

**VD8**

Digital Compact Vacuum Meters  
Data Loggers



**THYRACONT**  
Vacuum Instruments

**Your Digital Compact  
Vacuum Meters / Data Loggers  
For 1600 to  $5 \times 10^{-4}$  mbar**

The VD8 family of compact vacuum meters is fully electronic and combines high quality sensors and micro controller technology with modern design. Our customers appreciate these easy to use gauges as reliable tools in quality control, service and laboratory.

**Do You Want To Know Exactly?**

Using the VD8 series vacuum meters the digital display shows the precise absolute pressure. Sensors with temperature compensation and sophisticated evaluation electronics guarantee high accuracy and reproducible measurements.

**Quality Assurance Made Easy**

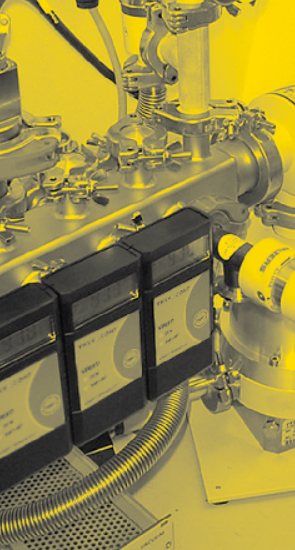
Optionally the vacuum meters can be used as data logger to store pressure data during the measurement. Push button data transmission via USB to a PC allows analysis and documentation using our VacuGraph™ Windows software. On request works calibration of the vacuum meter is provided. It documents the traceability to DKD national German calibration standards.

**You Can Choose**

Mobile use or fixed installation? Integrated or detachable sensor? Quick spot check of actual pressure or documentation of measurements on a PC? The VD8 meets all these needs and more...

**Further VD8 Advantages**

- High battery life due to clocked measurement
- Display of minimum and maximum pressure
- Automatic switch-off or continuous operation
- Option: data logging at measurement changes
- Versatile and multifunctional
- Operation with battery or power supply
- Stainless steel flange



## VD81 1600 to 1 mbar Ceramic Sensor

### Application Example

Vacuum packaging increases storage life of food products by a factor 3 to 5; the package is first evacuated and then hermetically sealed.

### Challenge

Correct functioning of the packing machine must be regularly checked. Only when there is a sufficient vacuum inside the packing, quality, freshness, nutrients and taste of the product can be fully maintained.

### Solution

To check correct performance a battery operated VD81 is vacuum-sealed instead of the product at regular time intervals. During the packaging process the instrument stores the achieved minimum pressure. After the vacuum meter is taken out of the packing this minimum pressure can be displayed and checked.

### Applications

- Setup and check of vacuum plants
- Analysis instruments
- Chemical engineering
- Substitution of mechanical and mercury manometers
- Vacuum furnaces

## VD82EX 1050 to 1 mbar External Ceramic Sensor

### Application Example

In chemical engineering inflammable solvents with high vapor pressure are frequently used. Together with air they can create explosive atmospheres.

### Challenge

When oxygen-sensitive products are used in laboratory reactors, the process is usually carried out under vacuum or inert gas atmosphere with well defined pressure. However, pressure must not fall below a specific limit since many of those

substances tend to boiling retardation.

### Solution

The VD82 vacuum meter is certified according to ATEX II 2G EEx ia IIC T4 for use in explosive areas. With this instrument the pressure inside the flask or reactor can be measured reliably and safely no matter what ever kind of inflammable vapors are present.

### Applications

- Laboratory and research
- Analysis instruments
- Service and maintenance
- Vacuum evaporators

## VD83 100 to $5 \times 10^{-4}$ mbar Pirani VD84 100 to $1 \times 10^{-3}$ mbar External Pirani

### Application Example

Vacuum insulation of liquid gas tanks protects the liquified gas from the influence of ambient heat. The vacuum envelope effectively prevents heat conduction between the tank and its environment.

### Challenge

To assure correct functioning of the insulation and detect leakage in the gas tank or the outer shell as soon as possible, the insulating vacuum is regularly checked. Failure of the vacuum insulation runs the

risk of the gas heating up resulting in a dangerous rise in pressure.

### Solution

Using a VD84 vacuum meter with detachable sensor head the insulating vacuum of a gas tank can be checked easily and quickly. Each gas tank is equipped with a separate sensor, which remains fixed at the insulation envelope. The vacuum meter is periodically connected to those sensors so that the vacuum can be checked.

### Applications

- Service and maintenance
- Check of roughing pumps
- Vacuum drying
- Vacuum centrifuges
- Cooling and refrigeration technique

## VD85 1200 to $5 \times 10^{-4}$ mbar Combisensor Piezo/Pirani

### Application Example

Systematic maintenance and servicing of vacuum pumps helps to prevent failure in production processes and improves the availability of systems.

### Challenge

For diagnosis of a pump as well as for maintenance work the ultimate minimum pressure achieved and the pump down characteristic have to be recorded. These factors provide essential information about the actual condition and performance of the pump.

### Solution

A VD85 with wide range combination sensor is capable of capturing the minimum pressure of many pump types like diaphragm, scroll or rotary vane pumps. In addition the instrument can measure and, on demand, record the complete pump down cycle from atmospheric to ultimate pressure. In this case the vacuum meter is used as data logger which stores the measurements in the gauge memory. Via a USB interface data can be transmitted to a PC for further analysis and documentation.

### Applications

- Leakage testing
- Quality assurance
- Service and maintenance
- Vacuum evaporators
- Coating



## VD81

The versatile VD81 digital vacuum meter measures absolute pressure in the rough vacuum range.

It is available with USB interface and can be used as data logger.

The VD81 can be operated with either battery or external power supply making it ideal for both, portable or stationary applications.

### Typical Applications

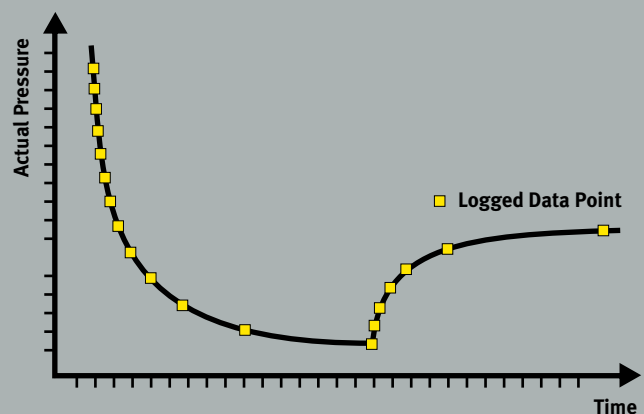
- Checking and setup of vacuum plants
- Operational control and documentation at vacuum plants and pumps
- Service and maintenance
- Modern teaching aid with PC interface
- Replacement of mercury manometers in research and teaching, laboratories and manufacturing
- Leak tests
- Packing machines
- Analysis instruments
- Chemical process engineering

## Compact Vacuum Meter / Data Logger Absolute Pressure 1600 to 1 mbar

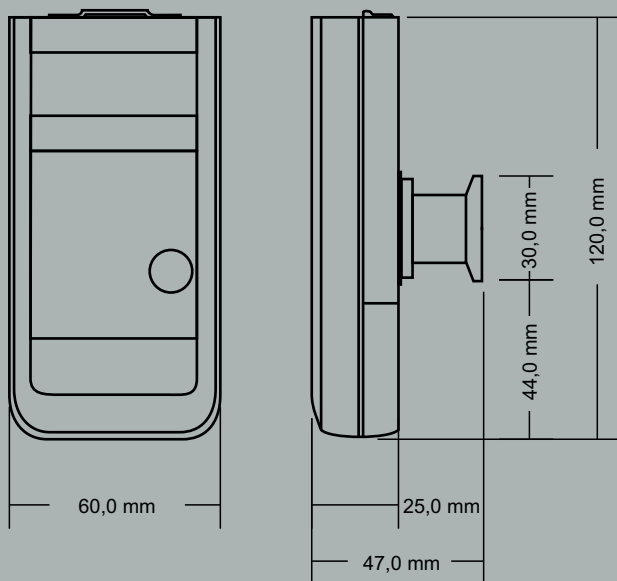


### Benefits

- Chemically resistant ceramic sensor with Viton® sealing
- High repeatability
- Excellent long term stability
- Up to 5000 h battery life
- Vacuum connection by small flange, G1/4 female thread or screw in hose nozzle
- Compact, easy to use
- Min/Max Memory: Storage and display of high and low values
- Automatic switch off or continuous operation
- Pressure units mbar, Torr, hPa
- Exact readjustment without a potentiometer
- User friendly operational concept
- USB interface
- Easy configuration of the vacuum meter by VacuGraph™ software or directly at the instrument
- Measuring rate of the data logger can be arbitrarily set by means of VacuGraph™ software or directly selected at the instrument
- Optionally measurements are saved only on pressure change to reduce data volume
- Online data transfer to PC via USB
- Data logger functionality: Save up to 2000 measurements in the vacuum meter and push button data transfer to a PC; no PC connection is necessary during the measurement
- VacuGraph™ software for saving and plotting measurements on PC



Data logging at measurement changes



## Technical Data

Measuring Principle	Piezo resistive, independent of gas type
Materials In Contact With Vacuum	Stainless steel 1.4305, Al <sub>2</sub> O <sub>3</sub> ceramic, Viton®
Measurement Range	1600 - 1 mbar (1200 - 1 Torr), max. overpressure 4 bar absolute
Resolution	1 mbar (Torr)
Accuracy	± 0.3% full scale (linearity, hysteresis, repeatability)
Response Time	20 ms
Measuring Rate	1.0 s (100 ms in data logger mode)
Data Logging Rate	0.1...999 s
Operating Temperature	0...+50°C
Storage Temperature	-20...+60°C
Power Supply	9 V block battery (alternatively NiMh rechargeable battery) or 15 VDC external (power supply)
Power Consumption	Approx. 2 mW
Operating Time	9 V lithium battery: max. 5000 h 9 V Alkaline 6LR61 battery: max. 2500 h 9 V rechargeable battery 150 mA: max. 500 h
Electrical Connection	Jack for external power supply
Vacuum Connection	DN 16 ISO-KF with G1/4 female thread or hose nozzle (accessory VD81SW1)
Protection Class	IP40
Display	LCD 12 mm
Weight	Approx. 200 g (battery included)

## Product Codes

### • VD81

Compact vacuum meter, 1600 to 1 mbar, DN 16 ISO-KF flange with G1/4 female thread

### Accessories:

#### • VD8CASE

Protective case

#### • VD8ALK

AlMn battery, 9 V block 6LR61

#### • VD81NETZ

9-V rechargeable battery with power supply

#### • VD8N4

External power supply, 100 to 240 VAC

#### • VD81SW1

Hose nozzle, nickel coated brass

#### • VD8ANS

Connection set with tee DN 16 ISO-KF, 2 centering rings and 2 clamps

#### • VGR

VacuGraph™ software for Windows

#### • WUSB0002

Interface cable USB, shielded, 2 m

## VD82EX

## ATEX Compact Vacuum Meter Absolute Pressure 1050 to 1 mbar



VD82 ATEX certified digital vacuum meter with external sensor head to measure absolute pressure in the rough vacuum range.

Used in hazardous areas where explosive vapors are present.

EG prototype certificate:  
BVS 06 ATEX E 011  
Mark: II 2 G EEX ia IIC T4



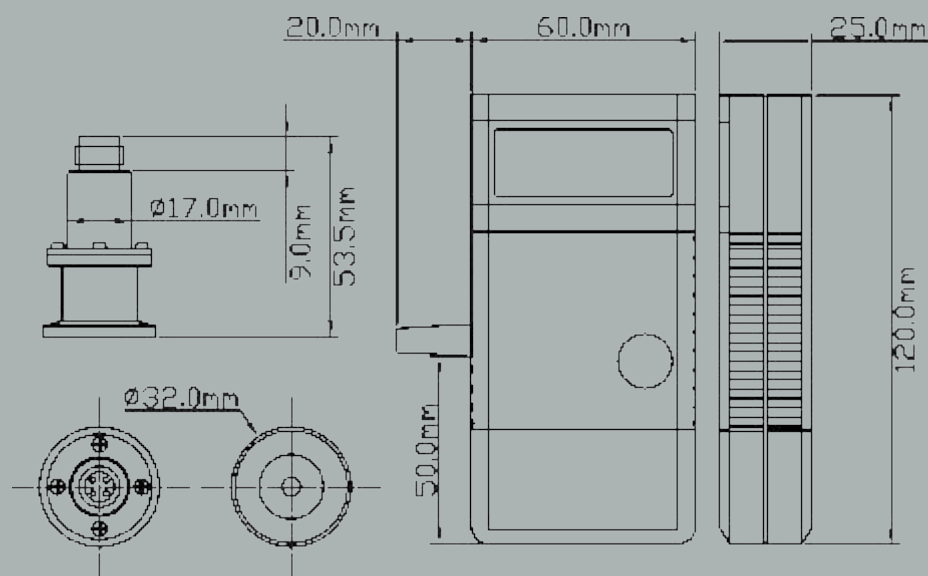
### Typical Applications

- Measuring absolute pressure in zone 1 hazardous (explosion) areas
- Chemical engineering
- Checking and setup of vacuum pumps
- Laboratory and research
- Analysis and documentation of vacuum pumps and facilities
- Service and maintenance
- Analysis instruments
- Leak tests

### Benefits

- External detachable stainless steel sensor head
- Chemically resistant ceramic sensor with Kalrez® sealing
- High repeatability
- Excellent long-term stability
- Up to 100 h battery life
- Compact, easy to use
- Automatic switch off and continuous operation
- Pressure units mbar, Torr, hPa
- Min/Max memory: Storage and display of high and low values
- Variable vacuum connection using small flange, G1/4 female thread or hose nozzle
- Delivered with protective case, hose nozzle and plug in battery charger





## Technical Data

Measuring Principle	Piezo resistive, independent of gas type
Materials In Contact With Vacuum	Stainless steel 1.4305, Al <sub>2</sub> O <sub>3</sub> ceramic, Kalrez®
Measurement Range	1050 - 1 mbar (780 - 1 Torr), max. overpressure 2 bar absolute
Resolution	1 mbar (Torr)
Accuracy	Typ. ± 0.3% full scale (linearity, hysteresis, repeatability)
Response Time	20 ms
Measuring Rate	1.0 s
Operating Temperature	0...+40°C
Storage Temperature	-20...+60°C
Power Supply	Integrated 4.8 V Ni-MH rechargeable battery, charging outside of Ex area with plug in charging adaptor, max. charging voltage Um=28 VDC
Electrical Connection	Jack for external plug in charging adaptor
Power Consumption	Approx. 2 mW
Operating Time	Max. 100 h
Display	LCD 12 mm
Sensor Connection	Measuring cable 2 m, plug 4-pole, lockable
Vacuum Connection	DN 16 ISO-KF, G1/4 female thread, hose nozzle 6 - 8 mm
Protection Class	IP40
Weight	Approx. 200 g

## Product Codes

- VD82EXP**  
 ATEX compact vacuum meter, 1050 to 1 mbar, with protective case, hose nozzle and charging adaptor 230 V
- VD82EXUSP**  
 As above, with charging adaptor 115 V



# VD83

## Compact Vacuum Meter / Data Logger Absolute Pressure 100 to $5 \times 10^{-4}$ mbar

VD83 precision digital vacuum meter measures absolute pressure in the fine vacuum range.

It is available with USB interface and can be used as data logger.

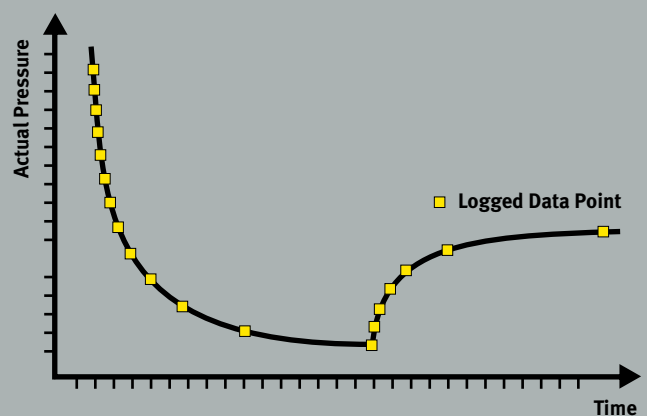
The VD83 can be operated with either battery or external power supply making it ideal for portable or fixed applications.

### Typical Applications

- Checking and setup of vacuum appliances
- Diagnosis and documentation of rotary vane vacuum pumps
- Service and maintenance
- Modern teaching aid with PC interface
- Recording and plotting of pump down diagrams
- Leak tests
- Vacuum centrifugation
- Coating plants
- Evaporators

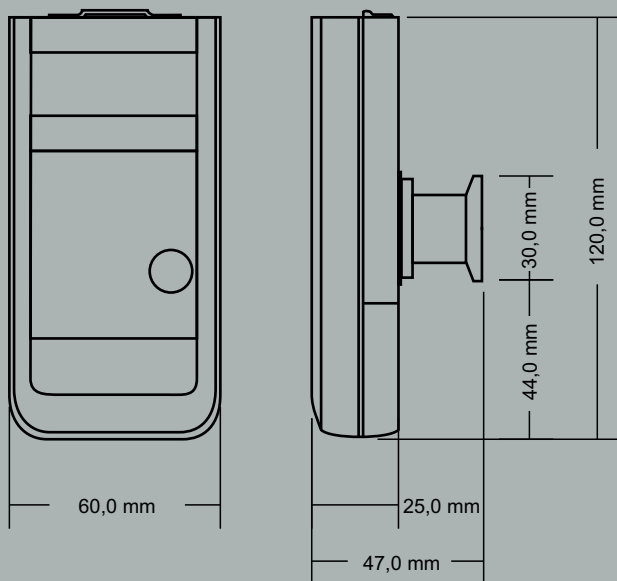
### Benefits

- Temperature compensated, metal sealed Pirani sensor with durable helix filament
- High accuracy
- Excellent repeatability
- The sensor is well protected against condensed solvents
- High battery life due to clocked measurement
- Compact, user-friendly
- Pressure units mbar, Torr, hPa
- Min/Max memory: Storage and display of high and low values
- Gas correction factors for correct pressure readings
- Precise push button readjustment
- Battery conserving auto-off mode or continuous operation
- User friendly operational concept
- USB interface
- Easy configuration of the vacuum meter by VacuGraph™ software or directly at the instrument
- Measuring rate of the data logger can be arbitrarily set by means of VacuGraph™ software or directly selected at the instrument
- Online data transfer to PC via USB
- Data logger functionality: Save up to 2000 measurements in the vacuum meter and push button data transfer to a PC; no PC connection is necessary during the measurement
- VacuGraph™ software for saving and plotting measurements on PC



Data logging at measurement changes





## Technical Data

Measuring Principle	Pirani, depending on gas type
Materials In Contact With Vacuum	Stainless steel 1.4307, tungsten, nickel, glass
Measurement Range	100 - $5 \times 10^{-4}$ mbar ( $75 - 5 \times 10^{-4}$ Torr), max. overpressure 4 bar absolute
Resolution	2-digit plus exponent
Accuracy	100 - 20 mbar: $\lt \pm 30\%$ from reading 20 - $2 \times 10^{-3}$ mbar: $\lt \pm 10\%$ from reading $\lt 1 \times 10^{-3}$ mbar: $\lt$ factor 2
Measuring Rate	1.0 s
Data Logging Rate	1...999 s
Operating Temperature	+5...+50°C
Storage Temperature	-20...+60°C
Power Supply	9 V block battery, NiCd rechargeable battery or 15 VDC external
Electrical Connection	Jack for external power supply
Power Consumption	Approx. 110 mW
Vacuum Connection	Stainless steel small flange DN 16 ISO-KF
Operating Time	Max. 100 h with 9V lithium battery, max. 40 h with 9V Alkali-Mangan battery
Display	LCD 12 mm
Protection Class	IP40
Weight	Approx. 200 g (battery included)

## Product Codes

• **VD83**  
Compact vacuum meter,  
100 to  $5 \times 10^{-4}$  mbar, DN 16 ISO-KF  
flange

## Accessories:

• **VD8CASE**  
Protective case

• **VD8ALK**  
AlMn battery, 9 V block 6LR61

• **VD8N4**  
External power supply,  
100 to 240 VAC

• **VD8ANS**  
Connection set with tee  
DN 16 ISO-KF, 2 centering rings and  
2 clamps

• **VGR**  
VacuGraph™ software for Windows

• **WUSB0002**  
Interface cable USB, shielded, 2 m

## VD84

VD84 digital Pirani vacuum meter with exchangeable sensor head reads absolute pressure in the fine vacuum range.

It is available with USB interface and can be used as data logger.

VD84 can be operated with either battery or external power supply making it ideal for portable or fixed applications.

### Typical Applications

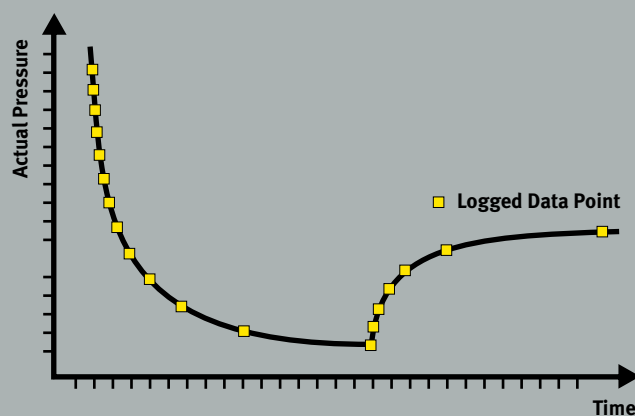
- Monitoring of vacuum insulations
- Evacuation of brake and air-conditioning systems
- Checking and setup of vacuum appliances
- Operational control and documentation of vacuum plants and pumps
- Service and maintenance
- Modern teaching aid with PC interface
- Recording and plotting of pump down diagrams
- Leak tests
- Vacuum centrifugation
- Coating plants
- Vacuum evaporators

## Compact Vacuum Meter / Data Logger Absolute Pressure 100 to $1 \times 10^{-3}$ mbar

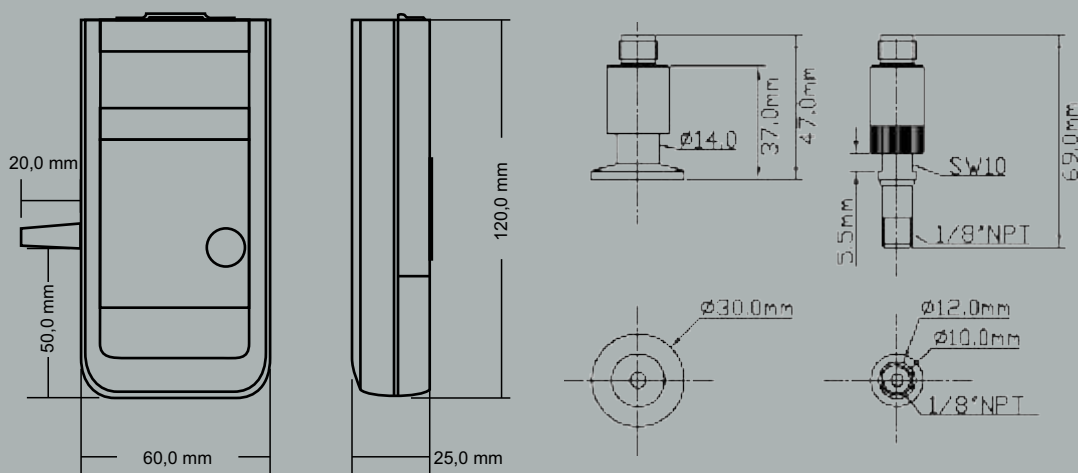


### Benefits

- External detachable sensor with stainless steel small flange DN 16 ISO-KF or 1/8" NPT male thread
- Temperature compensated Pirani sensor with durable helix filament
- Excellent reproducibility
- The sensor is well protected against condensed solvents
- Long battery life due to clocked measurement
- Compact, easy to use
- Pressure units mbar, Torr, hPa
- Min/Max memory: Storage and display of high and low values
- Precise push button readjustment
- Automatic switch off or continuous operation
- User friendly operational concept
- USB interface
- Easy configuration of the vacuum meter by VacuGraph™ software or directly at the instrument
- Measuring rate of the data logger can be arbitrarily set by means of VacuGraph™ software or directly selected at the instrument
- Gas correction factors for correct pressure readings
- Online data transfer to PC via USB
- Data logger functionality: Save up to 2000 measurements in the vacuum meter and push button data transfer to a PC; no PC connection is necessary during the measurement
- VacuGraph™ software for saving and plotting measurements on PC



Data logging at measurement changes



## Technical Data

Measuring Principle	Pirani, depending on gas type
Materials In Contact With Vacuum	Stainless steel 1.4305, tungsten, nickel, glass
Measurement Range	100 - $1 \times 10^{-3}$ mbar ( $75 - 1 \times 10^{-3}$ Torr), max. overpressure 4 bar absolute
Resolution	2-digit plus exponent
Accuracy	100 - 20 mbar: $\pm 30\%$ from reading 20 - $1 \times 10^{-2}$ mbar: $\pm 10\%$ from reading $< 1 \times 10^{-2}$ mbar: $\times$ factor 2
Measuring Rate	1.0 s
Data Logging Rate	1...999 s
Operating Temperature	+5...+50°C
Storage Temperature	-20...+60°C
Power Supply	9 V block battery (alt. NiCd rechargeable battery) or 15 VDC external
Electrical Connection	Jack for external power supply
Power Consumption	Approx. 110 mW
Vacuum Connection	Stainless steel small flange DN 16 ISO-KF or 1/8" NPT male thread
Operating Time	Max. 100 h with 9 V lithium battery, max. 40 h with 9 V Alkali-Mangan battery
Display	LCD 12 mm
Protection Class	IP40
Weight	Approx. 200 g (battery included)

## Product Codes

• **VD84/1**  
Compact vacuum meter,  
100 to  $1 \times 10^{-3}$  mbar, with probe  
type VSP841, DN 16 ISO-KF flange

• **VD84/2**  
Digital compact vacuum meter, 100  
to  $1 \times 10^{-3}$  mbar, with probe type  
VSP842, 1/8" NPT male thread

### Accessories:

• **VSP841**  
Additional sensor,  
DN 16 ISO-KF flange

• **VSP842**  
Additional sensor,  
1/8" NPT male thread

• **VD8CASE**  
Protective case

• **VD8ALK**  
AlMn battery, 9 V block 6LR61

• **VD8N4**  
External power supply,  
100 to 240 VAC

• **VD8ANS**  
Connection set with tee DN 16  
ISO-KF, 2 centering rings and  
2 clamps

• **VGR**  
VacuGraph™ software for Windows

• **WUSB0002**  
Interface cable USB, shielded, 2 m



## VD85

## Compact Vacuum Meter / Data Logger Absolute Pressure 1200 to $5 \times 10^{-4}$ mbar

VD85 digital vacuum meter reads pressure over 7 decades in the rough and fine vacuum range.

Its sensor combination of piezo and Pirani guarantees high resolution and precision over the whole range.

It is available with USB interface and can be used as data logger.

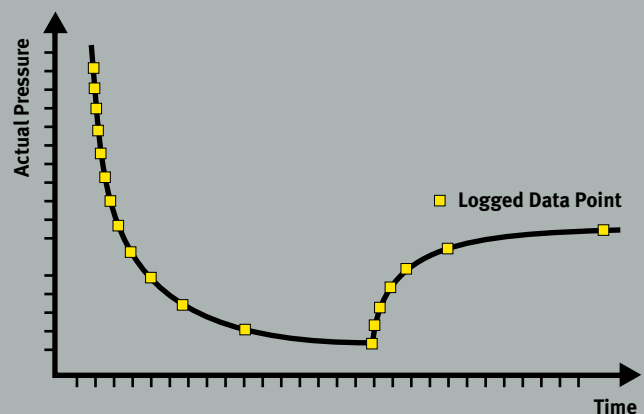
The VD85 can be operated with either battery or external power supply making it ideal for portable or stationary applications.

### Typical Applications

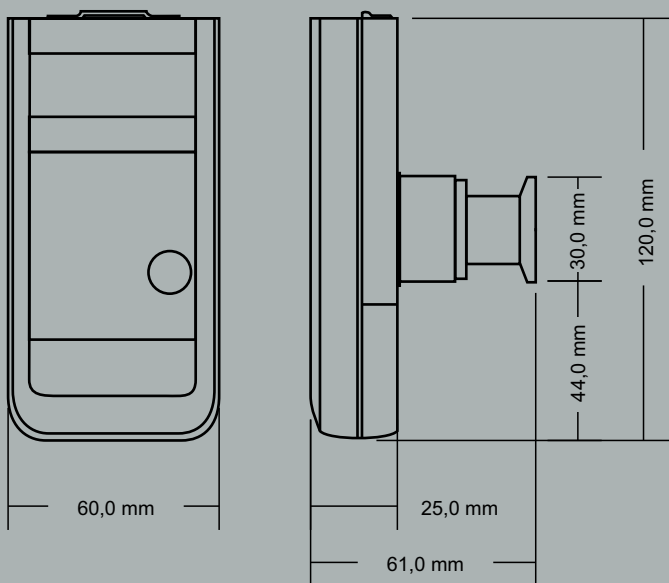
- Checking and setup of vacuum appliances
- Diagnosis and documentation of vacuum pumps
- Service and maintenance
- Leak tests
- Graphical evaluation of pump down diagrams
- Modern teaching aid with PC interface
- Coating plants
- Evaporators

### Benefits

- Wide measuring range due to combined piezo/Pirani sensor
- High precision and optimal resolution over the whole range
- Excellent long term stability
- Rugged sensor (piezo/Pirani)
- Continuous pressure display over the whole range
- The Pirani sensor is active only below 200 mbar
- Pressure units mbar, Torr, hPa
- Min/Max memory: Storage and display of high and low values
- Gas correction factors for correct pressure readings
- Precise push button readjustment
- Automatic switch off and continuous operation
- User friendly operational concept
- USB interface
- Easy configuration of the vacuum meter by VacuGraph™ software or directly at the instrument
- Measuring rate of the data logger can be arbitrarily set by means of VacuGraph™ software or directly selected at the instrument
- Optionally measurements are saved only on pressure change to reduce data volume
- Online data transfer to PC via USB
- Data logger functionality: Save up to 2000 measurements in the vacuum meter and push button data transfer to a PC; no PC connection is necessary during the measurement
- VacuGraph™ software for saving and plotting measurements on PC



Data logging at measurement changes



## Technical Data

Measuring Principle	Piezo resistive, independent of gas type Pirani, depending on gas type
Materials In Contact With Vacuum	Stainless steel 1.4307, nickel, gold, tungsten, glass, Viton®
Measurement Range	1200 - $5 \times 10^{-4}$ mbar ( $900 - 5 \times 10^{-4}$ Torr), max. overpressure 2 bar absolute
Resolution	1200 - 1000 mbar: 1 mbar 1000 - 1 mbar: 0.1 mbar < 1 mbar: 2-digit plus exponent
Accuracy	1200 - 10 mbar: $\pm 0.3\%$ full scale 10 - $2 \times 10^{-3}$ mbar: $\pm 10\%$ from reading < $2 \times 10^{-3}$ mbar: < factor 2
Measuring Rate	1.0 s
Data Logging Rate	1...999 s
Operating Temperature	+5...+50°C
Storage Temperature	-20...+60°C
Power Supply	9 V block battery (alt. NiCd rechargeable batt.) or 15 VDC external
Electrical Connection	Jack for external power supply
Power Consumption	Approx. 60 mW
Vacuum Connection	Stainless steel small flange DN 16 ISO-KF
Operating Time	Max. 100 h with 9 V lithium battery, max. 40 h with 9 V Alkali-Mangan battery
Display	LCD 12 mm
Protection Class	IP40
Weight	Approx. 230 g (battery included)

## Product Code

- **VD85**  
Compact vacuum meter,  
1200 to  $5 \times 10^{-4}$  mbar, DN 16 ISO-KF  
flange

## Accessories:

- **VD8CASE**  
Protective case
- **VD8ALK**  
AlMn battery, 9V block 6LR61
- **VD8N4**  
External power supply,  
100 to 240 VAC
- **VD8ANS**  
Connection set with tee  
DN 16 ISO-KF, 2 centering rings and  
2 clamps
- **VGR**  
VacuGraph™ software for Windows
- **WUSB0002**  
Interface cable USB, shielded, 2 m

# VGR

# VacuGraph™ Windows® Software

VacuGraph™ software can save measurements, plot pressure diagrams for graphical evaluation, control your application in combination with our vacuum control units and calculate leakage rates.

VacuGraph™ is easy to use, self explanatory and suitable for all Thyracont instruments with either an USB, RS 232 or RS 485 interface.

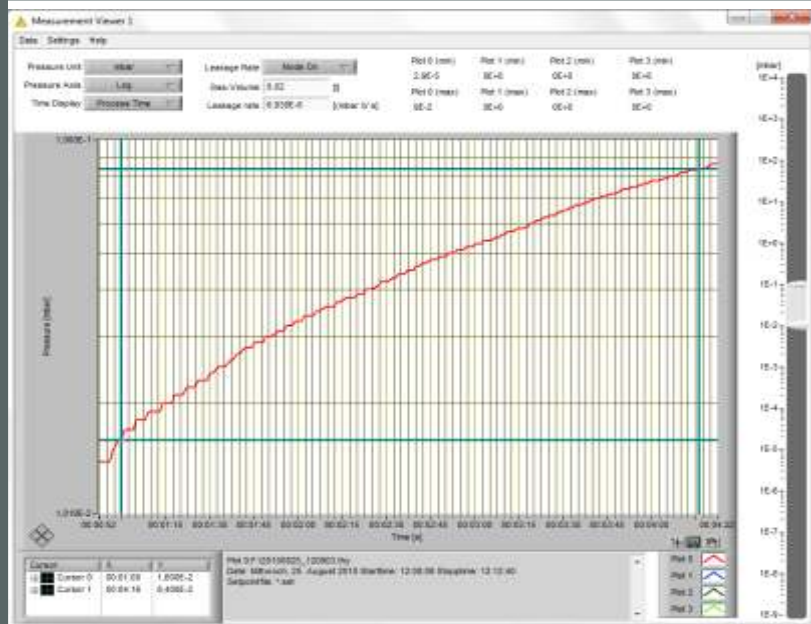
Operating Systems:  
Windows XP/Vista/7  
(32bit and 64bit),  
minimum resolution 1024 x 768

## Typical Applications

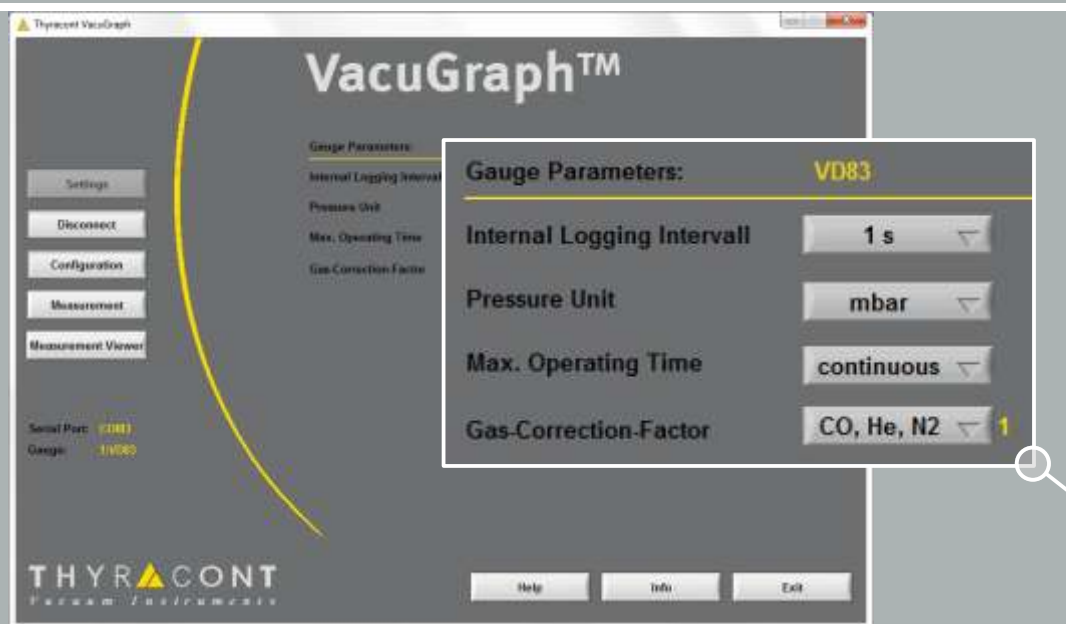
- Documentation of measurements and pump down curves
- Analysis of vacuum processes
- Visualization of pressure increase
- Programming set points

## Benefits

- Saving of measurements
- Graphical display and evaluation of measurements
- Easy adjustment of gauge parameters
- Comparison of multiple plots
- Read out data of Thyracont data loggers
- Easy installation and intuitive operation
- Export data as ASCII text file e. g. for Microsoft Excel
- Leakage rate calculator
- Comfortable setting of instrument parameters in the configuration board
- Printing diagram
- Logarithmic or linear pressure scales
- Units mbar, Torr or Pa
- PC based control by programming setpoints
- Remote control of vacuum controllers (keyboard lock/unlock, controller active/inactive,...)







## Features

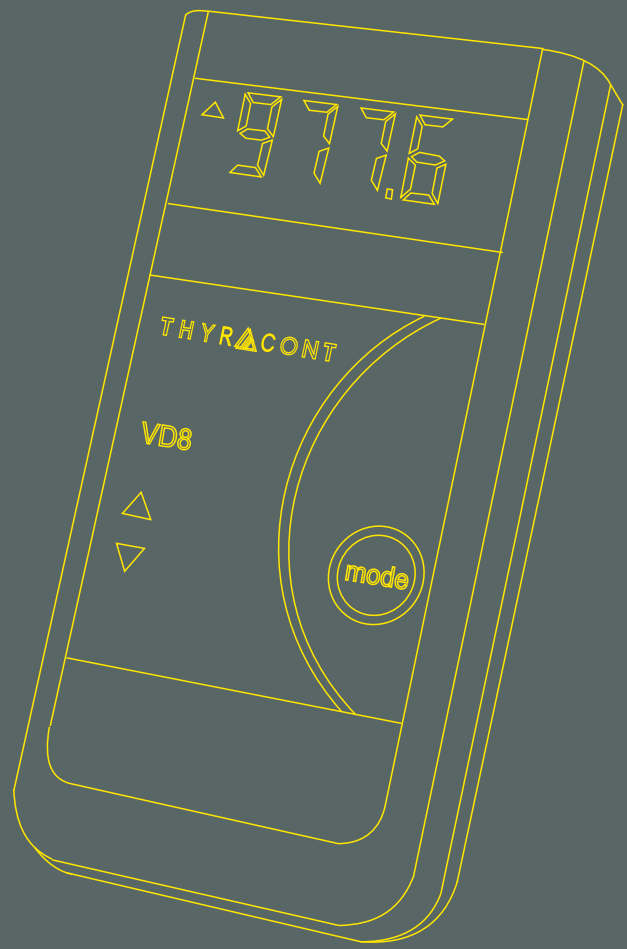
	VD8	VD6	VD9	VD10	DC1	VSM	VSH
Read measurements	x	x	x	x	x	x	x
Program set points		x	x			x	x
Set hystereses		x	x				
Read out data logger	x						
Set data logger rate	x						
Start / Stop Control		x	x	x			
Keyboard lock		x	x	x			
Gas correction factors	x	x	x			x	x
Degas							x
Instrument configuration	x					x	x

## Product Codes

- **VGR**  
VacuGraph™ Windows software

### Accessories:

- **WUSB0002**  
Interface cable 2m, for instruments with USB interface
- **Wo800002**  
PC cable RS232, 2 m



## THYRACONT

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