	2,3 kg

7 Scale Drawing





ADOLF THIES GmbH & Co. KG

Hauptstraße 76 37083 Göttingen Germany
P.O. Box 3536 + 3541 37025 Göttingen
Phone ++551 79001-0 Fax ++551 79001-65
www.thiesclima.com info@thiesclima.com



- Alterations reserved -