

## Differential pressure transmitter



### SPECIFICATIONS

#### testo 6321

A differential pressure transmitter with a good price/performance ratio for applications in air conditioning and ventilation technology. The automated building services must always be monitored precisely, whereby the requirements placed on the measuring technology are increased. **testo 6321** fulfills these requirements by ensuring the best possible system function, optimization of the climatic conditions and energy savings by means of highly accurate measurement, stable over the long-term, of the differential pressure.

#### Areas of application

- Industrial and commercial buildings, e.g. in production and storage
- Offices and administrative buildings
- Sales areas and exhibition halls
- Museums and libraries
- School buildings, hotels, clinics etc.



### SPECIFICATIONS

#### testo 6321

- Measurement of differential pressure in the measuring range of 100 Pa to 2 bar
- Magnetic valve for automatic zero-point adjustment guarantees high temperature-independent accuracy and long-term stability
- Accuracy  $\pm 1.2\%$  of measuring range + intrinsic error of 0.3 Pa – valid for zeroing cycle of 60 sec/nominal temperature +22 °C
- P2A software for parameterization, adjustment and analysis, saves time and costs in commissioning and maintenance
- Freely scalable:  $\pm 50\%$  of measuring range final value and free scalability within the measuring range
- Diverse analog outputs and measuring ranges
- Display optional



## Differential pressure transmitter

### Technical data

#### Measurement parameters

Differential pressure		
Measuring range	0 to 100 Pa 0 to 10 hPa 0 to 20 hPa 0 to 50 hPa 0 to 100 hPa 0 to 500 hPa 0 to 1000 hPa 0 to 2000 hPa	-100 to 100 Pa -10 to 10 hPa -20 to 20 hPa -50 to 50 hPa -100 to 100 hPa -500 to 500 hPa -1000 to 1000 hPa -2000 to 2000 hPa
Measurement uncertainty*	±1.2% of measuring range final value ±0,3 Pa Temperature gain drift: 0.05% of measuring range per Kelvin deviation from nominal temperature 22 °C Zero-point drift: 0% (due to zero-point adjustment)	
Sensor	Piezoresistive sensor	
Autom. zero-point adjustment	via magnetic valve	
Overload capacity	<b>Measuring range</b>	<b>Overload</b>
	0 to 100 Pa	20000 Pa
	0 to 10 hPa	200 hPa
	0 to 20 hPa	200 hPa
	0 to 50 hPa	750 hPa
	0 to 100 hPa	750 hPa
	0 to 500 hPa	2500 hPa
	0 to 1000 hPa	2500 hPa
	0 to 2000 hPa	2500 hPa
	-100 to 100 Pa	20000 Pa
	-10 to 10 hPa	200 hPa
	-20 to 20 hPa	200 hPa
	-50 to 50 hPa	750 hPa
	-100 to 100 hPa	750 hPa
	-500 to 500 hPa	2500 hPa
	-1000 to 1000 hPa	2500 hPa
	-2000 to 2000 hPa	2500 hPa

#### General

Housing		
Material / colour	ABS / white (RAL 9010) or light grey	
Weight	Approx. 160 g	
Display		
Display	1-line LCD (optional)	
Resolution	<b>Measuring range</b>	<b>Resolution</b>
	0 to 100 Pa	0.1 Pa
	0 to 10 hPa	0.01 hPa
	0 to 20 hPa	0.01 hPa
	0 to 50 hPa	0.01 hPa
	0 to 100 hPa	0.1 hPa
	0 to 500 hPa	0.1 hPa
	0 to 1000hPa	1 hPa
	0 to 2000hPa	1 hPa
	-100 to 100 Pa	0.1 Pa
	-10 to 10 hPa	0.01 hPa
	-20 to 20 hPa	0.01 hPa
	-50 to 50 hPa	0.01 hPa
	-100 to 100 hPa	0.1 hPa
	-500 to 500 hPa	0.1 hPa
	-1000 to 1000 hPa	1 hPa
	-2000 to 2000 hPa	1 hPa
Miscellaneous		
Protection class	IP65 only when the transmitter is wired and/or sealing plugs are in use	
EMC	EC guideline: 2004/108/EC	
Automatic zero-point adjustment	Every 60 seconds ex-works	

#### Inputs and outputs

Analog outputs	
Output type	0 to 1/5/10 V (4-wire) 4 to 20 mA (4-wire)
Measuring rate	1/s
Resolution	12 bit
Accuracy of the analog outputs	0 to 1 V ±2,5 mV 0 to 5 V ±12,5 mV 0 to 10 V ±25 mV 4 to 20 mA ±0,05 mA
Max. load	500 Ω
Further outputs	
other analog outputs	Minin DIN for P2A software (adjustment and parameterization software)
Supply	
Voltage supply	20 to 30 V AC/DC
Current consumption	30 mA

#### Operating conditions

Humidity (sensor)	0 to 90 %rF
Temperature (sensor)	-5 to +50 °C
Storage temperature	-40 to +80 °C

\* Measurement inaccuracy according to GUM: ±1.2% of measuring range final value ±0.3 Pa  
**GUM** (Guide to the Expression of Uncertainty in Measurement);  
 ISO guideline for the determination of measurement uncertainty, in order to make measurement results comparable worldwide.

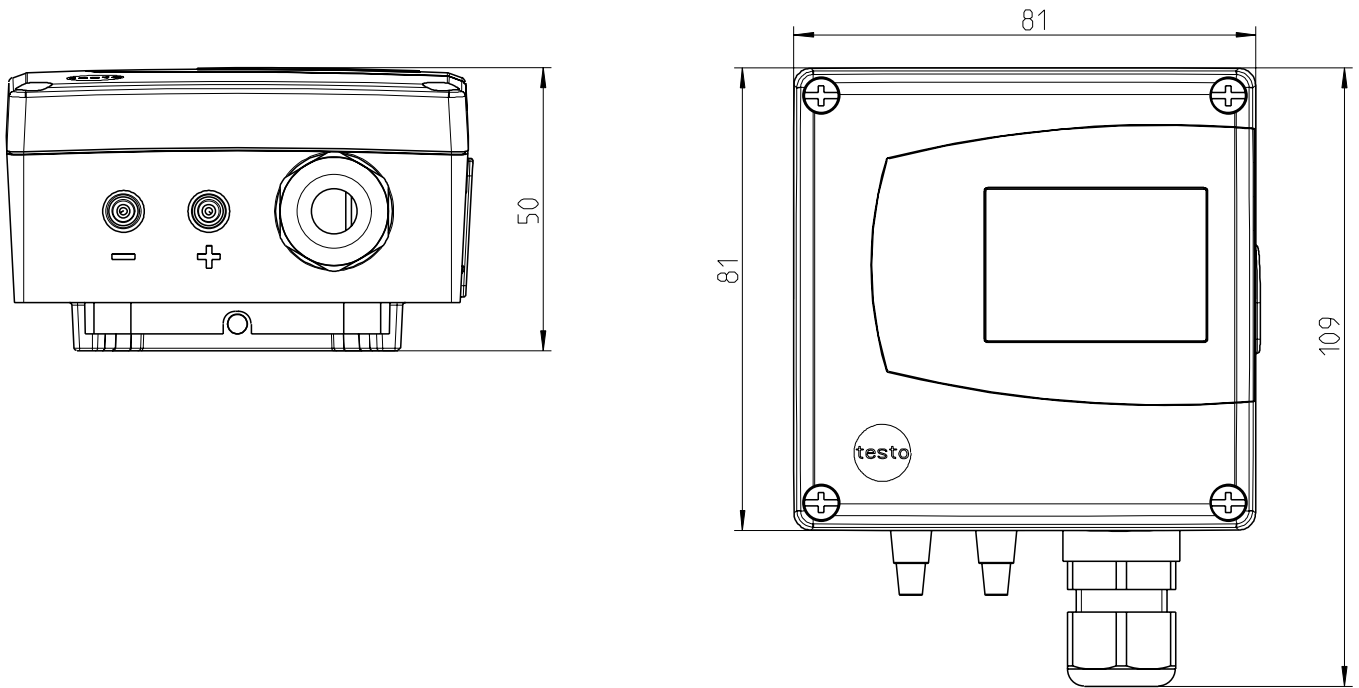
The following variables are taken into account in determining uncertainty:

- Hysteresis
- Long-term stability
- Linearity
- Adjustment site/works calibration
- Reproduceability
- Test site

Subject to change without notice.

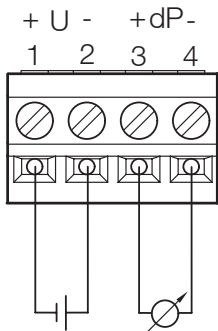
# Differential pressure transmitter

## Technical drawings

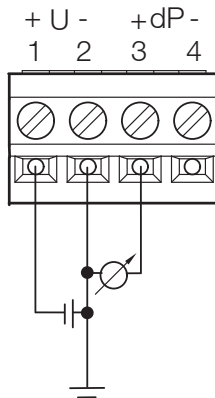


## Connection plan

4-wire wiring



3-wire wiring





## Differential pressure transmitter

The following options can be specified for the testo 6321

<b>AXX</b>	<b>Measuring range</b>
<b>BXX</b>	<b>Analog output/supply</b>
<b>CXX</b>	<b>Display</b>
<b>EXX</b>	<b>Housing colour</b>
<b>FXX</b>	<b>Unit</b>
<b>KXX</b>	<b>Language of the instruction manual (for bilingual paper instruction manual)</b>

Deliver incl. wall holder

### AXX Measuring range

A03	0 to 100 Pa
A05	0 to 10 hPa
A06	0 to 20 hPa
A07	0 to 50 hPa
A08	0 to 100 hPa
A09	0 to 500 hPa
A10	0 to 1000 hPa
A11	0 to 2000 hPa
A23	-100 to 100 Pa
A25	-10 to 10 hPa
A26	-20 to 20 hPa
A27	-50 to 50 hPa
A28	-100 to 100 hPa
A29	-500 to 500 hPa
A30	-1000 to 1000 hPa
A31	-2000 to 2000 hPa

### BXX Analog output / supply

B02	0 to 1 V (4-wire, 24 VAC/DC)
B03	0 to 5 V (4-wire, 24 VAC/DC)
B04	0 to 10 V (4-wire, 24 VAC/DC)
B06	4 to 20 mA (4-wire, 24 VAC/DC)

### CXX Display

C00	without display
C01	with display

### EXX Housing colour

E01	Housing colour light grey, incl. Testo logo (coloured)
E02	Neutral housing, white, without Testo logo
E03	Neutral housing, white, incl. Testo logo (black/white)

### FXX Unit

F01	Pa / min / max
F02	hPa / min / max
F03	kPa / min / max
F04	mbar / min / max
F05	bar / min / max
F06	mm H <sub>2</sub> O / min / max
F07	inch H <sub>2</sub> O / min / max
F08	inch HG / min / max
F09	kg/cm <sup>2</sup> / min / max
F10	PSI / min / max

### KXX Instruction manual language

K01	Instruction manual German-English
K02	Instruction manual French-English
K03	Instruction manual Spanish-English
K04	Instruction manual Italian-English
K05	Instruction manual Dutch-English
K06	Instruction manual Japanese-English
K07	Instruction manual Chinese-English

## Example:

Order code for testo 6321 transmitter with the following options:

- Measuring range 0 to 100 Pa
- Analog output 0 to 5 V
- Without display
- Housing colour light grey
- Unit mbar
- Language of instruction manual German/English

**0555 6321 A03 B03 C00 E00 F04 K01**

# Product Specification Sheet

# testo 6321

## Technical Data

<b>Name</b>	testo 6321
<b>Messgröße</b>	Differential pressure
<b>Sensor</b>	Piezoresistive sensor
<b>Resolution</b>	-500...500 mbar: 0,1 Pa -1...1 bar: 0,001 Pa -2...2 bar: 0,001 Pa
<b>Accuracy</b>	1,2 % of measuring range (+ 0,3 Pa inherent error) 0,05 % of measuring range per Kelvin variation from 22 °C
<b>Measuring range</b>	0...100 Pa, 0...10 mbar, 0...20 mbar, 0...50 mbar, 0...100 mbar, 0...500 mbar, 0...1 bar, 0...2 bar, -100...100 Pa, -10...10 mbar, -20...20 mbar, -50...50 mbar, -100...100 mbar, 500...500 mbar, -1...1 bar, -2...2 bar
<b>Outputs</b>	4...20 mA (±0,05mA); 4-wire 0...1 VDC (±2,5mV); 4-wire 0...5 VDC (±12,5 mV); 4-wire 0...10 VDC (±25 mV); 4-wire

## Main features

- Magnetic valve for automatic reset
- Temperature compensation
- Immediately ready for operation (1 min.; competition 1-2 h)
- High accuracy due to longterm stabil and poor drift readings
- External interface to on-site-calibration of the sensor technology and the analog outputs with Testo portable instrument or P2A-software

## Sales arguments

- No Zeropoint-Adjustment within the whole lifetime. Lifetime more than 10 years.
- Differing temperature from 22 °C the temperature compensation eliminates the drift almost completely (+/- 0,05 °C per K)
- High reset frequency guarantees fast startup, even after e.g. power failure
- No offsetdrift due to automatic reset. Very low TK-Drift of the pitch.
- Fast and easy on-site-calibration guarantees permanent accuracy and prevents involved, time consuming uninstalling for calibration in the laboratory.

## Examples of application

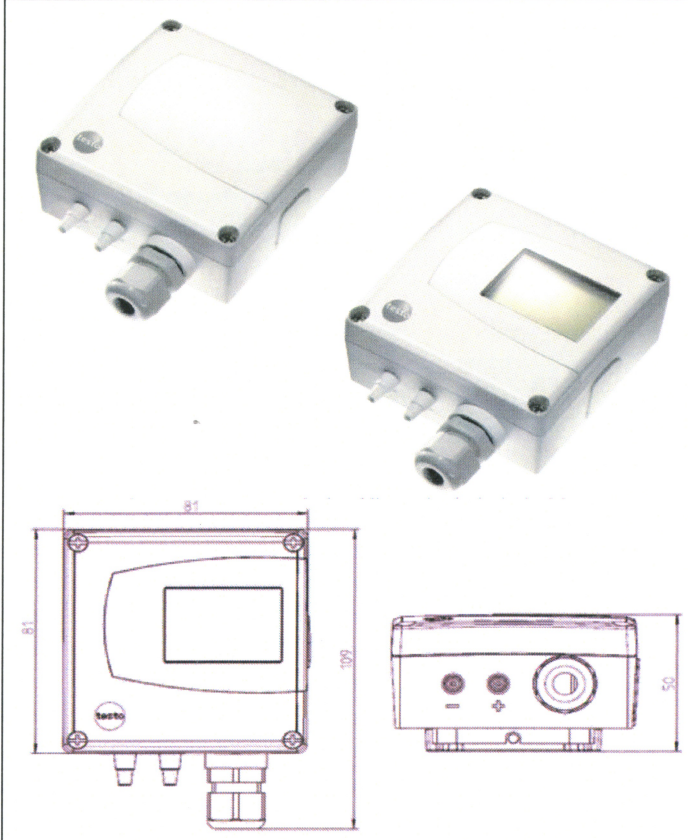
- Monitoring and controlling of ventilators and filters /filter systems
- Controlling of the supply air to equalize up- and downturns of the air-volume-flow in ducts

## Scope of delivery

testo 6321  
Wall holder (0192 1009)  
MI (Manual Instruction)

Accessory	Part-No.
P2A-Software	0554 6020
Adjustment adapter	0554 6022
Power supply unit (table, wall fitting)	0554 1748
Power supply unit top hat rail fitting	0554 1749
Extension and adjustment cable	0554 6610
Silicone tube ID 4 transparent	0086 0001 (every meter)
TYGON-tube ID 4,8 transparent	0086 0031 (every meter)
Different pressure calibrators „Pneumator“	0519 0815 – 0519 0818
Standard-ISO-Calibration certificate	0520 1000
Standard-DKD-Calibration certificate	0520 1200

## Transmitter for measuring differential pressure in buildings (VAC)



## Order code (KMAT)

0555.6321 Axx Bxx Cxx Exx Fxx Kxx

- A03 0...100 Pa
- A05 0...10 mbar
- A06 0...20 mbar
- A07 0...50 mbar
- A08 0...100mbar
- A09 0...500mbar
- A10 0...1 bar
- A11 0...2 bar
- A23 -100...100 Pa
- A25 -10...10 mbar
- A26 -20...20 mbar
- A27 -50...50 mbar
- A28 -100...100 mbar
- A29 -500...500 mbar
- A30 -1...1 bar
- A31 -2...2 bar

- B02 0...1 V (4-wire, 24 VAC/DC)
- B03 0...5 V (4-wire, 24 VAC/DC)
- B04 0...10V (4-wire, 24 VAC/DC)
- B06 4...20 mA (4-wire, 24 VAC/DC)

- C00 without Display
- C01 with Display

- E00 Colour of housing light grey, with Testo-Logo (coloured)
- E01 Colour of housing, pure white, without Testo-Logo
- E02 Colour of housing, pure white, with Testo-Logo (black-white)

- F01 Pa
- F02 hPa
- F03 kPa
- F04 mbar
- F05 bar
- F06 mmH2O
- F07 inch H2O
- F08 inch HG
- F09 kg/cm²
- F10 PSI

- K01 MI German-English
- K02 MI French-English
- K03 MI Spanish-English
- K04 MI Italian-English
- K05 MI Dutch-English
- K06 MI Japanese-English
- K07 MI Chinese-English
- K08 MI Swedish-English

# Technical data sheet 6321

## Measuring parameters

### Differential pressure

Measuring range	0...100 Pa, 0...10 mbar, 0...20 mbar, 0...50 mbar, 0...100 mbar, 0...500 mbar, 0...1 bar, 0...2 bar, -100...100 Pa, -10...10mbar, -20...20 mbar, -50...50 mbar, -100...100 mbar, -500...500 mbar, -1...1 bar, -2...2 bar	
Accuracy	1,2 % of measuring range <sup>2</sup>	
Overload capability	<b>Measuring range</b>	<b>Overload</b>
	0...10 Pa	20000 Pa
	0...10 mbar	200 mbar
	0...20 mbar	200 mbar
	0...50 mbar	750 mbar
	0...100 mbar	750 mbar
	0...500 mbar	2500 mbar
	0...1 bar	2,5 bar
	0...2 bar	2,5 bar
	-100...100 Pa	20000 Pa
	-10...10 mbar	200 mbar
	-20...20 mbar	200 mbar
	-50...50 mbar	750 mbar
	-100...100 mbar	750 mbar
-500...500 mbar	2500 mbar	
-1...1 bar	2,5 bar	
-2...2 bar	2,5 bar	
Slope-drift	0,05 % of measuring range per Kelvin	

## Inputs and outputs

### Analog outputs

Kind of output	0...1/5/10 V (4-wire) 4...20 mA (4-wire)
Measuring cycle	1/s
Resolution	12 bit
Accuracy of analog outputs	0...1 V ± 2,5 mV 0...5 V ± 12,5 mV 0...10 V ± 25 mV 4...20 mA ± 0,05 mA
Max. burden	500 Ω

### Further outputs

other analog outputs	Mini-DIN for P2A-Software (adjustment and parameterisation-Software)
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### Power supply / power input

Power supply	20...30 V AC/DC
Power input	300 mA

## In general

### Housing:

Material/colour	ABS / pure white (RAL 9010) and light grey
Weight	approx. 160 g.

### Display:

Display	1-row LCD (optional)	
Resolution	<b>Measuring range</b>	<b>Resolution</b>
	0...10 Pa	0.1
	0...10 mbar	0.01
	0...20 mbar	0.01
	0...50 mbar	0.01
	0...100 mbar	0.1
	0...500 mbar	0.1
	0...1 bar	0.001
	0...2 bar	0.001
	-100...100 Pa	0.1
	-10...10 mbar	0.01
	-20...20 mbar	0.01
	-50...50 mbar	0.01
	-100...100 mbar	0.1
	-500...500 mbar	0.1
	-1...1 bar	0.001
-2...2 bar	0.001	

### Others:

Protection class	IP 65 only, if the transmitter is wired and/or sealing plug is fixed.
Automatic Zero-pointing	factory-provided: 15 sec. (extendable max. to 10 min.)
EMC	EC-guideline: 2004/108/EG

## Operating conditions

Humidity (sensor)	0...90% rh
Temperature (sensor)	-5...50 °C
Storage temperature	-40...80 °C
Process pressure	50 bar

<sup>2</sup> additional 0,3 Pa inherent error