

Barograph

Instructions for use 3.0800.10.000 / 3.0804.10.000 / 3.0805.10.000



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1. Range of 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

2. 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.

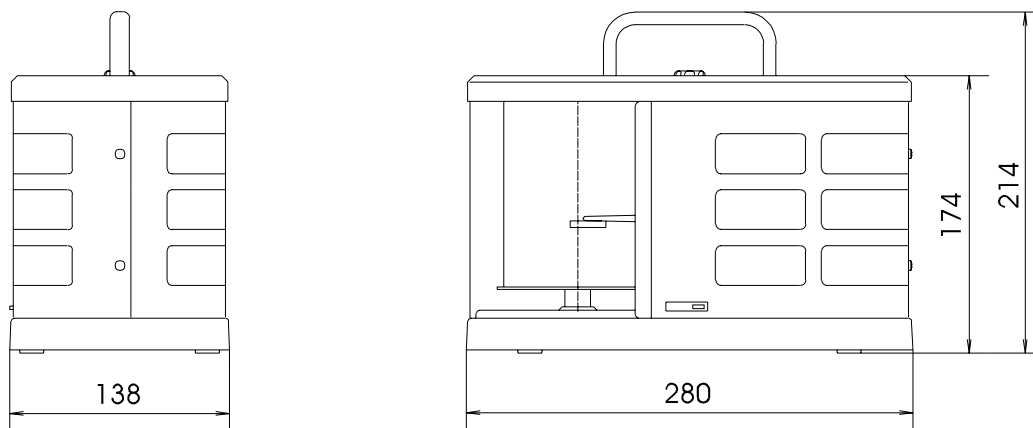
3. Models available

Order No.:	Recording time:	Clockwork:
3.0800.10.000	1 day/ 7 days, switchable	Spring clockwork mechanism
3.0804.10.000	14 days/ 31 days, switchable	Spring clockwork mechanism
3.0805.10.000	1 / 7 / 31 days, switchable	Quartz clockwork mechanism

4. Technical data

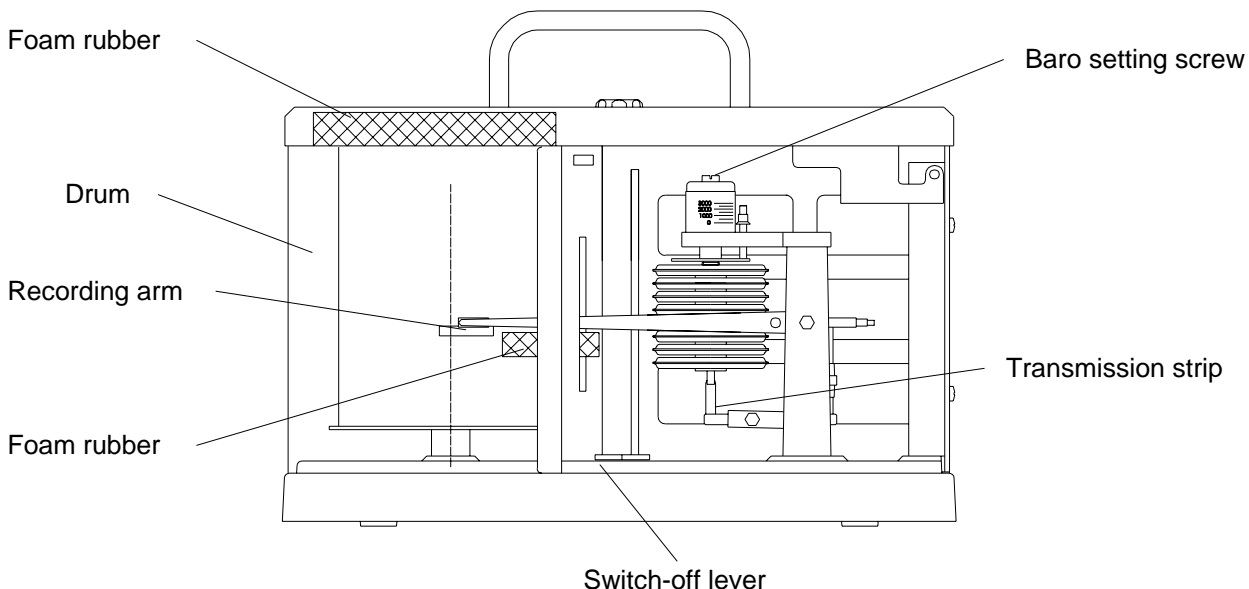
Measuring range	: 945 ... 1052 hPa
Accuracy	: $\pm 0,8$ hPa
Graduation	: 1 hPa
Altitude range	: 0 ... 3000 m
Ambient temperature	: -10 ... +45°C
Spring clockwork mechanism	
Recording time	: 1 day / 7 days resp. 14 days / 31 days (see models available)
Thrust	: 11.45 mm/h ; 40.01 mm/day resp. 20 mm/day; 9 mm/day
Gear accuracy	: ± 60 s/day 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
Gear accuracy	: ± 2 s/day
Battery capacity	: > 1 year at 20°C (1,5 V mignon battery)
Drum clockwork	: S 93 x 93, similar to DIN 58658
Recording chart	: similar to DIN 16232
Recording width	: 82 mm
Weight	: 2.3 kg

Scale Drawing



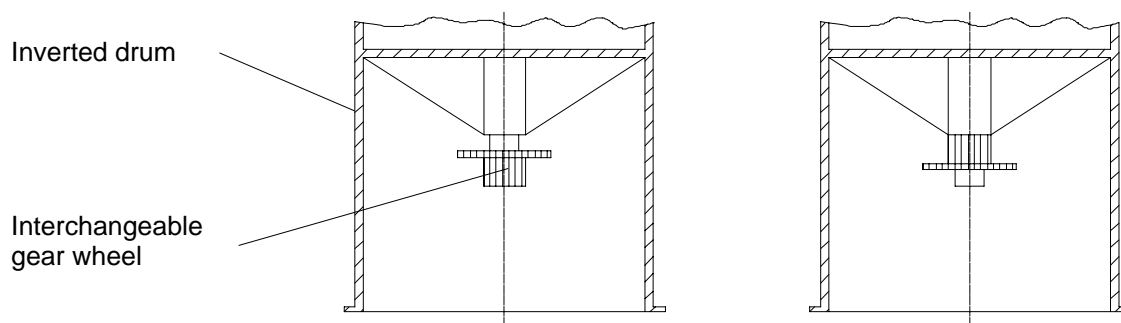
5. Preparation for use

Press the lock knob to open the cover of the instrument and remove the foam rubber (used for transport) from the clockwork. Press the switch-off lever to the left to raise the recording pens from the recording strip.



Setting the desired recording time

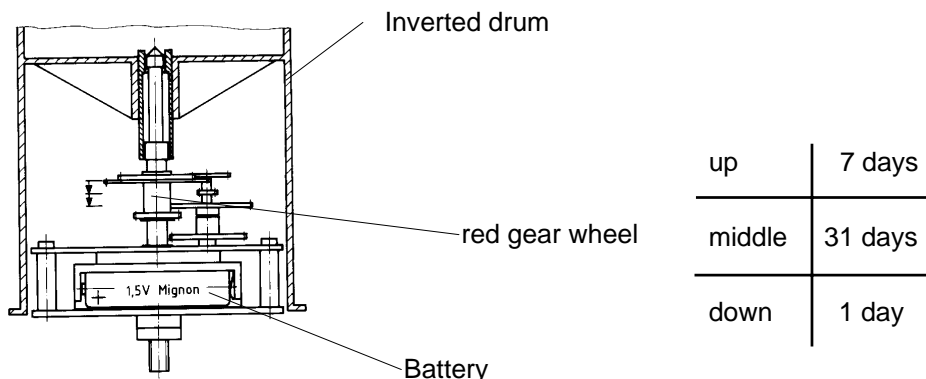
For instruments with a spring clockwork mechanism, unscrew the winding key by turning it towards the right and remove the inverted drum from the driving mechanism. The desired recording time can be set by changing the interchangeable gear wheel on the drum.



Order no.	Recording time	Recording time
3.0800.10.000	1 day	7 days
3.0804.10.000	14 days	31 days

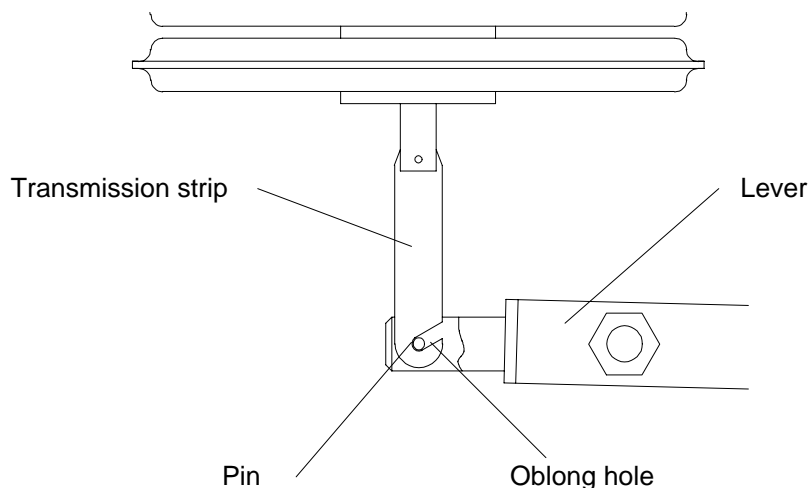
Instrument with Quartz Clockwork

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.



Place the recording strip onto the inverted drum (see 7.1 Changing the recording strip) and insert this onto the drive mechanism until it locks into place!

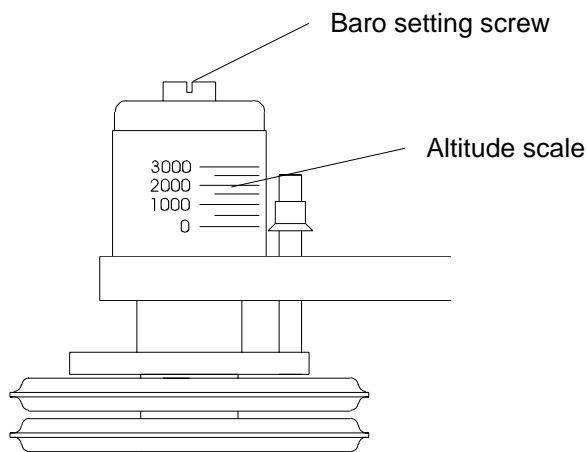
Remove the recording arm from the foam rubber (transport safety device). Check whether the transmission strip and the shift lever are in position beneath the pressure case as shown in the illustration. If necessary, raise the recording arm and suspend the pin in the oblong hole.



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.

6. 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.

7. Maintenance

7.1 Changing the recording strip

This should be carried out regularly at the timepoint where the recording strip starts; for example if you are using a 7 day recording period, then change the strip early Monday mornings. After tilting 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 counterclockwise to the correct time. The instrument is now ready for use.

Spare recording strips, (1 set = 100 sheets) Order no.-key

Recording time	1 day	7 days	14 days	31 days
Order no.	205 184	205 182	205 185	205 186

7.2 Changing the felt pen

When the felt pen is worn out, remove it from the recording arm. Remove the tip protection from the new pen. Place the new pen onto the recording arm, taking care that you do not brush against the tip. Never try to write with this pen by hand.

Spare felt pens, (minimum of 6) Order no. 500 847

7.3 Checking and resetting the air pressure

As already described in point 1 „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.

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

Example:

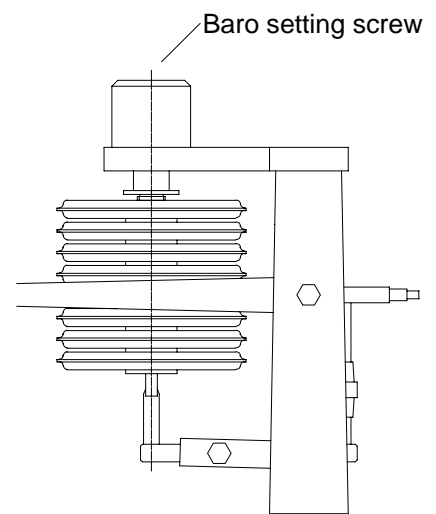
Site : Nürnberg
Elevation Z : 309 m
Air pressure P_{qfe} : 920,3 hPa (mercury barometer)

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

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.





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