Operating Manual
Barometer
GPB 2300

CE

Specification

Measuring Range:	Abs. Pressure: 0 ... 1300 mbar, resolution 1mbar	resp.	0 ... 975 mmHg, resolution 1mmHg
Max. Overpressure:	2000 mbar	resp.	1500 mmHg
Accuracy: (±1 Digit)	+/- 0.25% FS hysteresis and linearity		
(at nominal temperature = 25°C)	+/- 0.50% FS temperature dependency 0 to 50°C		
Offset and Scale:	digital offset and scale correction for pressure measuring		
Measuring Frequency:	1 measuring per second		
Display:	approx. 13 mm high, 3½-digit LCD		
Operation Elements:	3 keys for ON/OFF, min-/max-value display, zero setting		
Min-/Max-Value Memory:	Min and max measured value are stored		
Sea Level Correction:	By entering the elevation above sea level, the pressure at sea level can be displayed		
Zero Function:	Difference measuring: the display value is set to zero		
Ambient Conditions:	-25 to 50°C; 0 to 80% RH. (not condensing)		
Storage Temperature:	-25 to 70°C		
Power Supply:	9V-battery type JEC 6F22 (in scope of supply)		
Power Consumption:	approx. 120µA		
Batterylife:	Standard zinc carbon battery more than 2500 hours!		
Battery Change Indicator:	automatically if battery is used up: "BAT"		
Auto-Off-Function:	when the Auto Off Function is activated, the device switches automatically off, if keypad is not attended for a longer time (selectable 1..120min).		
Housing:	impact-resistant ABS, transparent panel, front side IP65		
Dimensions:	appox. 106 x 67 x 30 mm (L x W x D)		
Weight:	approx. 135g incl. battery		
EMC:	The GPB2300 device corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (89/336/EWG). Additional fault: <1%		

⚠ Safety instructions:

This device has been designed and tested in accordance to the safety regulations for electronic devices.
However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using it.

1. Trouble-free operation and reliability of the device can only be guaranteed if it is not subjected to any other climatic conditions than those stated under “Specification”.
   If the device is transported from a cold to a warm environment condensation may result in a failure of the function. In such a case make sure the device temperature has adjusted to the ambient temperature before trying a new start-up.
2. If there is a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting. Operator safety may be a risk if:
   - there is visible damage to the device
   - the device is not working as specified
   - the device has been stored under unsuitable conditions

   In case of doubt, please return device to manufacturer for repair or maintenance.
3. **Warning:** Do not use these product as safety or emergency stop device, or in any other application where failure of the product could result in personal injury or material damage.
   Failure to comply with these instructions could result in death or serious injury and material damage.
4. The battery has to be taken out, when storing device above 50°C.
   It is recommended to take the battery out, when storing device for a longer period of time.

Measuring And Functions

Measuring The Athmospheric Pressure

The device measures the absolute pressure of the ambient atmosphere. This is not necessarily the same like the values given by weather stations! The weather stations‘ values are pressure at sea level. Usually the sensor is placed above sea level and therefore, if the value at sea level(zero) is to be measured, the pressure loss resulting from the actual elevation above zero has to be considered! The device can correct the pressure. Therefore S.L (Sea Level correction) has to be activated in the configuration (= “on“) and the elevation above sea level (Alt = Altitude in [m]) has to be entered to get the correct value.

Zero-Function

By means of the zero-function relative measurings can be made: press “zero“-key for 2 seconds – “nuL“ will be displayed shortly (abbreviation for „null“) and the display will be set to 0, pressing “zero“ for 2 seconds again: Absolute value will be displayed again.

MIN/MAX Value Memory

watch MIN value (Lo):	press key ‘Mode‘ shortly once	display changes between ‘Lo‘ and MIN value
watch MAX value (Hi):	press key ‘Mode‘ shortly once again	display changes between ‘Hi‘ and MAX value
restore current value:	press key ‘Mode‘ shortly once again	current value is displayed
clear MIN-/MAX- value:	press key ‘Mode‘ for 2 seconds	MIN and MAX value are cleared. The display shows shortly ‘CLr‘.

Configuration Of The Device

To configure the instrument proceed like follows:

1. Switch off the instrument.
2. Press the ‘Mode‘ key while switching on the instrument, keep ‘Mode‘ key pressed until ‘P.oF‘ appears (after about 3 seconds).

I.) Auto Power Off Time „P.oF“

The auto power off time is entered in minutes. If no key is pressed during a measuring, the instrument switches itself off automatically after the entered period of time.

3. Press ‘Mode‘ or ‘Zero‘ key, the currently selected power off time will be displayed (off, 1..120min)
4. Enter the desired time by pressing ‘Mode‘ or ‘Zero‘ key.

   Possible input: off: The auto power off function is deactivated (permanent operation)
   1...120: auto power off time in minutes.
5. Confirm the value by pressing ‘On/Off‘ key, ‘Uni‘ appears in the display

II.) Display Unit „Uni“:

6. Press ‘Mode‘ or ‘Zero‘ key, the currently selected unit will be displayed: mBar = hPascal (‘hPA‘) or mmHg (‘nHg‘)
7. Enter the desired unit by pressing ‘Mode‘ or ‘Zero‘ key.
8. Confirm the value by pressing ‘On/Off‘ key, ‘S.L‘ appears in the display

III.) Sea Level Correction „S.L“:

The sea level correction corrects the measured pressure to the pressure value above sea level (zero altitude)

9. Press ‘Mode‘ or ‘Zero‘ key, the currently selected state of the sea level correction will be displayed
10. Enter the desired state by pressing ‘Mode‘ or ‘Zero‘ key.

    selectable values are: off: sea level correction deactivated
    on: sea level correction activated
11. Confirm with ‘On/Off‘-key: S.L = on: ‘Alt‘ appears in the display
    S.L = off: values will be stored, the instrument will restart (segment test). End of configuration.

IV.) Entering the Altitude For The Sea Level Correction „Alt“:

Here the current elevation above sea level has to be entered.

12. Press ‘Mode‘ or ‘Zero‘ key, the currently selected elevation for the sea level correction will be displayed
13. Enter the desired state by pressing ‘Mode‘ or ‘Zero‘ key.

    selectable values are: -199.. 1999m
14. Confirm the value by pressing ‘On/Off‘ key. The values will be stored, the instrument will restart (segment test).

Please note: If during the configuration no key is pressed within 20 seconds, the configuration will be aborted. Eventually made changes won’t be stored!

Offset and Scale Adjustment

The offset and scale adjustment is intended to be used to compensate errors of the internal pressure sensor.
The display value is given by following formula:

Display = (measured value - offset) * (1 + scale adjustment / 100)

To adjust a measuring offset and scale proceed like follows:

1. Switch off the instrument.
2. Press the ‘Zero‘ key while switching on the instrument, keep ‘Zero‘ key pressed until ‘OFS‘ appears (after about 3 seconds).
3. Press ‘Mode‘ or ‘Zero‘ key, the currently selected offset adjustment appears.
4. Choose the desired value by pressing ‘Mode‘ or ‘Zero‘ key. (max. input range: ±20mbar)
5. Enter by pressing On/Off-key: SCL appears in the display
6. Press ‘Mode‘ or ‘Zero‘ key, the currently selected scale adjustment appears
7. Choose the desired value by pressing ‘Mode‘ or ‘Zero‘ key. (max. input range: ±1.99%)
   The input is displayed in %.
   example*: scale adjustment is 1.00 => scale is increased by 1.00% => Scale = 101%*
   At a measured value of 1000 (without offset correction) the instrument would show 1010
8. Store the values by pressing ‘On/Off‘ key. The instrument will restart (segment test).

Please note: If during the changing of the offset adjust no key is pressed within 20 seconds, the input will be aborted. Eventually made changes won’t be stored!

System Messages

Er. 1 = measuring range has been exceeded
Er. 2 = meas. value has fallen below perm. range
Er. 3 = display range has been exceeded (>1999)
Er. 4 = meas. value has fallen below displayable range (<-199)
Er. 7 = System fault - the device has detected a system fault (defective or far outside allowable ambient temperature range)
--- = Sensor error or value could not be calculated

If the symbol **"BAT“** is displayed at the left side of display, the battery is weak, measuring can be continued for a certain time.
If “bAt“ is displayed in the main display the battery is used up and needs to be replaced. Measuring is no more possible.