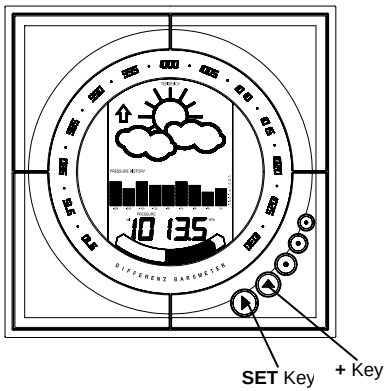
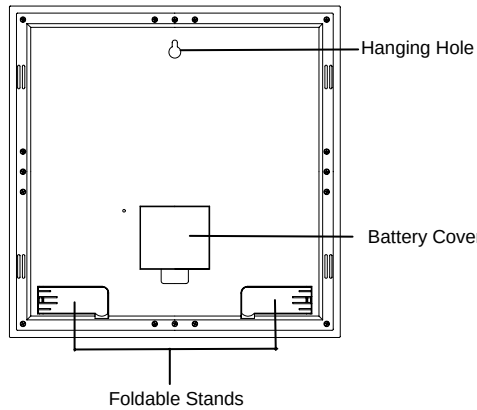
Barometer

1 Introduction

Congratulations on purchasing this LCD Barometer as an example of innovative design and state of the art weather instrument. Featuring the current pressure reading, pressure history over the last 36 hours, pressure-tendency of the last 2 hours and weather forecast, this unit is ideal for use in the home or office. Operation of the Barometer is simple and straightforward and by reading this operating manual, users will receive a better understanding of all its features.

Barometer





2 Features

Barometer

- Three weather icons for weather forecasting
- Weather tendency indicators
- Storm warning
- Graphic display of air pressure history for the last 36 hours
- Pressure tendency for the last 2 hours
- Display of Absolute air pressure in hPa/inHg
- Display of Relative air pressure in hPa/inHg with calibration facility
- Table standing or wall mounting

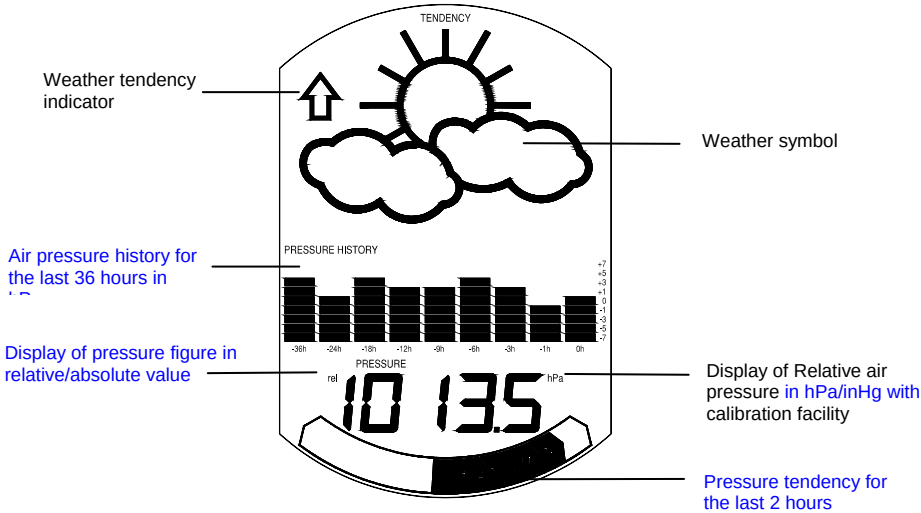
3 Subject Index

For users wanting additional information on the functions of the Barometer there is an alphabetically listed subject index at the back of this manual offering a number of technical and functional explanations. For basic use and operation of this product, the information in the subject index is not necessary.

All topics listed in the subject index are marked by an index sign [S x)] on their respective positions in this manual.

4 LCD Screen

The Baromater LCD has 3 sections, for a more detailed description of the functions please see Items 4.1 thru 4.3 in this manual.

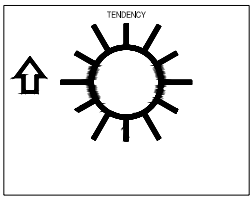


4.1 Section 1 - Weather forecast

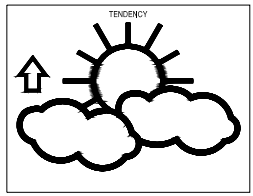
- Display of the weather forecast is in the form of three weather symbols and two weather tendency indicators located on either side of the weather symbols, which change according to the air pressure development.

4.1.1 Weather Symbols [S 1)]

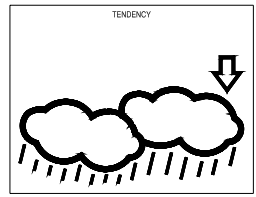
The three weather symbols in the following combinations will display the forecasted weather upon changes in air pressure:



Sunny



Cloudy with sunny intervals



Rainy

Common to weather forecasting, absolute accuracy cannot be guaranteed. The weather forecasting feature is estimated to have an accuracy level of about 75% due to the various areas it has been designed to be used in.

4.1.2 Weather Tendency Indicators [S 2)]

The weather tendency indicator arrows are located to the two sides of the weather symbols. They indicate the air pressure development and thus, also provide a forecast of the weather to be expected.

The tendency arrows can be displayed as follows:

- **Tendency arrow pointing upwards:**
  This means that the air pressure is increasing and the weather is expected to improve.
- **Tendency arrow pointing downwards:**
  This means that the air pressure is decreasing and the weather is expected to become worse.

4.2 Section 2 - Last 36 hours pressure history [S 3)]

The bar graph shows in Hekto Pascal (hPa) the air pressure history of the last 36 hours in 9 steps, at the points 0, -1, -3, -6, -9, -12, -18, -24 and -36 hours. Display of the history of air pressure in the past in form of a graph consisting of vertical bars.

4.3 Section 3 - Pressure figure and last 2 hours pressure tendency [S 4)]

- On the bottom part of the LCD - depending on programming conditions - display of the current Absolute or Relative air pressure [S 5)] in hPa (Hekto-Pascal) or inHg (Inch Column of Mercury).
- If the air pressure decreases at a faster rate than normal a stormy cloud symbol will flash above the air pressure display as an indication of possible storm. Flashing will stop when the air pressure stays stable or starts to increase.

5. Function Keys

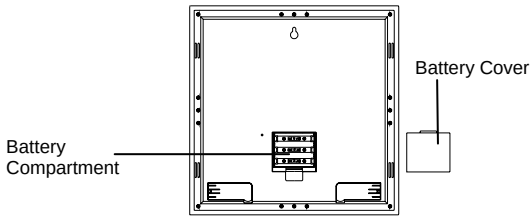
SET Key

- Serves in normal mode to enter the programming mode and - once in programming mode - the selection of the various setting modes as well as the acknowledgements of the selected values.

+ Key

- To modify different parameters in the set mode.
- To toggle between absolute and relative pressure value display in the normal mode.

6 Operation



6.1 Setting up

1. Slide the battery cover open on the Barometer as indicated
2. Checking the correct polarities, insert 3 x AA, IEC LR6 1.5V batteries into the battery compartment and replace the cover.
3. Once the batteries are in place, beep sound shortly, and then, all segments of the LCD will be light up briefly.
4. Your Barometer is now operational.

Note:
When replacing the battery covers, ensure that the batteries do not spring free from the contacts as this may cause start up problem.

6.2 Reset

This is required if setting up problems are encountered such as partial display of LCD segments or if the user is moving the product from it's initial standing place to a new location that is considerably higher or lower in altitude (to avoid inaccurate readings).

1. Remove the batteries from Barometer.
2. Wait at least 30 seconds and then repeat the procedures specified in Item **6.1 Setting up** above.

7 Programming

7.1 Programming from Normal Display Mode

The programming mode can now directly be entered by pressing the **″SET″** key for about 1 second.

During programming, all the modes listed below can be chosen and changed by the user by pressing the **″SET″** key to enter the selection modes and **“+”** key to change the parameters.

1. Selection Mode hPa or inHg
2. Calibration Mode Relative hPa/inHg
3. Sensitivity of Weather Forecast (Change in hPa)
4. Sensitivity of storm warning
5. Storm warning alarm On/Off

7.2.1 Selection Mode hPa or inHg [S 5)]

1. Display hPa or inHg will start flashing in Section 3 (Default setting rel. hPa). Using the **″+″** key, select the air pressure reading mode required.
2. Press the **″SET″** key to switch to the **″Calibration Mode Relative hPa/inHg″**.

7.2.2 Calibration Mode Relative hPa/inHg [S 5)]

1. The digits of the Relative hPa or inHg display will start flashing in the lower section of the LCD. Using the **″+″** key select the desired setting in ″hPa″ (from 970 hPa to 1030 hPa) or in ″inHg″ (from 28.60 inHg to 30.45 inHg).
2. Press the **″SET″** key to move to the **″ Sensitivity of Weather Forecast ″**.

Note: This calibration facility is useful for those users living at various elevations above sea level, but wanting their air pressure display based at sea level.

7.2.3 Sensitivity [S 6)] of Weather Forecast (Change in hPa)

1. The hPa sensitivity will start flashing in the air pressure part of the LCD (Default setting is 3). Using the **″+″** key select the desired sensitivity level (2, 3 or 4 hPa) leading to a change of the forecast weather symbols.
2. Press the **″SET″** key to enter the **″ Sensitivity of storm warning ″**.

7.2.4 Sensitivity of storm warning

1. The hPa sensitivity will start flashing in the air pressure part of the LCD (Default setting 6). Using the **″+″** key select the desired sensitivity level (4, 5, 6, 7 or 8 hPa) leading to the activation of storm warning feature.
2. Press the **″SET″** key to switch to the **″ Storm warning alarm On/Off ″**.

7.2.5 Storm warning alarm On/Off

1. Either a **″AL.On″** or **″AL.OF″** will appear on the LCD. (Default setting “AL.OF”).
2. Press **″+″** key, Select**″AL.On″** to set the storm warning alarm ON, or **″AL.OF″** to set the storm warning alarm OFF.
3. Press the **″SET″** key to return back the normal display.

7.3 Selection Mode Relative hPa/inHg or Absolute hPa/inHg display

- Using the **″+″** key, select the air pressure reading between the relative and absolute display mode.

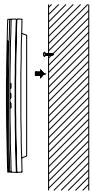
Note:
The display of the Absolute air pressure cannot be changed by the user.
If the display of the Relative air pressure needs to be calibrated to the elevation of your location with regard to sea level then choose the display mode Relative hPa/inHg.

8 Positioning

The Barometer can be either placed standing onto a flat surface or hung onto a wall.

To stand on a flat surface:

Simply unfold the 2 stands at the back of the unit and place on a flat surface.



To wall mount:

1. Fix a screw (not supplied) into the desired wall, leaving the head extended off the wall by about 5 mm.
2. Using the Barometer's hanging hole at the back of the unit, carefully and securely hang it onto the screw

Note:
To avoid damage always ensure that the Barometer locks onto the screw before releasing.

9 Important Notes

- Avoid placing the Barometer where it can be exposed to sudden changes in temperature, i.e. direct sunlight, extreme cold and wet/moist conditions since the design of this product is for indoor use only. This will help to avoid any inaccurate readings and any possible damage to the unit.
- Should the Barometer be exposed to extreme and sudden temperature changes, it will lead to rapid changes in its readings and thereby reduce its accuracy.
- Should the Barometer be moved to another location that is significantly higher or lower than its initial standing point (e.g. from the ground floor to the upper floors of a house), then either reset the unit or discard the readings for the next 12 to 24 hours. By doing so, this will allow sufficient time for operation at a constant altitude and thus enabling a more accurate forecast.

10 Care and Maintenance

- Avoid placing the unit in places prone to extreme temperatures, vibration and shock as these may cause damage and inaccurate readings.
- When cleaning the Barometer's display and casing, use a soft damp cloth only. Do not use solvents or scouring agents as they may mark the LCD and casing.
- Do not submerge the unit in water.
- Immediately remove all low powered batteries to avoid leakage and damage. Replace only with new batteries of the recommended size.
- Do not make any attempts to repair the unit. Return them to its original point of purchase for repair by a qualified engineer. Opening and tampering with the units may invalidate their guarantee.

11 Battery Change

For best performance, batteries to the unit should be replaced at least once a year to maintain maximum running accuracy.

Please help in the preservation of the environment and return used up batteries only to an authorized depot.

12 Specifications

Pressure measuring range		
Air pressure [S 7)]		
Absolute hPa	:	850 hPa to 1100 hPa
Relative hPa (selectable)	:	970 hPa to 1030 hPa
Relative inHg (selectable)	:	28,60 inHg to 30,45 inHg
Sensitivity setting hPa	:	2, 3 and 4 hPa
Air pressure history	:	For the past 36 hours (0, -1, -3, -6, -9, -12, -18, -24 and -36)
Last 2 hour air pressure tendency:	:	-4hPa to +4hPa
Power source	:	3 x AA, IEC LR6 1.5V Batteries (Alkaline batteries recommended)
Dimensions (L x W x D)	:	280 x 36.5 x 280mm

13 Liability Disclaimer

- The manufacturer and supplier cannot accept any responsibility for any incorrect readings and any consequences that occur should any inaccurate reading take place.
- This product is not to be used for medical purposes or for public information.
- This product has been designed for strict use in the home as an indicator of the future weather and is not 100% accurate. Weather forecasts and barometric readings given by this product should be taken only as an indication and not as being totally accurate.
- The specifications of this product may change without prior notice.
- This product is not a toy. Keep out of the reach of children.
- No part of this manual may be reproduced without written consent of the manufacturer.

14 Subject Index

The additional information listed below is for users requiring a more detailed explanation into the functions of the Barometer. However knowledge of such information is not necessary for basic operation of this product.

[S 1)] Weather Symbols

For every sudden or definite change in air pressure, the weather symbols will update accordingly to represent this change. This means that the icons will not change if there is no noticeable movement in the weather. If the symbols do not change it simply means that either

1. the weather has not changed or
2. the weather change has been so slow that is not possible to read when the actual change had taken place.

The sensitivity to air pressure changes responsible for a change of the display of weather icons is programmable (2, 3 or 4 hPa). In areas where weather icons do not change easily because of almost stagnant air pressure, users may consider setting a lower hPa setting to allow for a more sensitive air pressure reading. The weather icons displayed forecast the future weather in terms of getting better or worse and not necessarily sunny or rainy as each icon indicates. E.g., if the current weather is cloudy and the rain icon is displayed, it does not mean that the product is faulty because it is not raining. It simply means that the air pressure has dropped and the weather is expected to get worse but not necessarily raining.

[S 2)] Weather Tendency

Because of the combination of weather icons and weather tendency arrows, the Barometer can also show how the weather has changed and is expected to change. E.g., if the tendency arrow pointing downwards is displayed along with the cloud and sun symbols then the last noticeable change in the weather was when it was sunny (sun icon only). This means that the next change in weather will show the rainy icon since the tendency indicator is pointing downwards.
The weather tendency indicator arrow will remain on the LCD regardless of the weather. E.g., if the current weather is raining and the indicator is pointing downwards, it means that the weather will remain poor. If the weather is sunny and the indicator is pointing upwards, it means that the weather is expected to continue being fine.
Does the air pressure drop at an extreme rate of 4 hPa or more in six hours the stormy cloud icon in Section 1 of the LCD will flash as an indication of possible storm. The flashing will cease only if the air pressure stays stable or starts to rise again.

S 3) Air Pressure History

The bar graph of the electronic barometer shows the air pressure history of the past 36 hours in 9 steps at the points 0, -1, -3, -6, -12, -18, -24 and -36 hours. The bars are plotted at each of the 9 steps and give the trend over the recorded period. The scale on the right compares the result. The ″0″ in the middle of this scale determines the current air pressure. Each change (±1, ±3, ±5 and ±7) shows in Hekto-Pascal (hPa), how high or low the past air pressure was as compared to the current one. If the bars are rising it indicates that the weather is getting better due to an increase in air pressure. If the bars go down it indicates a drop of the air pressure and the weather is expected to get worse from the present time ″0″.

At every full hour the current air pressure is used as a basis for the display of a new graph bar. The existing graph is then moved one bar to the left.

S 4) Pressure Tendency for the last 2 hours

The small bar graph of the electronic barometer shows the air pressure tendency of the last 2 hours. Each change (±0.2, ±0.5, ±1,±2 and ±4) shows in Hekto-Pascal (hPa). Every pressure measurement the current average pressure is compared with the 4 recorded pressures in last 2 hours. The maximum difference between the current average pressure and all the 4 compared is displayed on the small bar graph from range ± 4 hPa.

S 5) Air Pressure, Absolute/Relative

The display of the current air pressure on the Barometer takes place in Absolute hPa (Hekto-Pascal) or inHg (Inch Column of Mercury) and Relative hPa or inHg. The setting in Absolute hPa or inHg gives the display of the true air pressure at the current time and location and cannot be calibrated, while the display of the Relative hPa or inHg bases on a manually programmable setting range.

Relative air pressure is the one value which is calculated back to sea level from the local Absolute air pressure and is thus valid as a reference for weather conditions or weather development for the entire country (so for example an Absolute air pressure of 961 hPa in Munich at an approximate altitude of 600 Meters above sea level corresponds to a Relative air pressure of 1021 hPa at sea level). Relative air pressure also is the one value given by the various TV and radio broadcasting stations in their daily weather forecasts for their respective locations. If the Barometer needs to be calibrated it is therefore recommended to get the currently valid Relative air pressure at your radio station or your local weather services.

For accurate reading of the barometric values the Barometer should be kept at a constant altitude at all times. E.g. it should not be randomly moved from the ground level to the upper floors of a building. If this should be necessary, then a setup or reset should be performed and all weather readings should be discarded for the next 12 to 24 hours. This will allow sufficient time for the Barometer to operate at a constant altitude and thus enable an accurate reading.

The pressure figure display of the Barometer bases on the average value of the last 8 air pressure measurements. The calculation of the average takes place after every reading. If the new pressure value has a difference of 1.0 hPa or more to the old average, it will be set to the new value.

S 6) Sensitivity (hPa)

This feature allows the Barometer to be used more accurately by setting the hPa (Hekto Pascal) sensitivity to match the users external living environment such as maritime or high altitude areas where the changes in air pressure are very different to each other. In areas that experience frequent changes in air pressure (which does not necessarily reflect a change in the weather), the sensitivity level can be set higher compared to an area where the air pressure is stagnant. E.g. if the hPa sensitivity is set to 3 hPa, then there will be no change of weather symbols if the air pressure does not drop or increase by at least 3 hPa. For areas where the air pressure is stagnant, then the hPa sensitivity can be set lower.

S 7) Software Operations

- **Air Pressure**
  The software of the Barometer will perform measurements of the current air pressure about every 1 minute.