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# Instruction Manual

## AD 1000 / BA 1000

### Absolute Pressure Sensor



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## Purpose of instruction manual

This instruction manual describes the features of the AD 1000 absolute pressure sensor / BA 1000 barometer and provides guidelines for its use.

Improper use of these instruments or failure to follow these instructions may cause injury or equipment damage. Every person who uses this device must therefore read the manual and understand the possible risks. The instruction manual, and in particular the safety precautions contained therein, must be followed carefully.

**Contact the manufacturer if you do not understand any part of this instruction manual.**

Handle this manual with care:

- It must be readily available throughout the lifecycle of the instrument.
- It must be provided to any individuals who assume responsibility for operating the instrument at a later date.
- It must include any supplementary materials provided by the manufacturer.

The manufacturer reserves the right to continue developing this instrument model without documenting such development in each individual case. The manufacturer will be happy to determine whether this manual is up-to-date.

## Conformity

This instrument corresponds to the state of the art and meets all legal requirements set forth in EC directives as evidenced by the CE label.



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The manufacturer owns the copyright to this instruction manual. This manual contains data, instructions and drawings pertaining to the features and usage of this instrument; copying this manual in part or in full or distributing it to third parties is prohibited.

# 1 Safety precautions

## 1.1 Appropriate use

The AD 1000 absolute pressure transducer / BA 1000 barometer is designed for displaying atmospheric pressure and absolute pressure in such areas as weather stations and airports.

Always observe the operating requirements—particularly the permissible supply voltage—indicated on the rating plate and in the “Technical data” section of this manual.

The instrument may only be handled as indicated in this manual. Modifications to the instrument are prohibited. The manufacturer is not liable for damages caused by improper use or failure to follow these instructions. Violations of this type render all warranty claims null and void.

## 1.2 Shipping, assembly, electrical connections and start-up

Do not close the pressure input ports when shipping, as changes in barometric pressure could damage instruments with low measuring ranges.

Only technical personnel who are appropriately trained and authorized by the operator of the facility may assemble the instrument and set up its electrical connections.

The instrument may only be operated by appropriately trained individuals who have been authorized by the operator of the facility.

Pressurized air or breath is not to be used for performance tests, as this could damage instruments with low measurement ranges.

Measurement errors may occur if the instrument is not kept protected from sunlight.

Specific safety precautions are given in individual sections of this manual.

## 1.3 Troubleshooting, maintenance, repairs, disposal

The individual responsible for the electrical connections must be notified immediately if the instrument is damaged or if errors occur.

This individual must take the instrument out of service until the error has been corrected and ensure that it cannot be used unintentionally.

### **Always unplug the power cord before opening the instrument!**

This instrument requires no maintenance.

Only the manufacturer may perform repairs that require the housing to be opened.

The electronic components of the instrument contain environmentally hazardous materials and materials that can be reused. For this reason the instrument must be recycled in accordance with the environmental guidelines of the jurisdiction in question once it has been taken permanently out of service.

#### 1.4 Symbols

The symbols given below are used throughout this manual to indicate instances when improper operation could result in the following hazards:



**WARNING!** This warns you of a potential hazard that could lead to bodily injury up to and including death if the corresponding instructions are not followed.



**WARNING:** This warns you of a potential hazard that could lead to significant property damage if corresponding instructions are not followed.



**INFORMATION:** This indicates that the corresponding information is important for operating the instrument properly.

## 2 Instrument description

The AD 1000 absolute pressure transducer / BA 1000 barometer is designed for displaying atmospheric pressure and absolute pressure in such areas as weather stations and airports.

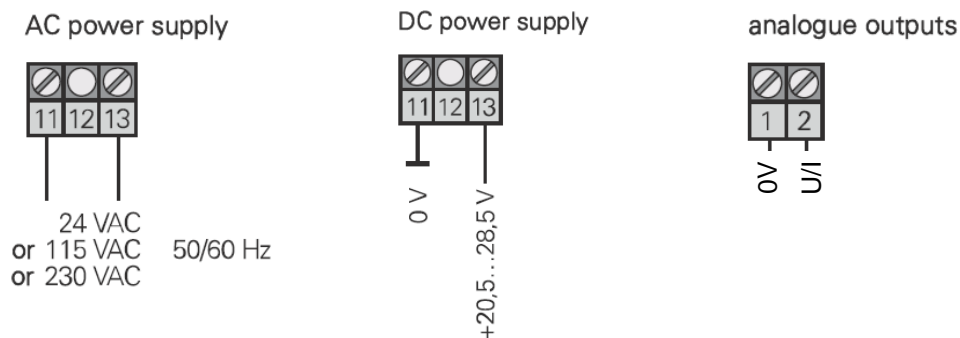
At the heart of the unit is an evacuated CuBe chamber that contracts in proportion to barometric pressure. An inductive displacement transducer measures the movement of the chamber without making contact. The pressure port is led through in the AD 1000.

## 3 Start-up

### 3.1 Features

Although the AD 1000 absolute pressure transducer / BA 1000 barometer is highly robust, it is nevertheless a precision instrument and should be handled with care. Avoid mounting the AD 1000 / BA 1000 in the direct vicinity of any sources of heat or radiation. Ideally, the instrument should be mounted vertically (pressure and vacuum ports should be pointing down) and on a wall not subject to vibration.


### 3.2 Electrical instrument connections:



**Observe the required supply voltage (see rating plate).**

The pressure transducer is protected against reverse polarity of the supply voltage. The signal output is protected against short circuits for a short period.

## 4 Technical data

<b>Measurement data</b>	
measurement ranges	AD 1000: 0...50 kPa 0...100 kPa 80...120 kPa 90...110 kPa 100...0 kPa BA1000: 80...120 kPa 85...115 kPa 90...110 kPa 95...115 kPa
Margin of error (setting limiting value)	±1 % reference ± 0.5 hPa with respect to sea level
temperature-dependent drift in zero point	0.04%/ K (within the +10°C...+60 °C range)
temperature-dependent drift in measurement range	0.04%/ K (within the +10°C...+60 °C range)
calibration temperature	+22 °C
long-term drift	0.3 hPa / year
<b>Ambient conditions</b>	
medium	air, all non-aggressive gases
operating temperature	+10° C to +60° C
storage temperature	-10° C to +70° C
relative humidity	0...80 %
EMC standards	CE
conformity	 certificate of conformity on last page of this document
<b>Electrical data</b>	
power consumption	max. 3 VA
supply voltage	230 VAC +6 % -15 % 115 VAC +6 % -15 % 24 VDC +20 % -15 % 24 VAC ±10 %, 50/60 Hz
output signal	0 to 10 V, 0 to 20 mA or 4 to 20 mA
minimum load resistance $R_L$	$R_L \geq 2 \text{ k}\Omega$ for an output voltage of 0...10 V maximum effect of load resistance = 0.3%
maximum output load $R_B$	$R_B \leq 500 \Omega$ for current output output load dependence: < 0.3 %
reduction	0...850 m above sea level acc. to DIN ISO 2533:1979-12 $p = p_b \exp[-g_n R^{-1} T^{-1} (H - H_b) ]$

<b>Physical data</b>	
pressure port	Ø 6.5 mm for NW6 tubing
electrical connection	screw terminals for cables up to 2.5 mm <sup>2</sup> 2x PG 7 or 2x PG 11
mounting orientation	vertical (if horizontal, use potentiometer 0 to reset)
dimensions (w x h x d)	151 x 80 x 73 mm 122 x 120 x 75 mm (option with display)
protection class	IP54
weight	0.6 kg
options	<ul style="list-style-type: none"> <li>• ISO factory calibration certificate</li> <li>• DAkkS calibration certificate</li> <li>• 3½ place LCD</li> </ul>

#### Appendix A: Parts in contact with measurement medium

- Beryllium bronze CuBe2
- Brass CuZn39Pb3
- KEL (FPM: fluorinated rubber)
- Crastin (PTBP)
- Loctite 242e
- Araldite CY236 / HY988
- Carbonyl iron
- Viton (tubing)
- UHU-Plus endfest 300 binder

For additional specifications and dimension drawings, please visit our website at

<http://www.halstrup-walcher.de/en/products/measurement-technology/index.php>

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## 5 Certificate of conformity



Die Lösung liegt im Detail

**EG-Konformitätserklärung** im Sinne der  
EG- Richtlinie 2014/30/EU, EMV Richtlinie und  
2006/95/EG, Niederspannungsrichtlinie

**Certificate of Conformity** based on the  
European Standard 2014/30/EU, and 2006/95/EG

Der Hersteller  
The manufacturer

**halstrup-walcher GmbH  
Stegener Straße 10  
79199 Kirchzarten  
Deutschland**

erklärt, dass die Bauart des Produktes  
declares, that the construction of instrument type

**Differenzdruck-Messumformer Typ AD/BA1000  
Differential Pressure Transformer Type AD/BA1000**

entwickelt, konstruiert und gefertigt ist in Übereinstimmung mit den EG – Richtlinien  
is developed, designed and manufactured in accordance with the EC Directives.

EN 61000-6-2 : 2005  
EN 61000-6-4 : 2011  
EN 61010-1 : 2011

abgegeben durch / stated by:

Sura, Christian  
(Nachname, Vorname / Surname, first name)

Geschäftsführer, Managing Director  
(Stellung im Betrieb des Herstellers / Position )

Kirchzarten, 19.10.2016  
(Ort, Datum / City, Date)

  
(Rechtsgültige Unterschrift/ Signature)

