

PIEZOVAC PV 101 **THERMOVAC TM 101**

Digital Handheld Gauges for Vacuum Measurements



Digital Handheld Gauges

with Data Logger

The Leybold PIEZOVAC PV 101 and THERMOVAC TM 101 measurement gauges are universal to use - as a mobile handheld instrument or fixed to a vacuum installation. Even operation while completely under vacuum conditions is possible.

The vacuum-level is displayed continuously over the entire measurement range. An integrated memory-function allows to store and display up to 2000 measured values.

The stored measurement data can be transferred to a PC via the integrated USB interface. Moreover, measurements can also be run online and the measured data is exportable.

Leybold handheld gauges
are specially suited

PIEZOVAC PV 101

Digital Piezo gauge

The new temperature compensated handheld gauge PIEZOVAC PV 101 is equipped with an internal piezo-resistive silicone sensor and offers gas type independent measurement in the range of 1200 to 0.1 mbar.

- Gas independent measurements
- High repeatability
- Extreme long battery life up to 2500 hours

Measurement Principle

The PV 101 operates with an internal piezo-resistive silicon sensor.

Under the influence of pressure a thin diaphragm is bent, and on it's back a resistor-bridge is applied. The bending forces the measurement-bridge to come out of tune, which is a measure for the applied pressure.



for Vacuum Measurements

General benefits

- Usage possible directly in a vacuum
- Data logging via USB interface and internal memory for up to 2000 measured values
- Online measurement via USB possible; measuring data exportable
- Vacuum pressure unit selectable between mbar, Torr and Pascal
- Cordless power supply with standard 9 V battery or 15 V DC adapter
- Windows software VacuGraph for measuring data storage and PC analysis (optional)

Typical applications

- Mobile and fixed vacuum measurement installations of all kind (service, maintenance, universities, laboratory)
- Food and packaging industry
- Vacuum process quality assurance
- Visualization and documentation of vacuum pumps and systems

for system integration

THERMOVAC TM 101 Piezo/Pirani combination gauge



The temperature compensated handheld THERMOVAC TM 101 is equipped with a Piezo/Pirani combination sensor and capable for total vacuum measurement in the range of 1200 to $5 \cdot 10^{-4}$ mbar.

- Wide pressure range
- Adjustable gas correction in the low pressure range
- Gas independency in the high pressure range

Measurement principle

The TM 101 provides high resolution covering the complete measurement range due to the usage of two different physical sensor principles. The TM 101 is equipped with an internal piezo-resistive sensor for measurements in the rough vacuum range. Under pressure a thin diaphragm is bent, while a resistor bridge is applied on the back. The variation in resistance appearing thereby is subject to the applied total pressure. The internal Pirani sensor applies in the fine vacuum range, using the thermal conductivity of gases for the vacuum measurement. The filament is heated to a constant temperature in a bridge circuit. The necessary bridge voltage is subject to the total pressure measurement.

VacuGraph Accessory Set

Technical Data



THERMOVAC TM 101 in VacuGraph accessory set

VacuGraph accessory set (optional)

The accessory set is a practical suitcase that includes software, USB interface cable and adapters.

This case provides the protection of all parts and hold them in one place.

The intelligent software allows online recording of measurements as well as the read-out of the PIEZOVAC PV 101 or THERMOVAC TM 101 data memory. Measurements can be plotted as a diagram and exported as text file for further analysis.

Unique advantages of the accessory set are:

- Very easy transportation
- Collection and protection of all parts
- Quick and easy adjustment of parameters via the software
- Easy data recording and illustration for further data analysis
- Parameters such as logging rate, display unit or gas correction factor can be easily adjusted

Technical Data	PIEZOVAC PV 101	THERMOVAC TM 101
Measurement principle (gas-type depending)	piezo-resistive	piezo-resistive and heat conductivity, Pirani
Indicated measurement units	mbar, Torr, Pa	mbar, Torr, Pa
Measuring range	1200 - 0.1 mbar	1200 to $5 \cdot 10^{-4}$ mbar
Measurement accuracy at 1200 - 10 mbar at $10 - 2 \times 10^{-3}$ mbar < 2×10^{-3} mbar	0.3 % of full scale - -	0.3 % of full scale 10 % of measured value < factor 2
Measuring cycle	100 ms	1.6 s
Supply voltage	rechargeable 9 V battery or 15 V DC adapter	rechargeable 9 V battery or 15 V DC adapter
Power consumption < 200 mbar / > 200 mbar	60 mW / 0.5 mW	60 mW / 0.5 mW
Operation time 6 LR61 Alkali (vacuum mode)	< 2500 h	up to 75 h
Display	LCD 12 mm	LCD 12 mm
Connection (stainless steel)	G1/4" female thread (DN16 ISO KF with adapter)	DN 16 ISO-KF
PC Interface	Mini-USB, Type B, 5pin, female, Virtual Com Port protocol	Mini-USB, Type B, 5pin, female, Virtual Com Port protocol
Dimensions (without flange)	60 x 120 x 25 mm	60 x 120 x 25 mm
Protection class	IP 40	IP 40
Weight (including battery)	200 g	230 g
Ordering Information	PIEZOVAC PV 101	THERMOVAC TM 101
Handheld gauge, DN 16 ISO-KF incl. AIMn block battery, 9V 6LR61	Cat. No. 230 080 V01	Cat. No. 230 081 V01
Accessory kit for VacuGraph Windows software including protection case with foam insert, USB interface cable (2 m), 15 V power supply for 100 - 260 V, 50/60 Hz mains and AIMn battery, 9 V block 6LR 61	Cat. No. 230 082 V01	Cat. No. 230 082 V01



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