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***Baro Transmitter PTB 110***

**3.1158.x1.073**



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## **1 Models available**

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Description	Order-No.	Meas. Range	Output	Operating voltage
Baro Transmitter PTB	3.1158.01.073	800 ... 1060 hPa	0 ... 5 V DC	10...30 V DC
Baro Transmitter PTB	3.1158.11.073	600 ... 1060 hPa	0 ... 5 V DC	10...30 V DC

## **2 Application/Construction/Mode of Operation**

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The Baro Transmitter is equipped with a silicon capacitive pressure sensor. The sensor has been especially designed for accurate and stable measurement of barometric pressure.

The Baro Transmitter have 0...5 VDC output and they can be used in either three or four wire connection.

Shutdown mode is jumper selectable. With the shutdown mode enabled the barometers can be turned on/off by using an external TTL level signal.

## **3 Mechanical Mounting**

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The Baro Transmitter is used with air in non-conducting gases.

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**Remark:**

*The use with liquids or corrosive gases may damage the instrument!*

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The baro transmitter is equipped with a 1/8" hose connection, and is typically installed indoors or in weatherproof housing.

The baro transmitter should be installed vertically (connection clamp downwards) to prevent any ingress of condensed water.

### 3.1 Operating modes

The Baro Transmitter have two operating modes: **normal and shutdown**.

In the **normal operating mode** the barometer measures continuously when powered-up.

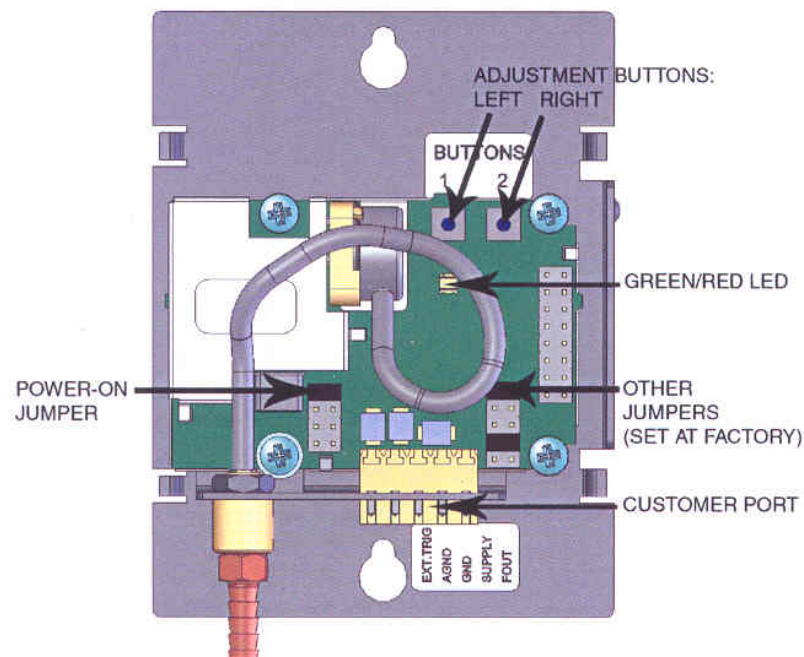
In the **shutdown operating mode** the barometer is turned on/off using an external TTL level signal.

**The baro Transmitter is supplied from factory in the normal operating mode**

The selection of the respective mode of operation is carried out by setting (= standard mode) or deleting (= shutdown mode) of a POWER-ON JUMPER which is situated below the covering of the housing top side.

The POWER-ON JUMPER is located on the board, on the right, beside the screw.

**Remark:** The other jumpers are factory-set, and cannot be changed.



### 3.2 Maintenance

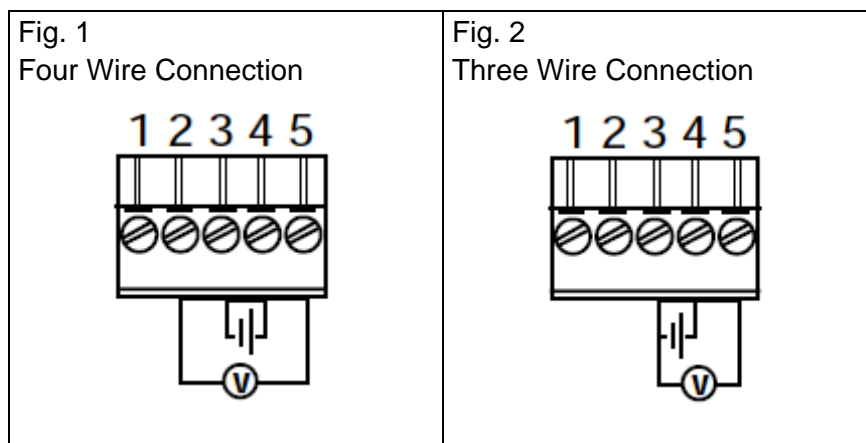
The baro transmitter is factory calibrated.

## 4 Electrical Mounting

The ground connections AGND and GNG are in the same electrical potential. The connection is carried out in four- or three-wire-technology (see fig. 1 and 2). Four wire connection is recommended to avoid the voltage drop in the supply ground line, which can affect the accuracy of the pressure measurement.

In normal operating mode no connection to the EXT.TRIG terminal is recommended.

The barometers are protected against reverse operating voltage.



Pin assignment of the terminal strip:

Pin Nr.	Terminal Strip	Function
1	EXT TRIG	External trigger input  Pin 1 is used as a power on/off switch in <b>shutdown mode</b> as follows: Power off    0 VDC Power on     5 VDC
2	AGND	Analogue signal ground
3	GND	Ground
4	SUPPLY	Supply voltage
5	VOUT	Voltage output

## 5 Evaluation

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The barometric pressure (P) can be calculated from measured output voltage (U) using a equation:

$$P = P_{low} + \frac{P_{range}}{U_{range}} \cdot U_{out}$$

$P_{low}$  Lower limit of the pressure range (hPa)  
 $P_{range}$  Pressure full range (hPa)  
 $U_{range}$  Voltage full range (V)  
 $U_{out}$  Measured output voltage (V)

Example for 3.1158.01.073:

Pressure range: 800...1060 hPa  
Voltage output: 0...5 V  
Measured output voltage: 4 V

$$P = 800hPa + \frac{(1060 - 800)hPa}{5V} \cdot 4V = 808hPa$$

Example for 3.1158.11.073:

Pressure range: 600...1060 hPa  
Voltage output: 0...5 V  
Measured output voltage: 4 V

$$P = 600hPa + \frac{(1060 - 600)hPa}{5V} \cdot 4V = 968hPa$$

## 6 Technical Data

Measuring range		3.1158.01.073 800 ... 1060 hPa 3.1158.11.073 600 ... 1060 hPa
Electrical output		0... 5 V DC
Ambient temperature		-40... +60°C
Humidity range		Non condensing
Measuring element		Silicon capacitive sensor
Accuracy	Linearity	±0.25 hPa
	Hysteresis	±0.03 hPa
	Repeatability	±0.03 hPa
	Calibration uncertainty	±0.15 hPa
Total accuracy	@ +15...+25°C	±0.3 hPa
	@ 0... +40°C	±0,6 hPa
	@ -20... +45°C	±1,0 hPa
	@ -40... +60°C	±1,5 hPa
Long-term stability		±0.1 hPa / year
Operating voltage		10 ... 30 V DC
Supply voltage control		with TTL „High“ trigger
Current consumption		< 4 mA < 1 µA in shutdown mode
Load resistace		10 k Ω Minimum
Load capacitance		47 nF Maximum
Pressure fitting		1/8"
Minimum pressure limit		0 hPa absolut
Maximum pressure limit		2000 hPa absolut
Electrical connector		Removable connector for 5 wires
Weight		0,090 kg
Housing classification		IP32
Dimensions		68,4 x 97,3 x 28,1 mm (WxHxD)

# 7 EC-Declaration of Conformity

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Month: 06 Year: 08

Manufacturer: **ADOLF THIES GmbH & Co. KG**

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Description of Product: **Baro Transmitter**

Article No.                   **3.1158.01.073**                   **3.1158.11.073**  
   **3.1158.00.075**                   **3.1158.10.075**

specified technical data in the document: **021569/04/08; 021485/03/06**

The indicated products correspond to the essential requirement of the following European Directives and Regulations:

- 2004/108/EC     DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
- 2006/95/EC     DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- 552/2004/EC    Regulation (EC) No 552/2004 of the European Parliament and the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)

The indicated products comply with the regulations of the directives. This is proved by the compliance with the following standards:

Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment for measurement, control and laboratory use.    Part 1: General requirements

Place: Göttingen

Date: 26.06.2008

Legally binding signature:

issuer:

.....  
Wolfgang Behrens, General Manager

.....  
Joachim Beinhorn, Development Manager

This declaration certifies the compliance with the mentioned directives, however does not include any warranty of characteristics. Please pay attention to the security advises of the provided instructions for use.



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