testo 6342 / testo 6344 / testo 6349
Differential pressure transmitters

Bedienungsanleitung de

Instruction manual en

Foreword/Copyright

Foreword

Dear Testo customer

We are delighted that you have chosen a product from Testo. We hope that the product will give you a long period of satisfaction and will aid you in your work.

If problems should occur which you cannot rectify yourself, please consult our service department or your dealer. We will endeavour to provide fast and competent assistance to avoid lengthy down times.

Copyright

We reserve the right to modify technical details from the descriptions, specifications and illustrations contained in this documentation.

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General Information

This documentation contains important information about the features and use of the product. Please read this document through carefully and familiarise yourself with the operation of the product before putting it to use. Keep this documentation to hand so that you can refer to it when necessary.

Pictograms

The instrument may be dangerous if operated incorrectly. Particularly important information is highlighted in this Instruction manual by pictograms:

Warnings are indicated by a warning triangle. The corresponding **Warning word** indicates the danger level:


Warning word

Warning! means: Serious physical could be caused if the specified precautionary measures are not taken.

Caution! means: Slight physical injury or damage to equipment could occur if the specified precautionary measures are not taken.

Read the warning advice carefully and take the specified precautionary measures in order to avoid danger.

! Information about special cases or particularities when handling the instrument are highlighted by an exclamation mark.

Standards/Approvals

CE According to the conformity certificate, this product fulfills guidelines in accordance with 89/336/EEC.

Contents

1. Basic safety information

Avoid electrical hazards:

- Never take measurements with the instrument and its probes on or near live components unless the instrument is expressly approved for current and voltage measurements.

Protect the instrument:

- Never store the unit together with solvents (e.g. acetone).

Preserving product safety/warranty entitlement:

- Electrical connections should only be carried out by qualified personnel.
- Please adhere to the prescribed power voltage (see type plate).
- Operate the instrument only within the parameters specified in the Technical data.
- Handle the instrument appropriately and according to its intended purpose.
- Never apply force!
- Protect measuring instruments from direct sunlight!
- Avoid use in corrosive gases.
- Do not seal off inputs (otherwise barometric pressure changes could damage instruments with low measurement ranges).
- **Warning!** Please do not blow into the pressure connections as a “Test”. The measurement cell may be damaged by this pressure.
- Temperature data on sensors/probes refer only to the measurement range of the sensors. Do not subject handles and lines to temperatures greater than 70°C if they are not expressly approved for higher temperatures.
- Open the instrument for maintenance and repair purposes only if specifically described in the Instruction Manual.
- Maintenance work should only be carried out if described in the Instruction Manual. Please adhere to the steps described. For safety reasons, please only use spare parts from Testo.

  Any additional work should only be carried out by authorised trained personnel. Otherwise Testo does not accept responsibility for the functioning of the instrument following maintenance and for the validity of approvals.

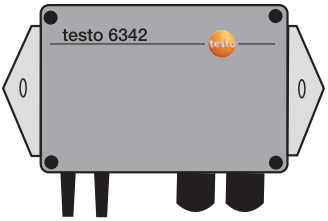
Dispose of carefully:

- Once its service life has come to an end, return the instrument to us and we will dispose of it.

2. Intended use

The **testo 6342 / testo 6344 / testo 6349** pressure transmitters are pneumatic electrical transmitters for pressure measurement (positive, negative and differential pressure). Typical applications are to be found in cleanroom engineering as well as in air conditioning and ventilation engineering. The most important part is a pressure cell with a membrane spring made of beryllium bronze which is moved between the two chambers of the pressure cell in accordance with differential pressure. The movement is measured without contact via an inductive displacement transmitter. The instruments do not have any frictional or mechanical wearing parts.

3. Product description

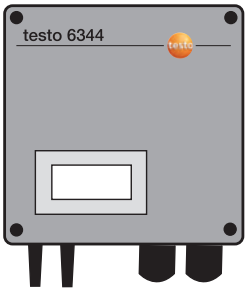


Pneu-
matic
connections

Cable
entry points

testo 6342:

Differerential pressure transmitter 0 to 50Pa , without display



testo 6344

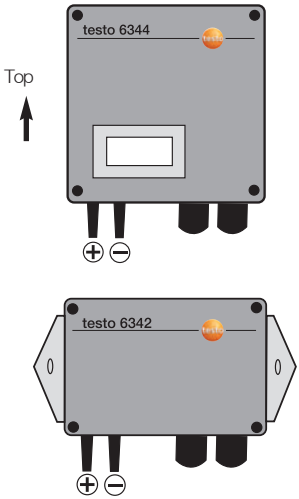
Differential pressure transmitter 0 to 50Pa with display

testo 6349

Based on **testo testo 6342** or **testo 6344**, but with custom-designed version, e.g. special measurement range

4. Initial operation

4.1 Mounting and pneumatic connection



The **testo 6342, testo 6344** and **testo 6349** pressure transmitters are precision measuring instruments and should be handled with care in spite of their robustness.

In particular, do not blow into the pneumatic connections (as a “Test”).

Avoid mounting near sources of heat and radiation (e.g. radiators or outer windows) since measurement errors may occur. It is advisable to attach the instruments to a vibration-free wall **in a vertical position**. In order to avoid the ingress of condensed water in the pressure sensor and to guarantee the same position as during calibration, the transmitter with the hose connections for positive pressure (⊕) and negative pressure (⊖) should point downward).

testo 6344
Please remove the cover (4 screws) and screw the transmitter, with the help of the 4 bore holes in the base plate, into a stable wall such that the pressure connections point downward.

The pressure must be applied to the transmitter in accordance with the signs specified in the following table:

Pressure type	Pressure connection to	Example
Differential pressure	Higher pressure at ⊕ input Low pressure at ⊖ input	0 to 50Pa
Positive pressure	⊕ Input (⊖ open)	0 to 20Pa
Neg. positive pressure	⊖ Input (⊕ open)	0 to -40Pa
Symmetric pressure ranges	⊕ Input (⊖ open)	-20 to +20Pa
Asymmetric pressure ranges	Input of larger pressure ranges to ⊕ (⊖ open)	-4Pa to +25Pa

4.2 Electrical connections

It is imperative to avoid connecting supply voltage (terminals 11 / 13) to the signal output terminals (1 / 2). This could damage electric components.

All differential transmitters in the **testo 6340** product line are 4 wire instruments (2 wire power 20.5 to 28.5VDC; 2 wire signal 4 to 20mA).

Please connect the power and signal lines in accordance with Fig. 1.

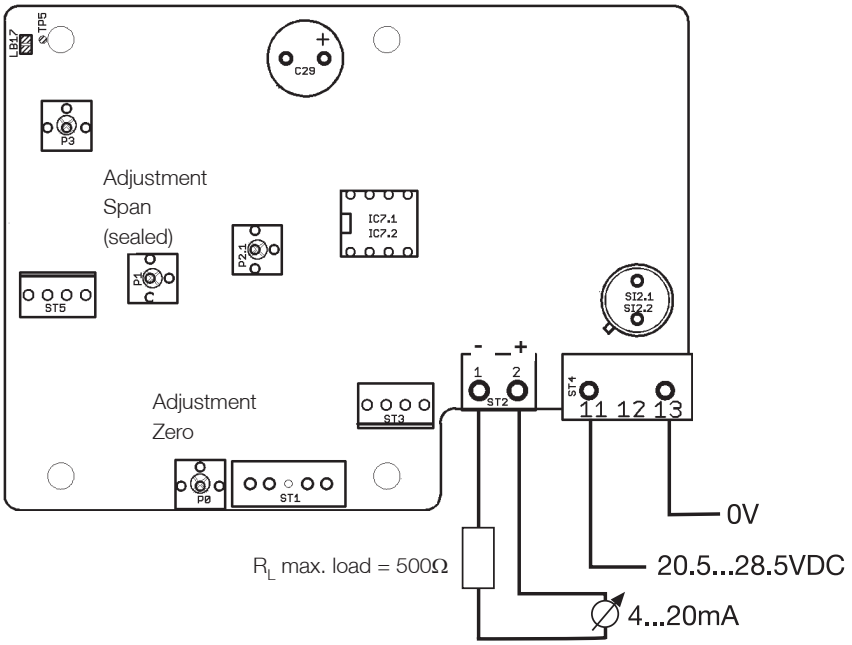


Fig. 1: Electrical connections

4.3. Calibrating the zero point

Please observe a starting time for the pressure transmitter of approx. 20 minutes following pneumatic (pressure connections) and electrical initial operation. The output signal may be unstable during this time.

Once the starting time for the pressure transmitter has elapsed, the zero point can be calibrated with the help of the potentiometer P0 (see Fig. 1).

1. Power to the transmitters (20.5 to 28.5V) is via the terminals 11 / 13, see Chapter 4.2, fig. 1.
2. Wait approx. 20 minutes to stabilise the pressure sensor.
3. Remove the hose connections ⊕ and ⊖.
4. Measure the output current of terminals 1 and 2, see Fig. 3 with one (accurate, if possible) multimeter
5. Turn the potentiometer P0 with a screwdriver until the multimeter shows 4.00mA.

Please note that the potentiometer P1 (range adjustment, see fig. 1) can only be activated by testo. The seal should never be broken otherwise the warranty will no longer apply.

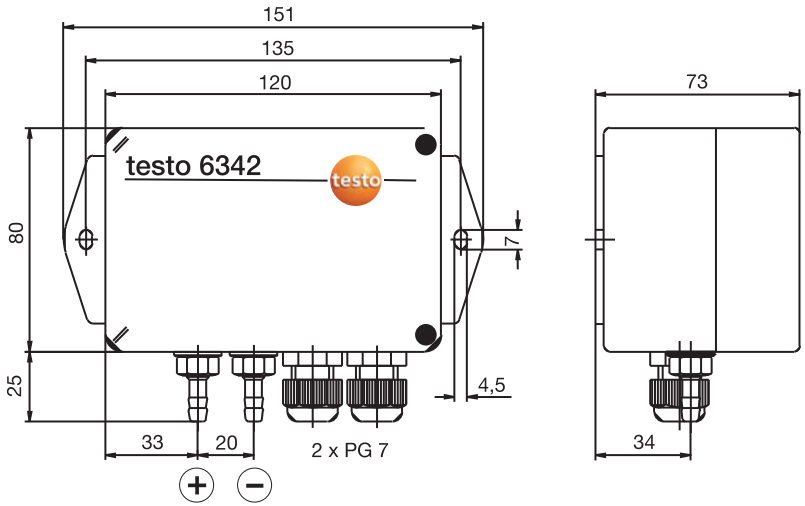
5. Troubleshooting

Error description	Possible causes	Troubleshooting
No output signal	Supply voltage not connected	Connect correct supply voltage
	Supply voltage connected too low	Connect correct supply voltage (see type plate)
	Fuse defective	Replace fuse S1 (Type TR5 200mA, Wickmann)
	Input protection diode defective	Replace D7 (Type ZPY 33)
Output signal is constant despite change in pressure	Output protection diode defective	Replace D5/D4 (Type ZPY 18)
	Pressure connections were interchanged	Connect pressure in accordance with Chapter on "Mounting and pneumatic connection"
Defective output signal	Output protection diode defective e.g. 15-18mA instead of the expected 20mA	Replace D5/D4 (Type ZPY 18)
	Pressure measurement cell defective (usually a current output of 20mA can be measured at 0Pa)	Send instrument for repair to **testo**
	Load too high	Observe max. load of 500Ω
Zero point cannot be adjusted with P0	Pressure measurement cell defective (Current output does not change although P0 is changed without pressure applied)	Send instrument for repair to **testo**
testo 6344 only No display	Display plug is inserted incorrectly	Turn display plug and plug in

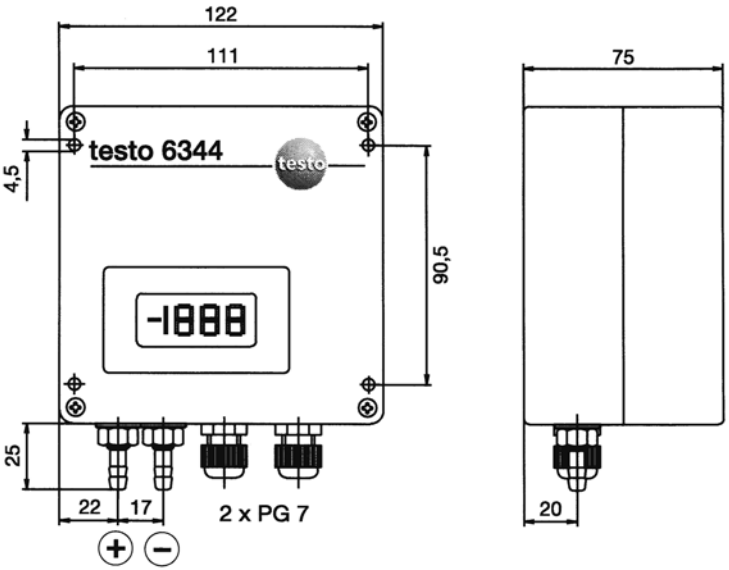
If we have not answered your question, please contact your local distributor or Testo's Customer Service. You will find contact details in the Warranty booklet or in Internet at www.testo.com.

6. Measurement units

testo 6342 (without display) / **testo 6349** (on the basis of testo 6342)



testo 6344 (with display) / **testo 6349** (on the basis of **testo 6344**)



7. Technical data

Feature	Values
Power voltages	20.5 to 28.5VDC (maximum ripple 1000mV)
Power consumption	Max. 1.2W
Supply voltage	testo 6342: 52 mA testo 6344: 62 mA
Nominal temperature range	+10 °C to +50 °C
Working temperature	0°C to 60°C
Storage temperature	-10°C to +70°C
Pressure connection	ø 6.5mm for hose with nominal width 4 or 5mm
Connections	Electric: 2 PG 7 screw connections, screw terminals ∅2.5mm² Pneumatic: Hose connections ∅6.5mm, for hose with nominal width 5mm
Measurement ranges	testo 6342/6344: 0 to 50Pa testo 6349: cf label
Output signal	4 to 20mA, 4 wire technology
Medium	Air, all non-corrosive gases
Measurement inaccuracy	0.35Pa +0.6% of full scale, measurement inaccuracy of reference is 0.3Pa
Hysteresis	0.1% of full scale value
Overload capacity	10 times, i.e. with cell 0 to 50Pa → to 500Pa overload-proof) **Please note:** Measurement cell may be damaged at higher pressures
Zero point drift	0.5% of full scale value/year
Temperature drift	(0.03% of full scale value) x $\frac{\lvert t\text{-}22 \rvert}{°C}$ t = current temperature
Utilisable measurement range	linear: -5% to 105% of full scale value (see Fig. 4)
Protection class	IP65 with pressure and electricity lines installed
Housing dimensions in mm(l x b x h):	**testo 6342**: 80 x 120 x 73 **testo 6344**: 122 x 120 x 105
Weight	**testo 6342**: Approx. 300g **testo 6344**: Approx. 800g
EMC	acc. to 89/336/EWG

Current output

depending on measurement range full scale value

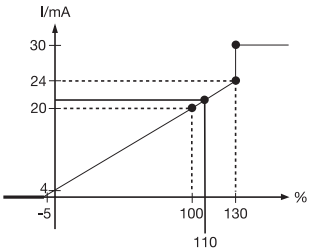


Fig. 4

8. Accessories

Name	Part no.
dP transmitter 0 to10Pa, automatic zeroing, ohne Display	0555 6341
dP transmitter 0 to 50Pa, without display	0555 6342
dP transmitter 0 to10Pa, automatic zeroing, with display	0555 6343
dP transmitter 0to 50Pa, with display	0555 6344
ISO calibration with 5 points (0-25-50-75-100-0 (all points in % of full scale value))	0520 0005
ISO calibration at freely selectable points	0520 0105
Silicone hose, 5m long, 4mm inner diameter, 1.5mm wall thickness	0554 0440
External display testo 54-2AC, 2 relay outputs (to 300VAC, 3A), 230VAC	5400 7553
Power unit (DIN rail mounting) 90 to 264VAC / 24VDC (3A)	0554 1749

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0973.6342/05/HW/wh/08.03.2006