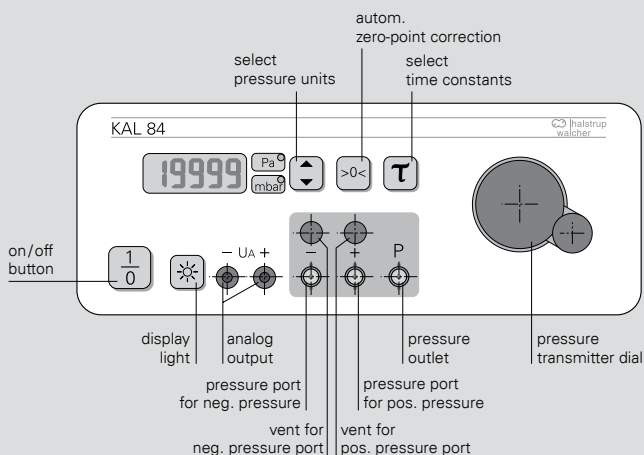
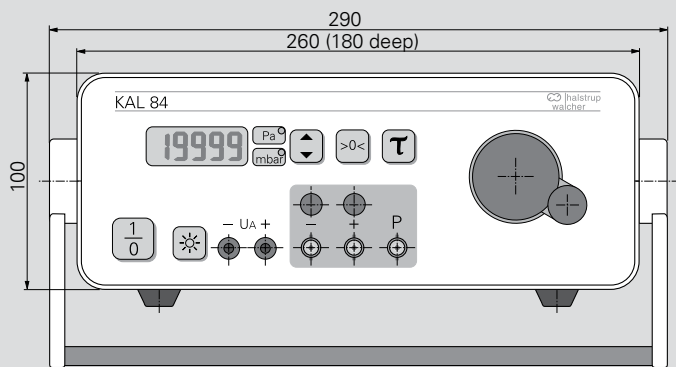




## Features

- Highly accurate and reproducible results
- Internal pressure generation using pressure bellows and hand pump
- Very rugged and light: excellent for service applications
- Unit conversion, e.g. mmHg/kPa, mbar/kPa
- Rechargeable battery allows for portable operation



Margin of error <sup>1)</sup> (0.3 Pa margin of error for the reference)	$\pm 0.2\%$ of max. value + $\pm 1$ digit for measurement ranges 1..50 kPa $\pm 0.5\%$ of max. value + $\pm 1$ digit
Hysteresis	0.1 % of max. value
Temperature coefficient zero point	not applicable; Push button for resetting zero-point
Temperature coefficient span	0.04 % of max. value/K (10.. 40 °C)
Calibration temperature	22 °C
Medium	air, all non-aggressive gases
Displacement volume	approx. 100 cm <sup>3</sup> (1, 10, 100 kPa) approx. 200 cm <sup>3</sup> (100 Pa)
Analog output	0.. 1 V ( $R_L \geq 2$ k $\Omega$ ) 2 connectors $\varnothing$ 4 mm
Display	4 ½ digit LCD character height = 10 mm
Time constants	toggles between 0.1 s; 1 s
Operating temperature	10.. 40 °C
Storage temperature	- 10.. 70 °C
Power supply	NiCd rechargeable 9 V battery with AC adaptor
Weight	approx. 3 kg
Pressure ports	for tubing NW 6 mm
Certificates	CE

<sup>1)</sup> all measurement ranges have a 99 % overrange.

Measurement ranges <sup>2)</sup>	A
0.. 100 Pa (0.. 1 mbar)	0
0.. 1 kPa (0.. 10 mbar)	1
0.. 10 kPa (0.. 100 mbar)	10
0.. 100 kPa (0.. 1 000 mbar)	100
0.. 300 mmHg (0.. 400 mbar)	300

<sup>2)</sup> others available upon request

Margin of error	B
$\pm 0.5\%$ of max. value $\pm 1$ digit	1
$\pm 0.2\%$ of max. value $\pm 1$ digit for measurement range 1..50 kPa (optional)	2

Power supply	C
230 VAC adaptor	230
115 VAC adaptor	115

Order code	A	B	C
KAL 84	-	-	-

## ACCESSORIES

Carrying bag KAL 84  
 Hand pump KAL 84  
 Transport case KAL 100/200  
 Carrying bag KAL 100/200  
 DAkkS calibration certificate, German  
 DAkkS calibration certificate, English  
 ISO factory calibration certificate

**Order no.**  
 9062.0001 <sup>1</sup>  
 9601.0036 <sup>2</sup>  
 9220.0002 <sup>3</sup>  
 supplied as standard  
 9601.0003 (see p. 42)  
 9601.0004 (see p. 42)  
 9601.0002 (included for KAL 200)



Hand pump KAL 84  
 Order no. 9601.0036



Carrying bag KAL 84  
 Order no. 9062.0001



Transport case KAL 100/200  
 Order no. 9220.0002



Carrying bag KAL 100/200  
 supplied as standard

## APPLICATIONS FOR THE KAL CALIBRATION DEVICE

Eliminate the time and expense of sending your pressure gauges to an external calibration laboratory. KAL uses a rechargeable battery and is therefore ideal for mobile applications. KAL enables you to calibrate pressure gauges yourself. However, if you wish to use the calibration device as a reference, it should be calibrated by DAkkS.

The KAL range provides the optimum solution for the following typical (mobile or stationary) applications:

- calibration of differential pressure gauges in cleanrooms (pharma, semiconductors etc.)
- calibration of blood pressure monitoring equipment in hospitals etc.
- calibration of differential pressures in air-conditioning systems

### EFFICIENT ON-SITE CALIBRATION OF BLOOD PRESSURE MONITORS

Every hospital and nursing home now uses blood pressure monitors. These devices must be accurate and reliable. They must operate over months and years without deviation and are calibrated annually. During this process, the measured value from the blood pressure monitor is compared with a highly accurate reference value.

Calibrations of this type can be performed efficiently: technical service staff can calibrate blood pressure monitors on-site rather than removing them from hospital wards to be sent to external calibration laboratories. This eliminates costs for logistics and shipping times.

The KAL 200 from halstrup-walcher is battery-powered and the perfect tool for this important task. The PC software enables you to pre-program and save pressure sequences. The KAL 200 pressure generator accurately generates the *target pressure* – the actual value is read from the blood pressure monitor. The actual values are entered directly on-site into standardised test protocols which you can manage in the hospital's or nursing home's building management software. The data are now available at any time.





In practice: Blood pressure monitors in the nursing home Solina in Spiez (Switzerland) are calibrated by the technician responsible.

# HIGH PRECISION ON-SITE MEASUREMENT AND CALIBRATION

The KAL range from halstrup-walcher offers 3 pressure calibration devices which offer outstanding value for money and can be used either for stationary (e.g. in a customer's own laboratory) or mobile applications. These devices combine the following features:

- integrated pressure generation (for setting the calibration point)
- high-precision pressure measurement

In the KAL 84, the pressure is generated using a manual pump and integrated pressure bellows. In the KAL 100/200, the calibration point (target pressure) is entered via the keyboard. A high precision pump automatically generates the target pressure. The user can select not only the display language but also the unit of pressure.

Product	KAL 200	KAL 100	KAL 84
Details on	p. 36	p. 36	p. 37
			
Pressure generation	automatic		manual
Applications	mobile or stationary (laboratory)		
Measurement ranges	0..100 Pa/0..200 Pa/0..500 Pa/0..1 kPa/0..2 kPa/ 0..5 kPa/0..10 kPa/0..20 kPa/0..50 kPa/0..100 kPa/ ±100 Pa/±200 Pa/±500 Pa/±1 kPa/±2 kPa/±5 kPa/ ±10 kPa/±20 kPa/±50 kPa/-80..100 kPa		0..100 Pa (0..1 mbar) 0..1 kPa (0..10 mbar) 0..10 kPa (0..100 mbar) 0..100 kPa (0..1000 mbar) 0..300 mmHg (0..400 mbar)
Margin of error (0.3 Pa margin of error for the reference)	± 0.1 % of max. value Measurement ranges > 0.200 Pa/±200 Pa  ± 0.2 % of max. value Measurement ranges 0..200 Pa/±200 Pa  ± 0.3 % of max. value Measurement ranges 0..100 Pa/±100 Pa	± 0.2 % of max. value Measurement ranges > 0.200 Pa/±200 Pa  ± 0.5 % of max. value Measurement ranges ≤ 0.200 Pa/±200 Pa	± 0.2 % of max. value ± 1 digit Measurement ranges 0..50 kPa  ± 0.5 % of max. value ± 1 digit
Interface	USB (standard)	USB (optional)	-
Analog measurement input for test object	✓	optional	-
Battery life (rechargeable)	8 h	8 h	2 h
Factory calibration certificate	✓	optional	optional

## USER SOFTWARE FOR THE KAL 100/200

Control calibration processes from your PC.

The KAL 100/200 calibration devices with USB port can be operated using our user software. You have a choice of three operating modes: target value mode, pressure measurement and test mode.

Define calibration points and run to them automatically. Once you have saved a defined calibration run, you can use it again for another or the same pressure transmitter.

You can also use the software to set parameters which you would otherwise set using the display's operating menu (unit, language, zero-point adjustment,...).

You can find the free user software at:

[www.halstrup-walcher.de/en/software](http://www.halstrup-walcher.de/en/software)

