

## Instruction for Use

021486/03/06

# **Baro Transmitter B-278-1T / -2T**

3.1158.x0.075



### **ADOLF THIES GmbH & Co. KG**

Hauptstraße 76                      37083 Göttingen Germany  
Box 3536 + 3541                      37025 Göttingen  
Phone +49 551 79001-0              Fax +49 551 79001-65  
www.thiesclima.com                  info@thiesclima.com

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# 1 Models available

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Description	Order-No.	Meas. Range	Output	Operating voltage
Baro transm. B-278-1T	3.1158.00.075	800 ... 1060 hPa	0 ... 5 V DC	9,5...28 V DC
Baro transm. B-278-2T	3.1158.10.075	600 ... 1060 hPa	0 ... 5 V DC	9,5...28 V DC

## 2 Application/Construction/Mode of Operation

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The Baro Transmitter measures the „ABSOLUTE AIR PRESSURE“ of at the location. The Baro-Transmitter is designed for use in environmental applications that require excellent accuracy, fast dynamic response, and long-term stability and reliability.

To withstand the environmental extremes typically found in Automatic Weather Stations, the transmitter housing is made of environmental- and weather-proof materials. The electric connection is carried out via a 5-pole connector with screw-clamp.

The instrument operates in the temperature range from  $-40^{\circ}$  to  $+60^{\circ}\text{C}$ . The analogue output from 0-5V DC can be operated alternatively as 3- or 4-wire-circuit. The voltage supply is within a range from 9,5 – 28 V DC. The current consumption in the measurement mode is 3 mA nominal.

In the baro transmitter a capacitive ceramic-absolute-pressure sensor is used which features excellent thermal and mechanic stability.

## 3 Mechanical Mounting

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The baro transmitter is used with air (up to 95 % r. h.), and non-conducting gases.

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**Remark:**

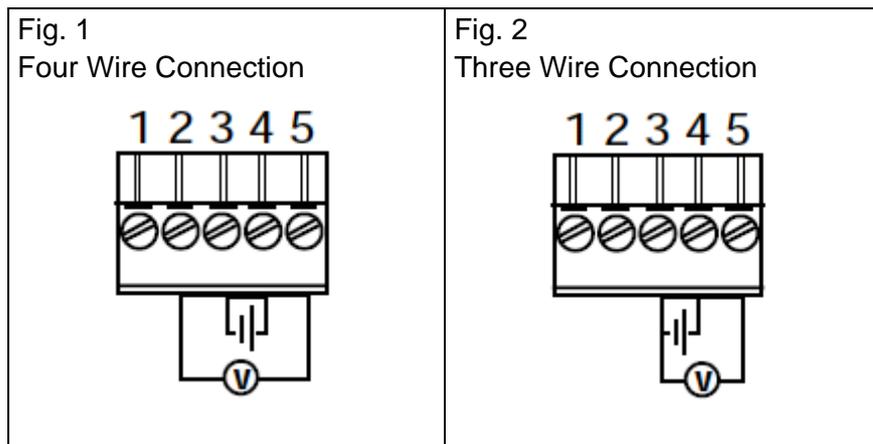
*The use with liquids or corrosive gases may damage the instrument!*

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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.

## 4 Electrical Mounting



Pin assignment of the terminal strip:

Nr.	Terminal Strip	Function
1	EXT TRIG	No function
2	AGND*	Analogue signal ground
3	GND*	supply ground (-)
4	SUPPLY	supply (+)
5	VOUT	output

\* Both grounds (AGND and GND) are in the same electrical potential in the baro transmitter.

### 4.1 Connection

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.

## 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 3.1158.00.075:

Pressure range: 800...1060 hPa

Voltage output: 0...5 V

Measured output voltage: 4 V

$$P = 800hPa + \frac{(1060 - 800)hPa}{5V} \cdot 4V = 1008hPa$$

### Example for 3.1158.10.075:

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 Maintenance

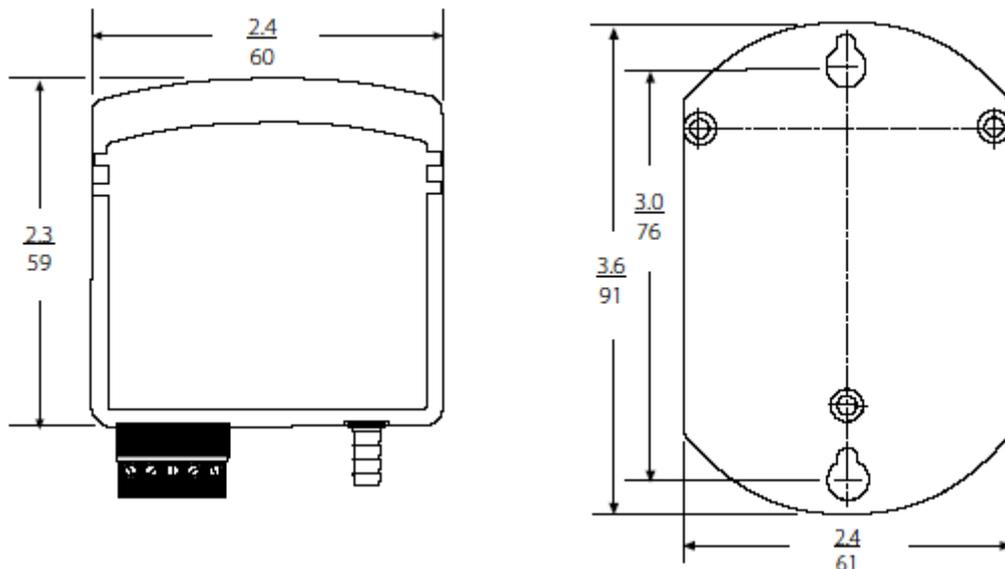
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Maintenance is not required. The baro transmitter is factory calibrated.

## 7 Technical Data

	3.1158.00.075	3.1158.10.075
Measuring element	capacitive	capacitive
Measuring range	800 ... 1060 hPa	600 ... 1060 hPa
Accuracy @ 20°C	± 0,3 hPa	± 0,5 hPa
Accuracy @ 0 ... 40°C	± 0,6 hPa	± 1,0 hPa
Accuracy @ -20 ... 50°C	± 1,0 hPa	± 1,5 hPa
Accuracy @ -40 ... 60°C	± 1,5 hPa	± 2,0 hPa
Linearity	± 0,25 hPa	± 0,4 hPa
Hysteresis	± 0,03 hPa	± 0,05 hPa
Long-term stability	± 0,1 hPa / year	± 0,1 hPa / year
<b>General</b>		
Electrical output	0 ... 5 V DC ( 0 V saturation voltage = 20 mV )	
Operating voltage	9,5 ... 28 V DC	
Current consumption	3 mA	
Electrical connection	Three- or four-wire technology	
Ambient temperature	-40...+60°C	
Connection	5 pole terminal strip	
Dimensions	61 x 91 x 25 mm	
Weight	0,14 kg	

## 8 Dimensional Drawing (inch / mm)



## 9 EC-Declaration of Conformity

Document-No.: 000111

Month: 06 Year: 08

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

Hauptstr. 76  
D-37083 Göttingen  
Tel.: (0551) 79001-0  
Fax: (0551) 79001-65  
email: Info@ThiesClima.com

Description of Product: **Baro Transmitter**

Article No.	<b>3.1158.01.073</b>	<b>3.1158.11.073</b>
	<b>3.1158.00.075</b>	<b>3.1158.10.075</b>

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:

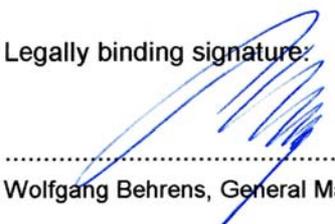
Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment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