



## User Manual

AP65.400

AP80.250

Atmospheric Pressure



**ProfEC Ventus GmbH**  
closer, committed, competitive

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## 1. Introduction

Welcome to the user manual for the AP65 and AP80 Barometers by ProfEC Ventus GmbH. These high precision barometers are designed for reliable and accurate barometric pressure measurements across various applications. This manual will guide you through the installation, operation, and maintenance of your AP65 and AP80 barometers to ensure optimal performance.

## 2. Product Overview

### 2.1 Key Features

- High Accuracy of  $\pm 0.5\%$  FS (at 25°C) for precise barometric pressure readings
- Durable Construction: High media resistance, no internal seals. Vacuum-tight and elastomer-free.
- Material: Stainless steel (wetted parts and body).
- Fast Response Time: 1 ms typical.
- Long-Term Stability: Less than 0.1% FS per year in reference conditions.
- Operating Temperature Range: -40°C to +105°C.
- Protection Class: IP67.

### 2.2 Applications

- Renewable Energy
- Meteorology and Weather Stations
- Environmental Monitoring
- Agricultural Technology
- Hydrology and Water Management

## 3. Installation

### 3.1 Unpacking and Inspection

Upon receiving your AP65 or AP80 barometer, unpack the device and inspect it for any signs of damage. Ensure that all components are included as per the packing list. If any damage or discrepancies are found, contact ProfEC Ventus GmbH immediately. Check the pressure transmitter for any damage that may have been caused during transportation. Obvious damage must be reported immediately.

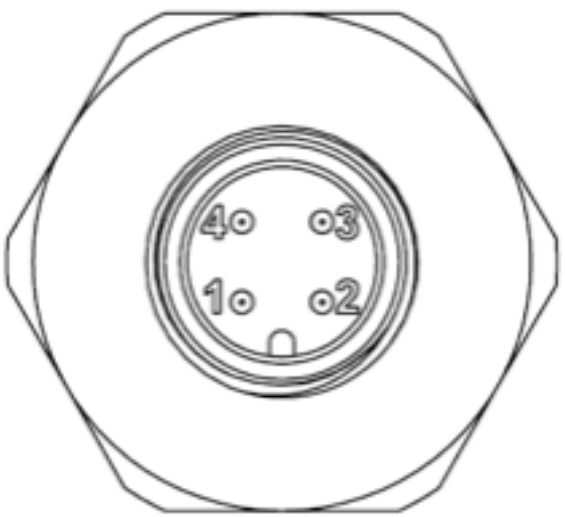
### 3.2 Mounting

- Mounting Orientation: The sensor can be mounted in any orientation but ensure that the process connection is properly secured.
- Tightening torque: typ. 25 Nm; max. 50 Nm

### 3.3 Electrical Connections

- **Supply Voltage:** Connect the barometer to 8-32 VDC power supply.
- **Output Signal:** Depending on your application, connect the appropriate output signal of 0-5 V to your monitoring equipment.
- **Polarity Protection:** The sensor has an electrical protection for reverse polarity. Nevertheless, ensure correct wiring to avoid risk of damage.

### 3.4 Connection Diagram

Connector	Pin	Description	Function
4-pole plug (M12) 	1	SUPPLY	Power Supply (8-32 VDC)
	2	VOUT	Signal Output
	3	GND	Power and Signal Ground
	4	-	Not connected
	-	Shield	Screw on case

### 3.5 Shield Grounding

The AP60 and AP80 barometers meet CE requirements for EMC only when a shielded cable and proper grounding technique are used. The shield should be grounded at the barometer using the shield connector at the barometer.

## 4. Voltage to Pressure Conversion

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

$$P = 650hPa + \frac{400hPa}{5V} \times U [V]$$

## 5. Calibration

The AP65 and AP80 barometers are calibrated under ISO 17025 : 2017 (ilac-MRA conform) following DKD (German Calibration Service) standards, being accredited by DAkkS (German Accreditation Body). The calibration is traceable to the National German reference standard. The barometers are supplied with an accredited calibration report and an according calibration mark.

A recalibration interval of five years is recommended under standard conditions; however, if the sensor operates under fluctuating environmental conditions, recalibration every 2 years is recommended.

## 6. Technical Specifications

### Measurement Performance

Parameter	AP65.400	AP80.250
Pressure Range	650 to 1050 mbar	800 to 1050 mbar
Accuracy	±0.5% FS	
Response Time	1 ms	
Long-Term Stability	≤ 0.1% FS/year	
Operating Temperature	-40°C to +105°C	
Storage Temperature	-40°C to +125°C	
Shock Resistance	IEC 60068-2-31	
Vibration Resistance	20 g (IEC 60068-2-6)	
Protection Class	IP67	

## Output and Electrical Specifications

Parameter	AP65.400	AP80.250
Pressure Range	650 to 1050 hPa	800 to 1050 hPa
Output Signal	0-5 V	
Supply Voltage	8-32 VDC	
Supply Current	< 10 mA	
Load Resistance	≥ 2 kOhm	
Isolation Resistance	100 MOhm	
Over Pressure	10 bar	
Burst Pressure	40 bar	
Electrical Protection	Reverse polarity, short-circuit	
MTTFd Value	115 years	
Lifetime cycles	> 100 million	

## Mechanical Specifications

Material	AP65.400	AP80.250
Wetted Parts	Stainless Steel (316L)	
Body Material	Stainless Steel	
Weight	~100 g	
Pressure Port	M10x1 Form A, DIN 3852-1	
Process Connections	Binder M12x1 (S763), A-coded	

## 7. Operation

### 7.1 Startup Procedure

1. After installation, apply power to the barometer.
2. Allow the sensor to warm up for a few seconds.
3. Verify the output signal to ensure it corresponds to the ambient pressure.

### 7.2 Normal Operation

- The AP65 and AP80 sensors continuously monitor and provide absolute pressure readings.
- Monitor the output signal and ensure it remains within the expected range.

## 8. Maintenance

### 8.1 Regular Inspection

- Inspect the electrical connections to ensure they remain secure and free from dirt.

### 8.2 Cleaning

- If necessary, clean the sensor with a soft, damp cloth. Avoid using harsh chemicals or abrasive materials.

### 8.3 Calibration

- It is recommended to calibrate the sensor every five years at least, or as required by your application.

## 9. Troubleshooting

Issue	Possible Cause	Solution
No output signal	Power supply disconnected	Check and reconnect the power supply
Incorrect output signal	Wiring issue	Verify and correct wiring connections
Signal drift	Sensor requires calibration	Perform calibration
Physical damage	Exposure to extreme conditions	Inspect and replace if necessary

## 10. Safety Instructions

- Always disconnect the power supply before installing or servicing the barometer.
- Ensure that the process connection is depressurized before removal.
- Handle the sensor with care to avoid damage to the sensitive components.
- Follow all local regulations and safety guidelines when using the barometer.

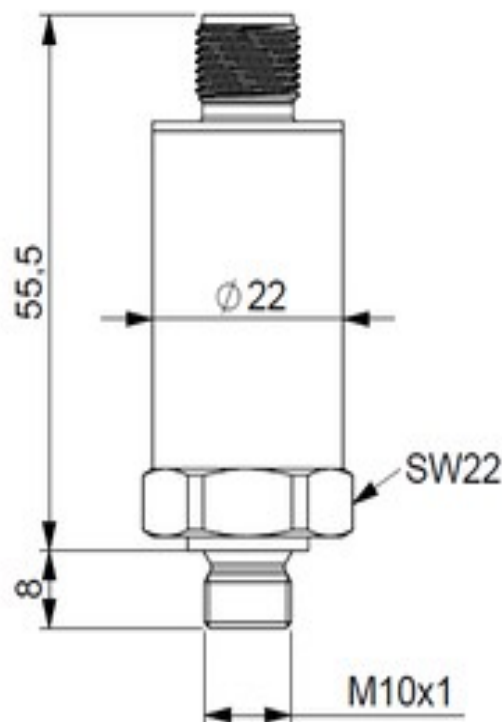
- Shock resistance as per IEC 60068-2-31
- Vibration: 20 g to IEC 60068-2-6

## 11. Warranty Information

ProfEC Ventus GmbH provides a limited warranty on the AP65.400 and AP80.250 barometers of 3 years upon dispatch of ProfEC Ventus premises. For detailed warranty terms and conditions, please refer to the warranty card included with your product or visit our website.

## 12. Dimension Drawing (in mm)

### 12.1 Sensor



## 12.2 Connector



## 13. Contact Information

For further assistance, please contact our customer support team:

**ProfEC Ventus GmbH**

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