Baro Transmitter

Short - Instruction for Use

3.1157.10.xxx

Dok. No. 021960/12/21

THE WORLD OF WEATHER DATA

Safety Instructions

- Before operating with or at the device/product, read through the operating instructions.
  This manual contains instructions which should be followed on mounting, start-up, and operation.
  A non-observance might cause:
  - failure of important functions
  - endangerment of persons by electrical or mechanical effect
  - damage to objects
- Mounting, electrical connection and wiring of the device/product must be carried out only by a qualified technician who is familiar with and observes the engineering regulations, provisions and standards applicable in each case.
- Repairs and maintenance may only be carried out by trained staff or **Adolf Thies GmbH & Co. KG**. Only components and spare parts supplied and/or recommended by **Adolf Thies GmbH & Co. KG** should be used for repairs.
- Electrical devices/products must be mounted and wired only in a voltage-free state.
- **Adolf Thies GmbH & Co KG** guarantees proper functioning of the device/products provided that no modifications have been made to the mechanics, electronics or software, and that the following points are observed:
- All information, warnings and instructions for use included in these operating instructions must be taken into account and observed as this is essential to ensure trouble-free operation and a safe condition of the measuring system / device / product.
- The device / product is designed for a specific application as described in these operating instructions.
- The device / product should be operated with the accessories and consumables supplied and/or recommended by **Adolf Thies GmbH & Co KG.**
- Recommendation: As it is possible that each measuring system / device / product may, under certain conditions, and in rare cases, may also output erroneous measuring values, it is recommended using redundant systems with plausibility checks for **security-relevant applications**.

Environment

- As a longstanding manufacturer of sensors Adolf Thies GmbH & Co KG is committed to the objectives of environmental protection and is therefore willing to take back all supplied products governed by the provisions of "*ElektroG*" (German Electrical and Electronic Equipment Act) and to perform environmentally compatible disposal and recycling. We are prepared to take back all Thies products concerned free of charge if returned to Thies by our customers carriage-paid.

- Make sure you retain packaging for storage or transport of products. Should packaging however no longer be required, please arrange for recycling as the packaging materials are designed to be recycled.

Documentation

- © Copyright **Adolf Thies GmbH & Co KG**, Göttingen / Germany
- Although these operating instruction has been drawn up with due care, **Adolf Thies GmbH & Co KG** can accept no liability whatsoever for any technical and typographical errors or omissions in this document that might remain.
- We can accept no liability whatsoever for any losses arising from the information contained in this document.
- Subject to modification in terms of content.
- The device / product should not be passed on without the/these operating instructions.

Contents

Tables

Figures

Shipment

1 x Baro Transmitter
1 x Short Instructions for use (the complete instructions for use is available for download)

The instructions for use are available for download under the following link:

https://www.thiesclima.com/db/dnl/3.1157.10.xxx_Baro_Transmitter_eng.pdf

1 Models available

Description	Order-No.	Electrical Output	Meas. Range	Operating voltage
Baro Transmitter	3.1157.10.000	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 0...5V set: 800...1060hPa	scalable: 300...1100hPa	8...24V DC
Baro Transmitter	3.1157.10.040	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 0...20mA set: 600...1060hPa	scalable: 300...1100hPa	12…24V DC
Baro Transmitter	3.1157.10.041	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 4... 20mA set: 600...1060hPa	scalable: 300...1100hPa	12...24V DC
Baro Transmitter	3.1157.10.061	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 0...10V set: 600...1060hPa	scalable: 300...1100hPa	12...24V DC
Baro Transmitter	3.1157.10.140	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 0...20mA set: 800...1060hPa	scalable: 300...1100hPa	12…24V DC
Baro Transmitter	3.1157.10.141	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 4... 20mA set: 800...1060hPa	scalable: 300...1100hPa	12...24V DC
Baro Transmitter	3.1157.10.161	Digital: 1 x RS485 1 x 260...1260Hz	260...1260hPa	5…24V DC
		Analogue: 1 x 0...10V set: 800...1060hPa	scalable: 300...1100hPa	12...24V DC

2 Installation

Attention:
The electrical connection is to be carried out by experts only.
The electronics is situated in the cover of the baro transmitter.
The instrument has to be opened only in dry ambience.
The exposed electronics must not be damaged.

Attention:
At the location of the baro transmitter as well as on application in a housing a pressure compensation to the atmospheric air pressure must be possible.

2.1 Mechanical Mounting

The housing of the baro transmitter is suited for wall mounting or installation on other plane surfaces. For mounting, please remove the cover. The housing lower part can be mounted by appropriate screws through the now visible and accessible fixing borings (∅ 4mm).

Note
Position: The cable gland and the hose connection must point downwards.

In case there is no sufficient pressure balance for the baro transmitter at an installation site, a hose can be plugged on via the 1/8”-hose connection. The open side of the hose is to be place in an area where a pressure balance is prevailing.

2.2 Electrical Mounting

8-pole terminal strip		
No.	**Description**	**Function**
1	SHUTDOWN	Shutdown of baro transmitter
2	SUPPLY	5 - 24VDC supply (+)
3	GND*	Supply, ground (-)
4	FREQUENCY	Frequency output
5	AGND*	Analogue signal, ground (-)
6	V_{OUT} / I_{OUT}	Analogue output
7	B	RS485 (Data+)
8	A	RS485 (Data-)

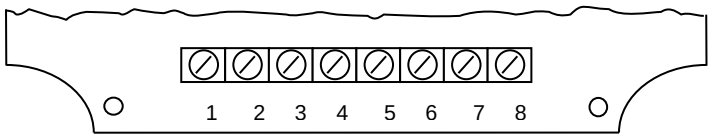


Table 1: Pin Assignment of Terminal Strip

* The pins AGND and GND are connected to the same electrical potential

The different outputs are usable at the same time. With the analogue output the analogue ground (AGND) has to be applied. For the frequency output AGND or GND is allowable. The baro transmitter is protected against polarity reversal.

3 Operating Mode

The baro transmitter can be used alternatively in two operating modes:

Active *mode* or ***Shutdown mode***.

In the **active mode** the baro transmitter outputs continuously measuring values after connection of power supply.

In the ***shutdown mode*** the baro transmitter can be turned on and off via an external trigger signal.

0V = Baro transmitter off.

5 ... 24V = Baro transmitter on.

Remark:

The baro transmitter is delivered with factory-setting „active mode“.

The respective operating mode is selected by means of the jumper P1 (see **chapter 5**).

4 Settings (Operation Mode / termination)

- Operation Mode „Active mode“ or „Shutdown Modus“
- Termination resistor „Off“ or „On“

The baro transmitter can be configured by means of jumpers. The following figures show the position of the bridges and the coding table:

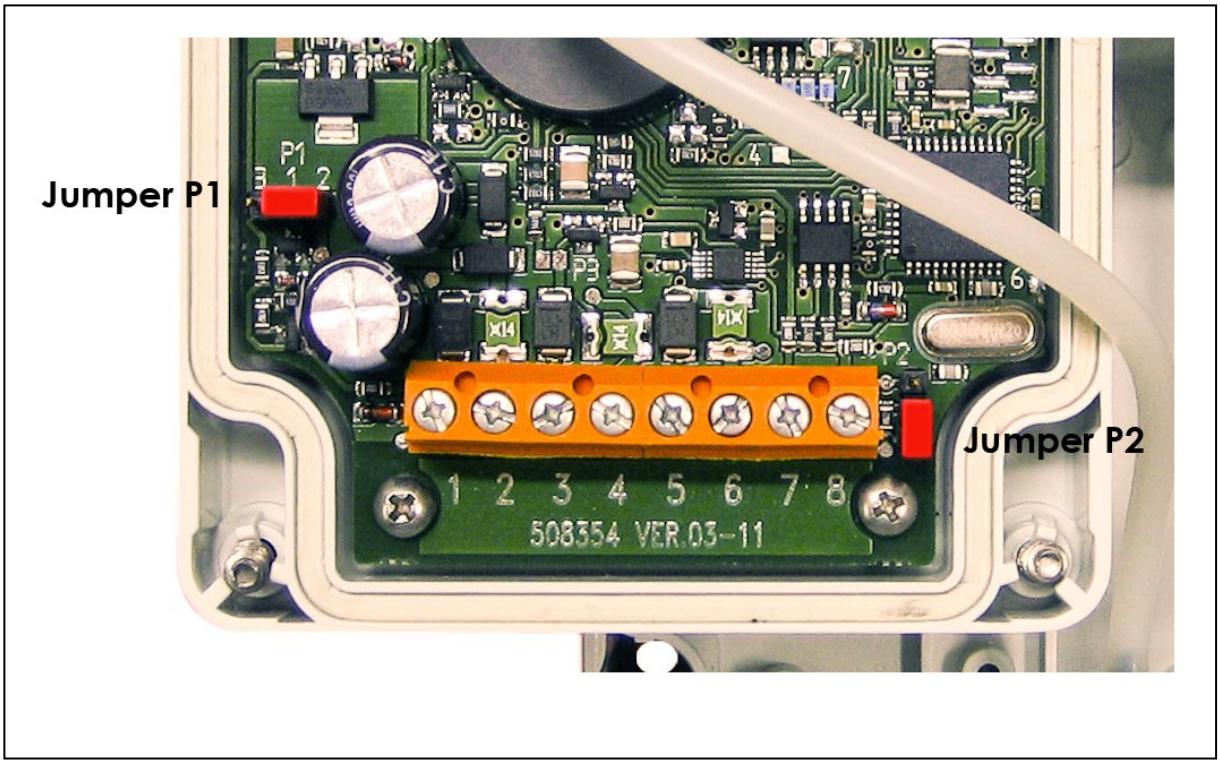


Figure 1: Position Jumper

Function	Jumper		Soldered bridge
	P1	P2	P3
SHUTDOWN Off *	1-2		
SHUTDOWN On	1-3		
RS485 termination off *		1-2	
RS485 termination on (120Ohm)		1-3	
Pull-up- resistance inactive *			O
Pull-up- resistance active (5,6kOhm)**			X

Table 2: Coding jumper

O: open
X: closed
*: factory-setting
**: resistance at the frequency output (open collector output)

5 Maintenance

With proper mounting the instrument operates maintenance-free.

The measuring results are effective at the moment of factory-calibration. The user is responsible for repeat of calibration and determination of the date.

6 Technical Data

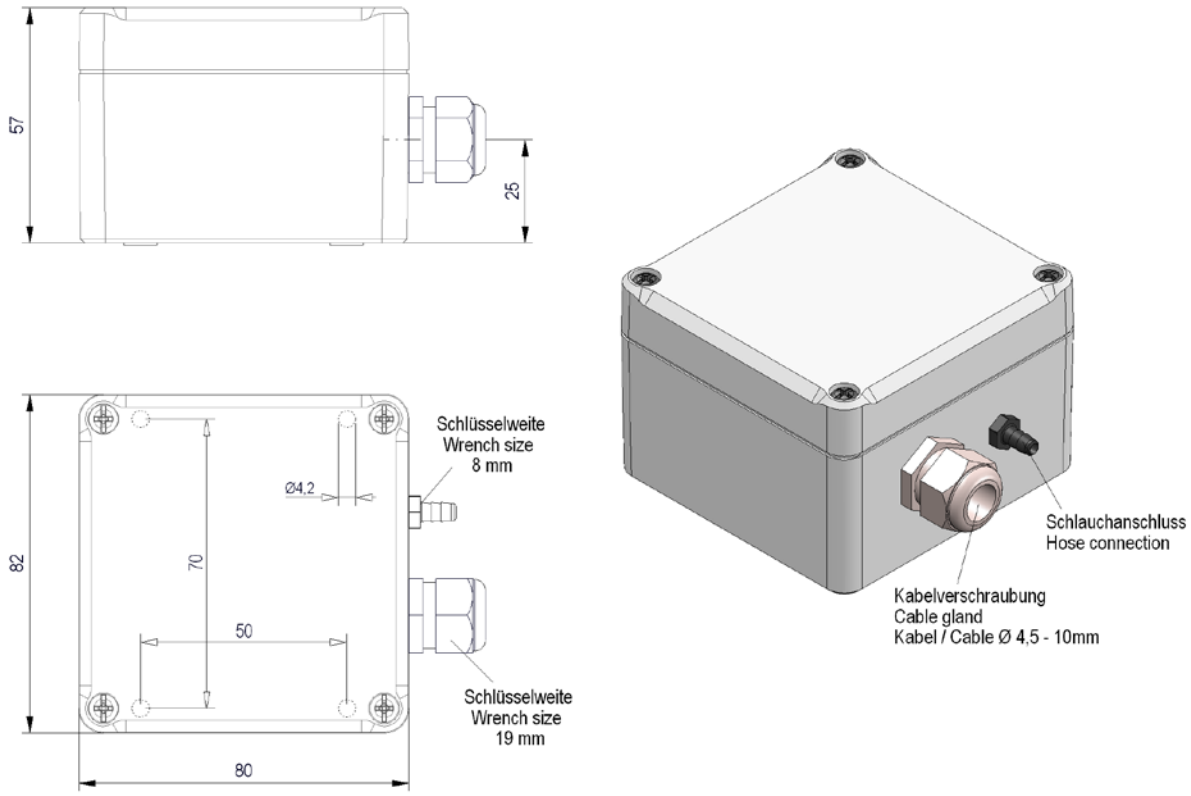
Pressure sensor		
	Type	Piezo resistive
Barometr. Air pressure	Measuring range	260...1260hPa
	Resolution	0.01hPa
Digital output	Accuracy with sensor heating @ -40…+65°C @ 800-1100hPa	± 0.25hPa
	Accuracy with sensor heating @ -40…+65°C @ 600-800hPa	± 0.50hPa
	Accuracy w/o sensor heating @ -40...+65°C @ 600-1100hPa	± 1.00hPa
	Long-term stability	± 0.3hPa / year
Pressure sensor heating	Control temperature	17°C ±1°K
Serial Interface		
	Type	RS485
	Mode of operation	Half-duplex mode
	Data format	8N1
	Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

Frequency output		
	Measuring range	260 ...1260hPa
	Frequency	260... 1260Hz
Definition	Open collector, sink	$U_{max} \leq 30$ V, $I_{max} \leq 20$mA
	Pull-up-resistance active	$U_{low} = 0$V, $U_{high} = 3$V
Analogue output		
	Measuring range scalable Accuracy plus. to digital output	300...1100hPa, factury setting please see **models available page 4.** ± 0.10hPa
Voltage	Output (3.1157.10.000)	0...5V @ $U_B \geq 8$V DC
	Output (3.1157.10.061/161)	0...10V @ $U_B \geq 12$V DC
	R (load)	>50kΩ (output 0.. 10V), >10kΩ (output 0... 5V)
Current	Output (3.1157.10.040/140)	0...20mA
	Output (3.1157.10.041/141)	4...20mA
	R_L(load)	$\leq 350\Omega$ @ $U_B \geq 12$V DC

		≤ 500Ω @ U_B ≥ 15V DC
General		
Operating voltage	On using digital outputs	(8)12...24VDC 5...24VDC
	Power consumption at @ 12V DC	4.1mA (max. 115mA with heating) 2.3mA (only RS485 active) 3.1mA (only analogue output active) 2.2mA (only frequency output active) 3.6mA (only analogue- and frequency-output active) 3.2mA (only RS485 and analogue-output active) 2.6mA (only RS485 and frequency output active) 0.6mA (only RS485 Receiver active) 1µA (in shutdown mode)
External Control	Shutdown mode	0V = Baro transmitter off 5... 24V = Baro transmitter on
Gliding mean value		1, 2, 4, 8, 16sec
Settling time	without Heating with Heating	20s 200s
Ambient conditions	Temperature range	-40... +65 °C
	Humidity range	Non-condensing
	Storage temperature	-30...+70°C

Housing	Material	Polycarbonat
	Dimensions	See dimensional drawing
	Weight	Ca. 0.15Kg
	Protection	IP54 (in-use postion)
	Connection - for the electrical supply	Screwed cable gland M 16 x 1.5 and 8-pole terminal strip
	Connection - for the air pressure balance	Hose connection nozzle 1/8“ (Ø 4,76mm)

7 Dimension drawing (in mm)



8 More Information / Documents as download

Further information can be found in the short instructions for use. These document and also the instruction for use are available for download under the following links.

Instruction for use

https://www.thiesclima.com/db/dnl/3.1157.10.xxx_Baro_Transmitter_eng.pdf

Please contact us for your system requirements.
We advise you gladly.

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