

- Piezo-electric barometric pressure sensor
- High accuracy 0.3 hPa @ 25 °C
- Scalable measurement range 300 ... 1100 hPa
- Quick responding behaviour
- Long-term sturdiness

### Description

The sensor measures barometric air pressure. The instrument is designed for application in the field of meteorology and environmental protection, where high accuracy, quick responding behaviour, long-term sturdiness and reliability are required. The barometric pressure sensor measures the „ABSOLUTE AIR PRESSURE“ or calculates the „REDUCED AIR PRESSURE“.

The measuring results are available in three different forms

- Analog current output: 4 mA ... 20 mA
- Frequency output: 300 Hz ... 1100 Hz
- Digital output: RS485

The sensor is a tempered, piezo-electric absolute-pressure sensor, which shows excellent thermal and mechanical stability.

### Mechanical mounting

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

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

In case there is no sufficient pressure balance for the barometric pressure sensor 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 placed in an area where a pressure balance is prevailing.

### Maintenance

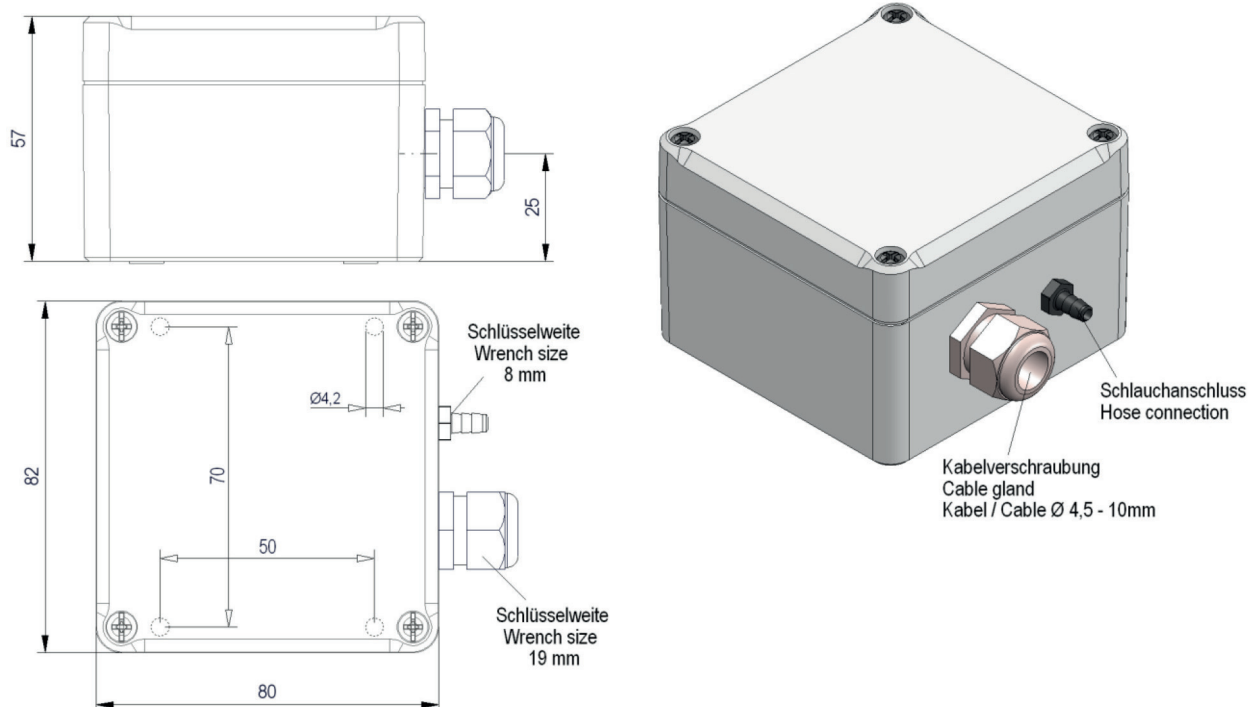
With proper mounting the instrument operates maintenance-free. The measuring results are effective at the moment of factory-calibration. The user is responsible for repeating the calibration and determination of the date.



## Specifications

Characteristic	Value
Measuring range	300 ... 1100 hPa (scalable) 800 ... 1060 hPa (factory setting)
Resolution	0.001 hPa
Accuracy with sensor heating	± 0.25 hPa
Accuracy without sensor heating	± 1.1 hPa (typical) ± 0.3 hPa @ 25°C
Long-term stability	± 0.1 hPa/year
Pressure sensor heating Control temperature	50°C ±1°K
Electrical data	
Output current	4 mA ... 20 mA
Recommended supply voltage	12 VDC ... 24 VDC
Current consumption @ 12 VDC	2.2 mA (frequency output), 2.3 mA (RS485)
Recommended load for current output (shunt R <sub>sh</sub> )	5 Ohms ... 50 Ohms
General	
Temperature range	-40 ... +65 °C
Storage temperature	-30 ... +70°C
Humidity range	non-condensing
Dimensions	82 x 80 x 57 mm (see dimensional drawing)
Weight	approx. 150 g
Connection	Screwed cable gland M16 x 1.5 and 8-pole terminal strip
Housing	Polycarbonat
Housing classification	IP 54 (in-use position)
Manufacturer	Thies Clima
Accessory	For RS485 output: Module set M83575 (incl. isolated repeater)

## Dimensional drawing (in mm)



## Sensor connection to Ammonit Meteo-40 data logger

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40	Supply Sensor
Shutdown	1			
Supply	2	red		12 ... 20 VDC
Ground	3	black	Counter: GND	Main Ground
Frequency	4		Counter: CNT	
Ground	5	blue	Counter: AGND Current Input AC: B Voltage Input (with Shunt $R_{sh}$ ): $B_x$	
Air pressure: Output current	6	white	Counter: Current + Current Input AC: A Voltage Input (with Shunt $R_{sh}$ ): $A_x$	
Data +	7		B+ (RS485-M)	
Data -	8		A- (RS485-M)	

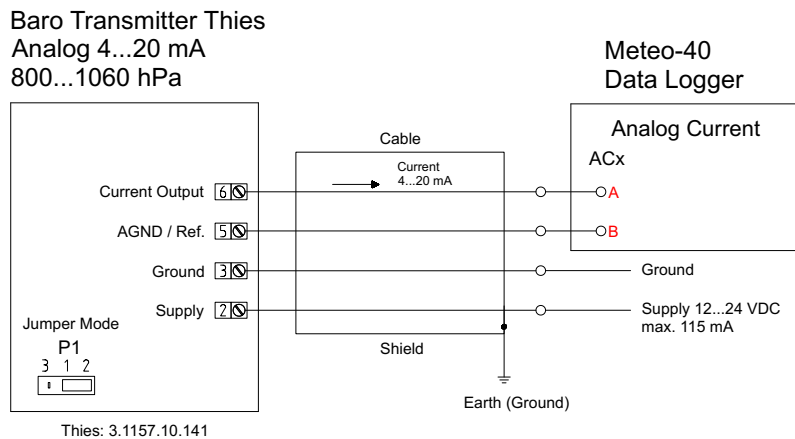
\* The pins GND and AGND are connected to the same electrical potential.

Connect the shield logger-sided to ground (GND)

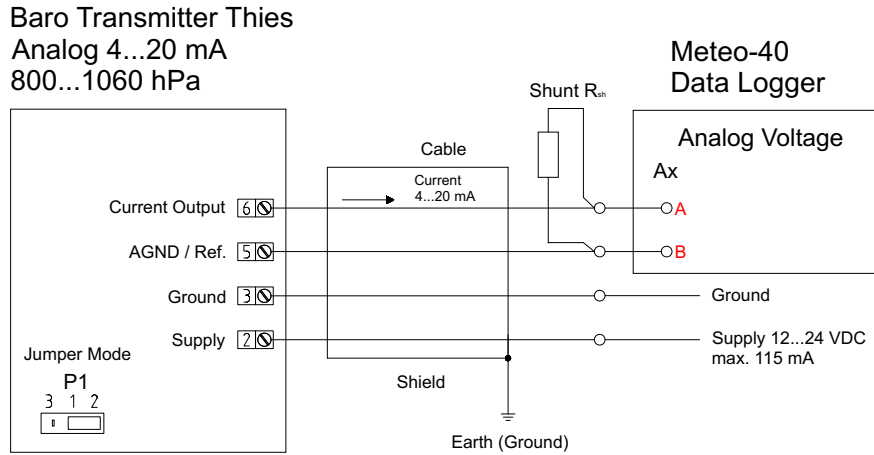
Cable type: LiYCY

## Sensor connection diagrams: connection to Ammonit Meteo-40 data logger

1. Current output of sensor connected to current input of Meteo-40



2. Current output of sensor connected to analog voltage input of Meteo-40 using a Shunt  $R_{sh}$



2.1. Slope and offset using a shunt  $R_{sh}$  for individual setting in Meteo-40 configuration

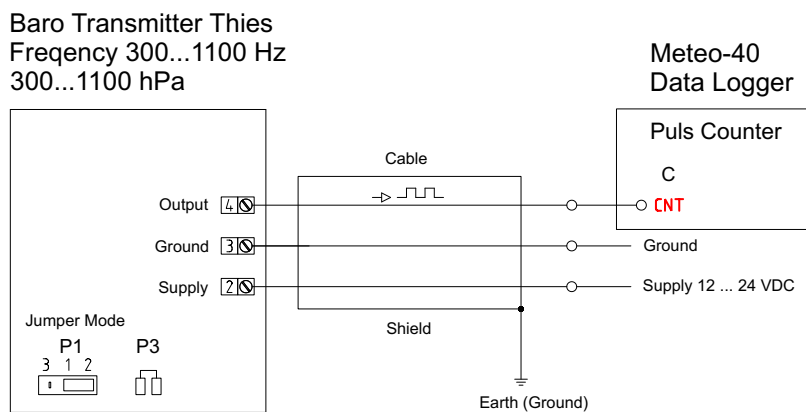
In general with shunt  $R_{sh}$ :

$$\text{Slope} = \frac{260}{R_{sh} \cdot 0.016}, \text{ Unit: } \frac{\text{hPa}}{\text{V}}$$

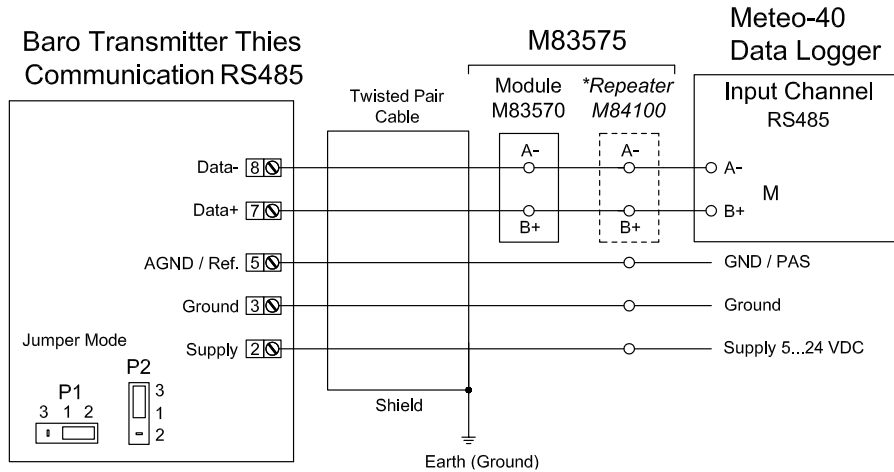
Example with  $R_{sh} = 50 \Omega$  : Slope = 325 hPa/V.

Offset = 735 hPa

3. Frequency output of sensor connected to counter input of Meteo-40



## 4. RS485 Digital Output connected to RS485 master interface of Meteo-40



### Notes:

- When repeater M84100 is used set RS485-bus termination resistor (120 Ohms) in module M83570.
- When no repeater M84100 is used unset the RS485-bus termination resistor in module M83570.

Default setting of termination of baro transmitter is done with jumper P2. Factory setting is „OFF“ (Bridge 1-2 of Jumper P2).

## 4. Sensor Configuration

For configuration S33110 contains two jumpers and one soldering bridge:

- Jumper P1: Set mode „Active“ or mode „Shutdown“; setting 1-2 → „Active“, 1-3 → „Shutdown“
- Jumper P2: Set RS485-bus termination (120 Ohms); setting: 1-2 → Termination off, setting 1-3 → Termination on.
- Soldering bridge P3: Closed for pull-up resistor activated. This is the setting for frequency output. The figure below shows the location plan of the jumpers P1, P2 and the soldering bridge P3.

