KAL 100 / 200

Margin of error KAL 100 (0.3 Pa margin of error for the reference)	± 0.2 % of max. value Measurement ranges > 0..200 Pa / ± 200 Pa ± 0.5 % of max. value Measurement ranges ≤ 0..200 Pa / ± 200 Pa
Margin of error KAL 200 (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
Hysteresis	0.1 % of max. value
Overload capacity	600 kPa for measurement ranges > 3 kPa 200 x for measurement ranges ≤ 3 kPa
Temperature coefficient zero point	± 0 % (cyclical zero-point correction)
Temperature coefficient span	KAL 100: 0.04 % of max. value / K (10..40 °C) KAL 200: 0.03 % of max. value / K (10..40 °C)
Calibration temperature	22 °C
Medium	air, all non-aggressive gases
Measurement input / power supply (test object)	0..10 V, 0/4..20 mA Accuracy: 0.2 % of max. value 24 V DC / 100 mA
Display	Alphanumeric display with 2 x 20 characters, backlighting
Operating temperature	10..40 °C
Storage temperature	-10..70 °C
Weight	approx. 4.5 kg
Pressure ports	Ø 6 mm, for tubing NW 5 mm
Certificates	CE

Model	A
KAL 100	100
KAL 200	200

Power supply	C
115 V AC, 6 % / -15 % (50/60 Hz)	1
230 V AC, 6 % / -15 % (50/60 Hz)	2
115 V AC, 6 % / -15 % (50/60 Hz) and rechargeable lithium ion battery	1A
230 V AC, 6 % / -15 % (50/60 Hz) and rechargeable lithium ion battery	2A

Data interface	D
none	0
USB + measurement input for test object (standard for KAL 200)	1

Measurement ranges	B
0..100 Pa	0
0..200 Pa	02
0..500 Pa	05
0..1 kPa	1
0..2 kPa	2
0..5 kPa	5
0..10 kPa	10
0..20 kPa	20
0..50 kPa	50
0..100 kPa	100
± 100 Pa	0A
± 200 Pa	02A
± 500 Pa	05A
± 1 kPa	1A
± 2 kPa	2A
± 5 kPa	5A
± 10 kPa	10A
± 20 kPa	20A
± 50 kPa	50A
-80..100 kPa	100A

Order code	A	B	C	D
KAL	–	–	–	–

Features

- High precision measurement and calibration device
- Runs on mains supply or battery, highly flexible (optional)
- Battery life approx. 8 hours, ideal for mobile applications
- Automatic zero-point correction provides high zero-point stability
- Internal pump quickly and accurately generates negative or positive differential pressures of up to 100 kPa
- Optional USB interface available (Standard for KAL 200)
- Factory calibration certificate supplied as standard (KAL 200)
- Unit conversion (e.g. mmHg, mmH$_2$O, psi, etc.)
- Multilingual menu (English / French / German / Italian / Spanish)
- With power supply and measurement input for the external test object (transmitter being calibrated)
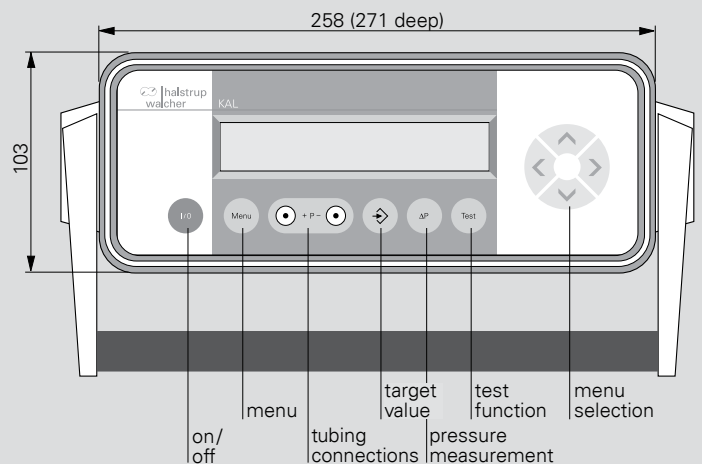
258 (271 deep)

103

on/off — menu — tubing connections — target value — pressure measurement — test function — menu selection

ACCESSORIES

	Order no.
Carrying bag KAL 84	9062.0001 ❶
Hand pump KAL 84	9601.0036 ❷
Transport case KAL 100/200	9220.0002 ❸
Carrying bag KAL 100/200	supplied as standard
DAkkS calibration certificate, German	9601.0003 (see p. 42)
DAkkS calibration certificate, English	9601.0004 (see p. 42)
ISO factory calibration certificate	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