

Механические вакуумметры и переключатели, ручные измерительные системы РЗ, вакуумные выключатели VS16K IS16K, капсульные циферблатные индикаторы CG16K

Технические характеристики

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P3 HANDHELD MEASURING SYSTEM



The Edwards P3 handheld measuring system is the essential device for on-site service calls and on the spot flexible checking. Thanks to the easy use and integrated measurement data memory, pressures can be directly measured at different locations for monitoring the application. Owing to the advanced measuring range of the high-precision Piezo/Pirani sensor, pressure measurement in the range of 1200 to 5×10^{-4} mbar can be displayed.

The instrument can also be operated completely under vacuum conditions and with the integrated memory function it is possible to store and display up to 2000 measured values.



THE READY TO GO HANDHELD MEASURING SYSTEM

- Direct display of measuring values
- Developed for use in demanding environments
- Mains independent power supply
- High-precision measurements of common gas types
- Internal storage and display of up to 2000 data points
- Export and analysis of stored measurement values via USB interface
- Optional online analysis of measurement values via USB interface

With the integrated battery, the device can be attached and operated at any pressure measuring point, and directly display or store up to 2,000 values for later evaluations and visualisations. All data values stored can be exported and displayed on a computer via USB link and by means of the optional software. The software is especially useful for setting up the devices or calculating rises in pressure for detecting rough leaks.

The accessory carry case, which provides storing and transport protection for the P3 gauge, includes; VacuGraph™ software, spare battery, USB link, mains power adaptor, with each having its own dedicated space in the case.

FEATURES AND BENEFITS

- Measurement range 1200 to 5×10^{-4} mbar (7 decades)
- Usage in vacuum is possible
- Data logging via USB interface or using the internal memory to store up to 2000 values which can then be exported to PC
- Cordless power supply with standard 9 V battery or 12 V a.c. adapter in the accessory pack
- Pressure unit selectable: mbar, Torr and Pascal
- Windows software for measuring data storage and PC analysis in the accessory pack



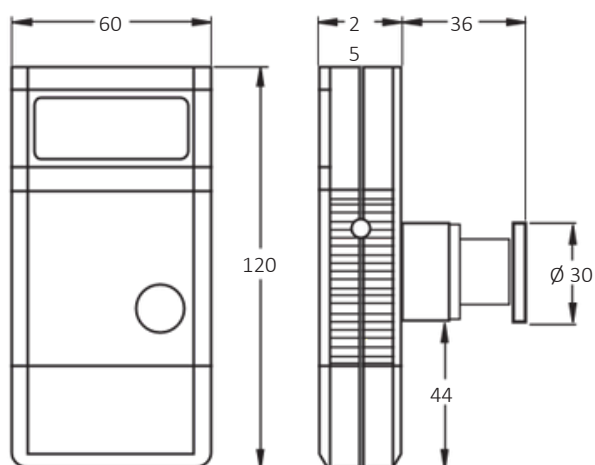
MEASUREMENT PRINCIPLE

The Edwards P3 provides high resolution covering the complete measurement range due to the usage of two different physical sensor principles. It is equipped with an internal Piezo electric sensor for high pressure measurement and a Pirani sensor for covering the lower pressure range. The filament is heated to a constant temperature in a bridge circuit. The necessary bridge voltage is subject to the total pressure measurement. The Piezo electric element measures > 15 mbar independently of the type of gas. In the lower measurement range the adjustable gas correction factor permits a measurement for selected gases other than air.

TYPICAL APPLICATIONS

- Mobile and fixed pressure measurement installations of all kind, including; service, maintenance, universities and laboratory applications
- Food and packaging industry
- Vacuum process quality assurance
- Visualisation and documentation of vacuum pumps and systems

DIMENSIONS – MM



ORDER INFORMATION

Description	Order No.
P3 gauge including 9V battery	D03000420
P3 gauge accessory kit Including: USB interface cable (2 m), protection case with foam insert, 15 V wall power supply for 100 - 260 V, 50/60 Hz mains, VacuGraph™ software and AlMn battery, 9 V block 6LR 61	D03000421
P3 gauge (certified), including 9V battery	D0300042C

TECHNICAL DATA

	Units	P3 Handheld Measuring System
Measurement principle		Piezo-resistive (gas type independent) and thermal conductance Pirani
Indicated units of measurement		mbar, Torr, Pa
Measurement range	mbar (Torr)	1200 to 5×10^{-4} (900 to 3.75×10^{-4})
Maximum overload	bar abs.	2
Measurement accuracy		
1200 - 10 mbar (900 to 75 Torr)	%	± 0.3 of full-scale
$10 \cdot 10^{-3}$ mbar (7.5 to $1.5 \cdot 10^{-3}$ Torr)	% approx. %	10 of measured value
$< 2 \cdot 10^{-3}$ mbar ($< 1.5 \cdot 10^{-3}$ Torr)		< factor 2 of measured value
Gas type correction factor		Ar, CO ₂ , He, CO, H ₂ , N ₂ , Kr
Materials in contact with the vacuum		Stainless steel, gold, tungsten, nickel, glass, fluoroelastomer
Measurement cycle	s	1.0
Data storing rate	s	1 to 6000
Operating temperature		
Sensor	°C	+5 to +50
Battery	°C	-20 to +45
Storage temperature		
Sensor	°C	-20 to +60
Battery	°C	+10 to +25
Supply Voltage		Rechargeable 9 V battery (recommendation: type Panasonic 6LR61PM, 9 V/500 mAh) or 12-15 V d.c. external adaptor (miniature jack, + terminal at the tip)
Power consumption		
<200 mbar (< 150 Torr)	mW	60
> 200 mbar (> 150 Torr)	mW	2
Operating duration	h	Li-battery: <100 h, 6LR61 Alkaline: <40 h
Display		LCD 12 mm
Connection (stainless steel)		NW16
PC interface		Mini USB-B connector
Data type		ASCII-Text
Dimensions	mm	60 x 120 x 61
Protection class	IP	40
Weight (including battery)	kg (lbs)	0.23 (0.51)

VS16K & IS16K VACUUM SWITCHES

The VS16K is a general purpose vacuum switch with a user adjustable set point and a small switching differential. The switch point can easily be set using a screwdriver over the range 30 - 1000 mbar.

The IS16K vacuum interlock switch is designed to safeguard the operator by ensuring that electrical circuits in the vacuum chamber do not remain energised when the system is let up to atmosphere.

Typical applications include interlocking of the HT cleaning or processing circuits on thin film deposition and vacuum systems.



APPLICATIONS

- Furnaces
- Laboratories
- Tank units
- Packaging
- General purpose pumping units

FEATURES AND BENEFITS

- VS16K
 - High vacuum compatible - only stainless steel parts exposed to vacuum
 - Set point independent of gas composition - ideal for backfilling applications
 - “Normally Open” and “Normally Closed” contacts
- IS16K
 - Single non-adjustable set point - cannot be tampered with
 - High vacuum compatible - only stainless steel parts exposed to vacuum

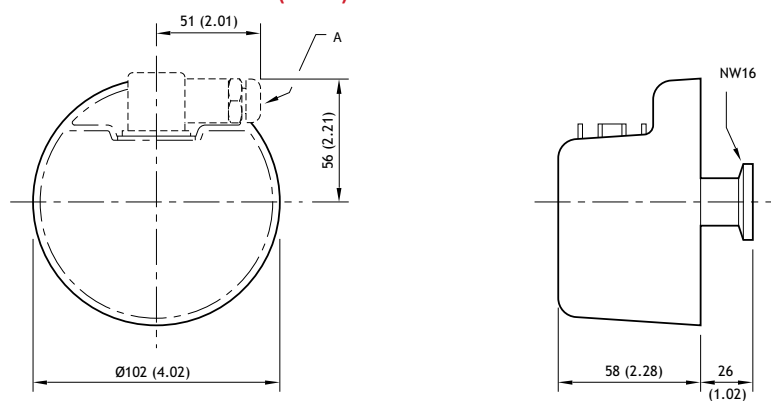
PRODUCT DATA SHEET

TECHNICAL DATA

	VS16K	IS16K
Range of adjustment	30 to 1000 mbar *	-
Fixed set point	-	600 mbar *
Maximum switching differential	30 mbar	1000 mbar
Maximum working pressure	1 bar gauge (2 bar absolute)	1 bar gauge (2 bar absolute)
Electrical rating	10A resistive, 5A inductive at 250 V a.c.	10A resistive, 5A inductive at 250 V a.c.
Electrical connection plug	Type 283 mPm	Type 283 mPm
Internal volume	7 cm ³	7 cm ³
Materials in vacuum	Stainless steel	Stainless steel
Leak rate	<1 x 10 ⁻⁹ mbar ls ⁻¹	<1 x 10 ⁻⁹ mbar ls ⁻¹
Enclosure classification	IP52	IP52
Weight	0.7 kg	0.7 kg
Vacuum connection	NW16	NW16
Accessories supplied	Mating electrical socket Type 183 mPm	Mating electrical socket Type 183 mPm

* Set point varies with barometric pressure

DIMENSIONS - mm (inch)



A: Mating half shown fitted

ORDERING INFORMATION

Product description	Order No.
VS16K adjustable vacuum switch	D05915000
IS16K vacuum interlock switch	D05914000

CG16K CAPSULE DIAL GAUGES

Barometrically compensated dial gauges with NW flange fittings. Edwards CG 16K capsule dial gauges cover the range from atmosphere of 0 to 1040 mbar.

These robust gauges provide accurate, repeatable performance even at low pressures making them equally suited for non-corrosive process plant or for laboratory applications.

Fitting is simple: the gauges can be mounted direct or panel mounted using the kit supplied.



Features and benefits

- Accurate to $\pm 2\%$ F.S.D.
- Barometrically compensated unaffected by changes in atmospheric pressure
- Reading independent of gas type
- Rugged aluminium casing with removeable bezel for cleaning

Applications

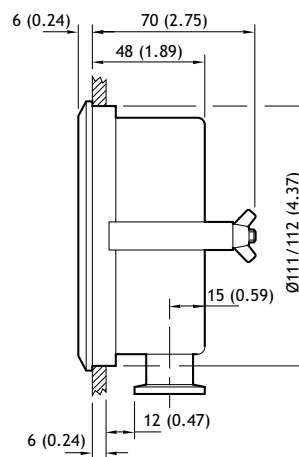
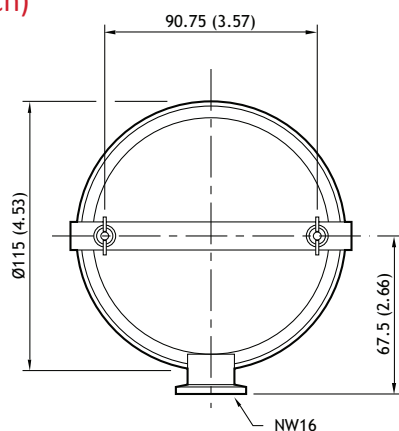
- Backfilling
- Portable equipment
- Degassing
- Refrigeration
- Flammable vapours
- Upgrade from Bourdons
- Packaging

PRODUCT DATA SHEET

Technical data

Accuracy	± 2% of F.S.D.
Materials in vacuum	Inconel, aluminium, nickel, glass, nitrile, copper, alloy
Internal volume	160 cm ³
Maximum applied pressure	2 bar absolute (1 bar gauge)
Weight	0.8 kg
Vacuum connection	NW16
Accessories supplied	Clamp and studs for panel mounting

Dimensions - mm (inch)



Ordering information

Product description	Ordering information
CG16K capsule dial gauge 0 to 1040 mbar	D35610000
CG16K capsule dial gauge 0 to 125 mbar	D35611000
CG16K capsule dial gauge 0 to 50 mbar	D35612000
CG16K capsule dial gauge 0 to 25 mbar	D35613000
CG16K capsule dial gauge 0 to 760 Torr	D35630000
CG16K capsule dial gauge 0 to 100 Torr	D35631000
CG16K capsule dial gauge 0 to 40 Torr	D35632000
CG16K capsule dial gauge 0 to 20 Torr	D35633000

Edwards offers a calibration service traceable to national standards for new or returned gauges and controllers. Please contact Edwards for details.



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