Instruction Manual
KAL 100 / 200 Calibration Device

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Table of Contents

1 Purpose of instruction manual

Please read this instruction manual thoroughly before operating the instrument in order to avoid injury or equipment damage caused by improper use of this instrument or failure to follow these instructions.

This instruction manual describes the features of the **KAL 100 and KAL 200 calibration device** and provides guidelines for its use.

Any individual charged with handling this instrument must be trained in proper instrument operation and informed of all potential hazards. The instruction manual, and in particular the safety precautions contained therein, must be followed carefully. **Please contact the manufacturer immediately if you do not understand any part of this instruction manual or if you require additional information.**

Handle this manual with care and ensure that it

- is readily available throughout the lifecycle of the instrument,
- is provided to any individuals who assume responsibility for operating the instrument at a later date, and
- includes any supplementary materials provided by the manufacturer.

halstrup-walcher GmbH reserves the right to continue developing this instrument model without documenting such development in each individual case. We will be happy to determine whether this manual is up-to-date.

2 Conformity

This device is state of the art. It complies with the legal requirements of EC directives. This is shown by the CE mark.

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The manufacturer owns the copyright to this instruction manual. It contains technical data, instructions and drawings detailing the device’s features and how to use it. It must not be copied either wholly or in part or made available to third parties.

3 Safety precautions

3.1 Symbols

The symbols shown here are used throughout the following text to highlight the hazards associated with using the **KAL 100 and KAL 200** and to point out important information for operating the instrument.

WARNING!

This warns you of a potential hazard that could lead to bodily injury up to and including death if the corresponding instructions are not followed.

WARNING:

This warns you of a potential hazard that could lead to significant property damage if corresponding instructions are not followed.

INFORMATION:

This indicates that the corresponding information is important for operating the instrument properly.

WARNING: ELECTRICITY HAZARD!

3.2 Appropriate use

The KAL 100 and KAL 200 calibration device is used for testing and calibrating pressure sensors.

The instrument is designed for indoor use. To avoid damage, never expose the instrument to liquids or humidity. Avoid strong sunlight, heavy dirt and strong vibrations.

Dust and dirt deposits inside can damage the Instrument. Under appropriate environmental conditions (dust, smoke) the device should be serviced regularly by qualified personnel to prevent damage due to overheating and other malfunctions.

Always observe the operating requirements – particularly the permissible supply voltage – indicated on the rating plate and in the “Technical data” section of this manual.

The instrument may only be handled as indicated in this manual. Modifications to the instrument are prohibited. The manufacturer is not liable for damages caused by improper use or failure to follow these instructions. Violations of this type render all warranty claims null and void.

3.3 Shipping, assembly, electrical connections and start-up

Please do not close the pressure inlets during shipping! Changes in barometric pressure may damage devices with low measuring ranges.

Assembly and the electrical connections should only be handled by professionals. Only technical personnel who are appropriately trained and authorized by the operator of the facility may assemble the instrument and set up its electrical connections.

Pressurized air or breath is not to be used for performance tests, as this could damage instruments with low measurement ranges.

Measurement errors may occur if the instrument is not kept protected from sunlight.

See the individual sections of this manual for specific safety precautions.

3.4 Troubleshooting, maintenance, repairs, disposal

The individual responsible for the electrical connections must be notified if the instrument is damaged or if errors occur that cannot be corrected as indicated in Section 10.

This individual must take the instrument out of service until the error has been corrected and ensure that it cannot be used unintentionally.

WARNING: ELECTRICITY HAZARD!
Electric shock due to high voltages inside the instrument

Inside the instrument there are parts that are under high electrical voltage.

Never remove covers. There are no user-serviceable parts inside the unit. Do not use the instrument if any covers are missing or damaged.

This instrument requires no maintenance.

Only the manufacturer may perform repairs that require the housing to be opened.

The electronic components of the instrument and the optionally included rechargeable battery contain materials that can be reused. The instrument must therefore be sent to a recycling plant when you no longer wish to use it. The environment codes of your particular country must be complied with.

WARNING!
Risk of injury due to improper handling of lithium-ion batteries

Lithium-ion batteries can cause serious injury in case of short circuit, overheating or mechanical damage

4 Instrument description

4.1 Functions

The KAL 100 / 200 microprocessor-controlled pressure calibration device can be used for the following:

- Simply generating positive and negative reference pressures
- Measuring positive and negative pressures
- Measuring differential pressure
- Identifying leaks in a test object
- Determining dynamic response behaviour of a test object

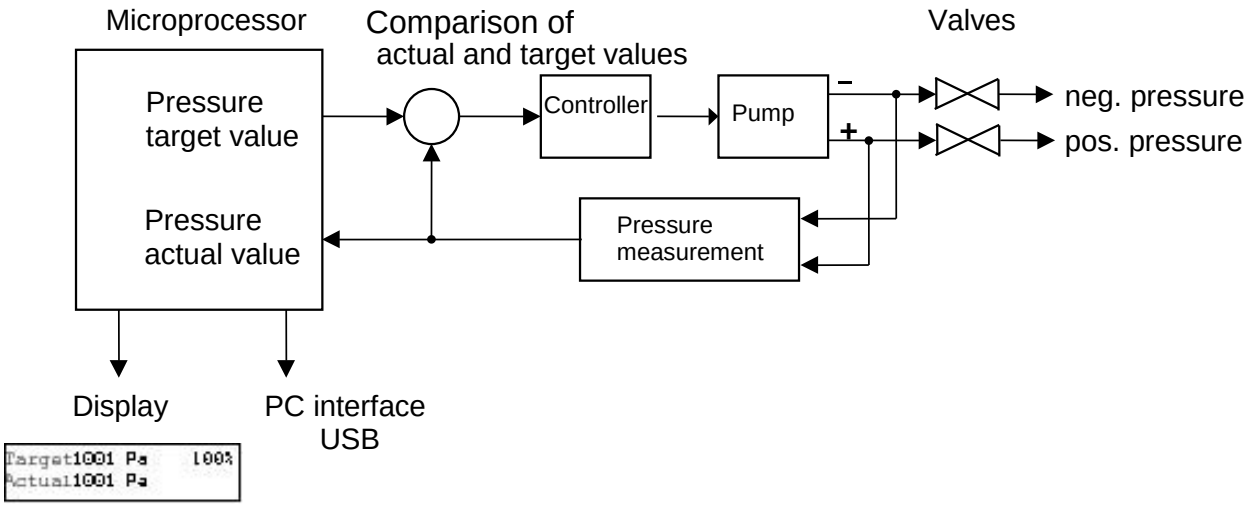


Fig. 1 Basic circuit diagram

4.2 User interfaces

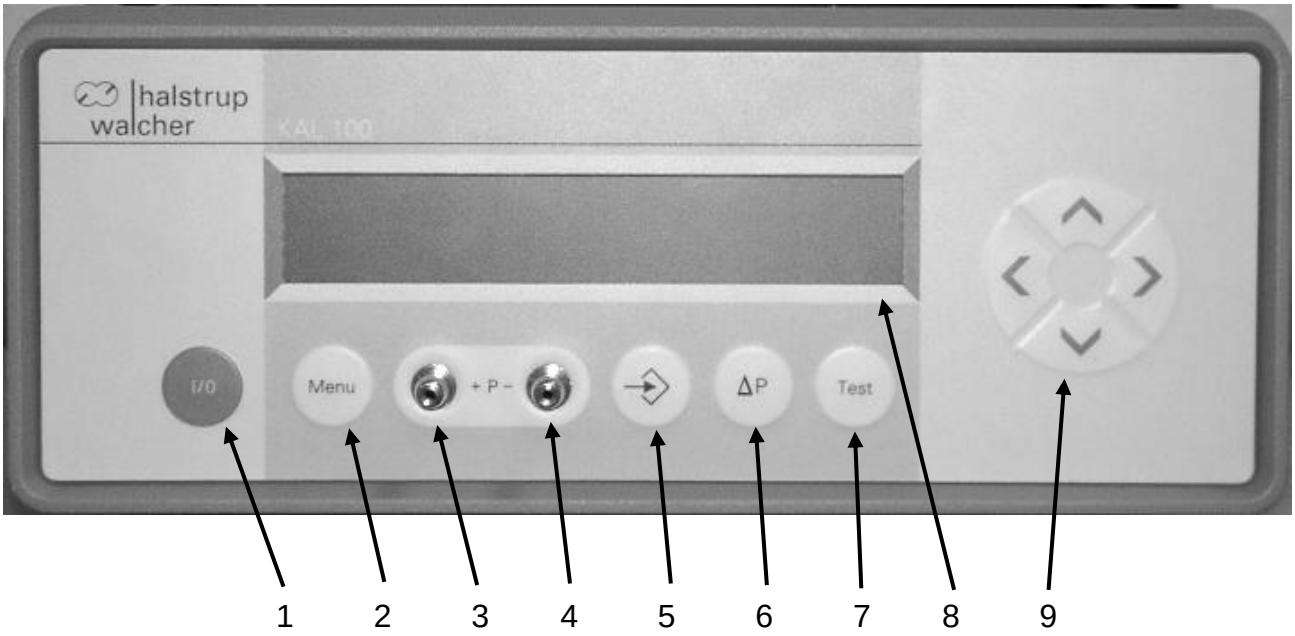


Fig. 2 Front

1 Secondary on/off switch
2 Menu
3 Positive pressure input/output
4 Negative pressure input/output
5 Target value
6 Pressure measurement
7 Test
8 Alphanumeric display
9 Navigation keys

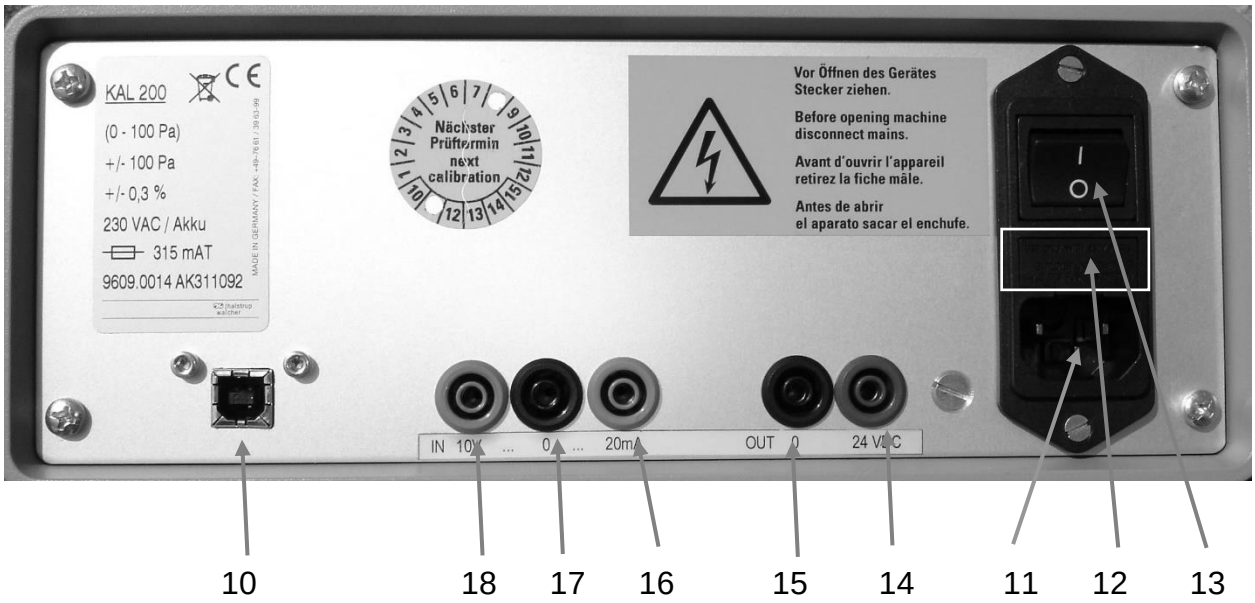


Fig. 3 Rear

10	USB port *
11	Inlet connector for non-heating apparatus
12	Micro fuse, 5 x 20 mm
13	Primary on/off switch
14	Power supply +24V/125mA, galvanic separation *
15	Ground for 24V/125mA *
16	Input port for current measurement 0…20 mA, input resistance 240 Ohm *
17	Ground connector for voltage and current input port *
18	Input port for voltage measurement 0…10V, Ri = approx. 40kOhm *

* KAL100 only optional

4.2.1 Power input, primary on/off switch, micro fuse

13

12

11

The KAL 100 / 200 calibration device is designed at the factory to accommodate a supply voltage of 230 VAC/50-60 Hz (115 VAC or 100 VAC is optional). Voltage fluctuations of +6% to -15% are permissible.

The supply voltage connector (11) is located on the rear of the instrument (inlet connector for non-heating apparatus + ground wire). The instrument's micro fuse (12) is located above this connector (Value see electrical data). Located above the micro fuse is the double-pole, primary on/off switch (13), which separates the KAL 100 / 200 from the supply voltage.

WARNING! Risk of Electrical shock! Failure to unplug the power supply cord before replacing the fuse may result in fatal injuries!

4.2.2 I/O switch

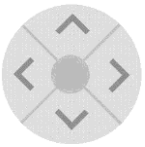
Secondary on/off switch; in standby mode the power input is approx. 5 W.

Pressing the primary on/off switch, a double-pole switch located on the rear of the instrument, separates the instrument from the power supply.

4.2.3 Menu key

Pressing the menu key allows the operator to adjust the following 8 settings:

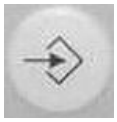
- Target value increments: 5, 10, 20, 25, 50, 100%
- Pressure input: +P, -P, Diff (both)
- Units of pressure: kPa, hPa, Pa, mbar, Torr, mmHg, mmH_2O, inH_2O
- (Optional) Unit in the 2nd line (unit of pressure, V, mA)
- Zeroing: on, off
- Language: German, English, French, Italian, Spanish
- Battery data: Voltage, present current, present current source, battery charge status
- Default settings



Navigation keys

Item 1 is displayed when the menu function is first activated; users may select other items by pressing the right/left navigation keys. The arrows on the display indicate which navigation keys are active. Pressing any of the operating mode keys (target value, pressure, test) exits the menu. Exiting the menu saves user preferences, which will be automatically set the next time the instrument is switched on.

4.2.4 Target value key



The target value function and integrated hose pump allow the user to enter a predefined pressure. The target value is set using the navigation keys. The purge valve is activated or deactivated by repeated pressing of the target value key.

Press the right/left navigation keys to position the blinking cursor over the digit to be changed. Select the desired value by pressing the up/down keys. To change the sign of the target value, position the cursor over the +/- sign and press the up/down keys to change. Move the cursor to the right positions over the percentage symbol, to change the percentage by the increments previously specified in the menu.

The target pressure to be set is the product of the target value and the percentage value.

Example: Increment set from the menu: 25 %; target value 1000 Pa

0 % => 0 Pa; 25 % => 250 Pa; 50 % => 500 Pa; 75 % => 750 Pa; 100 % => 1000 Pa

```
S +100.00 Pa       100 %
A + 99.98 Pa        +OK
```

The actual pressure is shown in the lower portion of the display. It takes about 1s to adjust settings when small volumes are connected. An additional pump is advisable if connecting larger volumes, as it would otherwise take too long to adjust the settings. The maximum target value may not exceed 120% of the measurement range.

```
     ----standby---
  I   0.61 Pa         +P
```

If no tubing is connected to the pressure input valve and the target value has been set to 0 or 0%, the KAL 100 / 200 will constantly seek to correct for pressure differences (such as those caused by temperature drift). To minimize this, the control unit (motor) shuts down after roughly 5 min. The display reads "inactive".

Press any key (other than the I/0 switch) to return the instrument to the "active" state.

4.2.5 "Test" key

The test feature blocks both pressure ports. This allows the operator to measure a drop in pressure on the test object itself (leakage test).

Elapsed time and departure from the starting pressure (in %) are shown in the top line of the display. Pressing the test key starts the measurement again. The target value feature allows the user to restore the previous target pressure.

```
Test      2s  -0.02 %
A + 99.98 Pa       +OK
```

Only one pressure port may be connected if using the KAL 100 / 200 to generate positive or negative overpressure. The hose pump draws in air through the other pressure port.

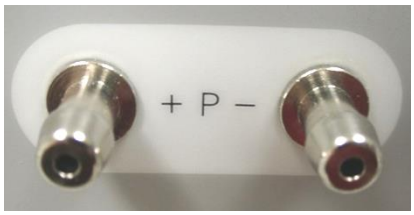
4.2.6 Pressure key

This allows the user to measure both positive and negative pressures up to a nominal pressure of +20%. In other words, a KAL 100 / 200 with a measurement range of 1000 Pa can measure up to ±1200 Pa. The pressure measurement capsule is protected if this value is exceeded. Differential pressures can be measured by using both pressure ports. Navigation keys do not have any function in this case.

The purge valve is activated or deactivated by repeated pressing of the target value key.

In order to achieve the highest possible accuracy in pressure measurements, it is necessary to set the correct pressure input port (see 4.2.7). In addition, the KAL 100 / 200 should be operated at a room temperature of 22°C and should be switched on for at least 30 minutes.

4.2.7 Pressure input port



For technical reasons, the sensitivity of the pressure sensor varies according to the pressure chamber used. Selecting the pressure input allows the user to compensate for these differences. The selected setting is displayed along with the "+P", "-P" or "dP" symbols.

4.2.8 Purge feature

If the instrument is in target value or pressure mode, the purge feature can be activated or deactivated by pressing the appropriate key again. This connects the two ports of the instrument with each other internally in order to release any overpressure. This feature is also useful if sensitive sensors are to be connected. The use of short lengths of tubing can result in high pressures, which may damage or even destroy the sensor. No pressure can build if the purge feature is activated as the air can escape through the free port. When the purge feature is activated, the two pressure ports of the KAL 100 / 200 are displayed in the lower line on the right.

4.3 Menu items

4.3.1 Incrementation

This feature allows the user to modify the percentage of the target value in the following increments: 5 %, 10 %, 20 %, 25 %, 50 % and 100 %.

4.3.2 P-input

This allows the user to select the pressure input as: +P, -P or DIFF.

4.3.3 Units of pressure

This feature allows the operator to select the units used for displaying pressures. Certain measurement ranges cannot be displayed meaningfully in some units, in which case the units in question are not available. The following units may be selected:

- hPa
- mbar
- Torr
- mmHg
- mmH2O
- inH2O
- kPa
- Pa

4.3.4 Unit 2 (KAL 200 standard, KAL 100 only optional)

The KAL 100 / 200 has one input for voltage measurementand one input for current measurement. This allows tze settings of the measured variable displayed in the second line to be displayed and adjusted. For example, if the user selects V as the unit, the voltage measured at the voltage input port will be displayed in the second line. This also applies for the pressure and target value features. The KAL 100 / 200 is therefore capable of measuring the voltage and output current of a sensor. These values can also be readout using the interface and, if necessary, processed directly in a form. The corresponding ports are located on the rear of the instrument.
The KAL 100 can be optionally equipped with this function.

4.3.5 Zeroing

By default the instrument resets the zero point approximately 6 minutes after it is initially switched on and then automatically every 30 minutes or after a major temperature change. Zeroing always results in changes in volume and thus to pressure. This can disrupt certain measurement sequences. Zeroing is automatically suppressed when the instrument is in test mode. The instrument can also be zeroed by pressing and holding (approx. 0.5 s) any of the operating mode keys (target value, pressure, test).

4.3.6 Language

This feature allows the operator to select the language used. The languages available are German, English, French, Italian and Spanish.

4.3.7 Rechargeable battery (optional)

With this menu item, the user can display the voltage, present current, battery charge status and present current source for the instrument. Use the UP and DOWN keys to select the parameters to be displayed.

4.3.8 Default settings

Press the UP or DOWN navigation keys to restore the default settings. Default settings are as follows:

- Incrementation = 25%
- P-input = +P
- Units = hPa
- Zeroing = ON

5 Battery operation (optional)

The device contains a rechargeable lithium ion battery, which allows the device to operate even when not connected to a mains electricity supply. The operating time provided by the battery depends on the mode of operation. When measuring pressure, a fully charged battery is capable of powering the device for between 20 and 30 hours. The operating time is less in target value mode as additional electricity is required to drive the device. However, even in this mode, an operating time of 8…10 hours should pose no problem.

In battery mode, the device switches off automatically after 30 minutes without pressing a key.

If you do not intend to use the device for a longer period of time, you should fully charge the rechargeable battery beforehand in order to avoid total discharge. A reload after 3 to 4 Months is highly recommended. The storage temperature is 0° to 40°C.

5.1 Charging the rechargeable battery

In order to maximise the operating life of the rechargeable battery, it is important to ensure that it always has a sufficient residual charge. As the device continues to consume power when switched off, albeit at a very low level, this is particularly important if it is to be left switched off for a longer period of time. Consequently, there is a risk of the battery discharging completely over an extended period.

While operating in normal mode, the battery is charged using a low current in order to prevent additional heat being generated by the device itself. The charging time here is approx. 12 hours. When the device is switched off (key on the front panel), it checks the status of the battery and activates the charging mode if it is less than 80% charged. The display shows the following message:

```
Accu: Charging
Charging: xx.x%
```

The device switches itself off when the battery is fully charged. If you wish to use the device before charging has been completed, you can start the normal operating mode again at any time by pressing the on/off switch on the front panel. Switching off the mains power supply interrupts the charging process.

The charge level is displayed in 25%-steps. The 0% and the 25% Steps might be seen only after a long period of not using the KAL 100 / 200. In the normal use the KAL 100 / 200 would switch itself off at a charge level of about 40%, which is aprox. at 13,5V. This early cutoff is done to avoid a deep discharge during a longer period of storage.

After switching on the KAL 100 / 200 , the charge level must be evaluated and sent to the Display unit. Due to this the displayed charge level may be delayed or might show wrong values(0.0%) for some seconds.

The device cannot charge if it is not connected to the mains power supply or if the master switch on the back of the device is not switched on. In this case, the following message will be displayed for a few seconds as soon as the residual charge of the battery falls below 40%:

```
Charge < 40%
connect mains
```

If the main power supply is not connected or switched off the device will switch off itself after a few seconds. If this happens, the device should be connected to the mains power supply to charge the rechargeable battery. This is particularly important if the device will not be used for a longer period of time.

If, after switching on the power supply, the device reports with the normal operating mode (display: KAL200 Rev. X.X), it can be put into the rapid charge mode described above by pressing the on/off switch on the front panel.

Due to the 25% steps of the charge level, the level might show 100.0% for some time. At a real charge level of aprox. 90% the display will switch the 90% Display, but the battery will continue to charge. When the battery is fully charged (device has switched itself off), you can separate the device from the mains power supply again. The charged battery has enough power to work for 1 to 2 days with the KAL 100 / 200 or some month of not using the KAL 100 / 200.

5.2 What to do in the case of total discharge

The integrated rechargeable battery has its own protective switch. This completely switches off the output voltage of the battery if it falls below a specified value. If this happens, the display of the KAL 100 / 200 may not show the battery symbol. Whenever it is switched on, the KAL100 / 200 will attempt to reactivate the rechargeable battery. It is therefore advisable in these circumstances to switch the device on and off until the rechargeable battery symbol is visible once again.

However, the most effective method is to avoid leaving the device with an empty battery for an extended period and always to charge the battery before any longer periods during which it will not be in use.

5.3 Charging at low AC-Voltage

In case of low mains AC-Voltage charging level may not reach the 100% level. In this case it may be useful to use the measurement mode to reach higher charging levels.

6 Zeroing

External influences such as temperature, position or ambient pressure can shift the instrument's zero point, i.e. the value displayed when the pressure ports are open. Zeroing is the process by which the instrument automatically registers this shift and figures it into the currently displayed pressure value. The instrument always zeroes itself after it is switched on. If automatic zeroing has been activated, it will zero itself again after 6 min. and then every 30 min.

Zeroing switches the internal valves, which necessarily involves a loss in pressure. If this interferes with instrument operation, the automatic zeroing feature can be switched off. Automatic zeroing is always suppressed when the instrument is in test mode.

Display when zeroing:

Zeroadjust

6.1 Manual zeroing

Pressing and holding the 'pressure', 'target value' or 'test' keys will cause the instrument to zero itself regardless of the menu setting.

7 Overpressure protection

The KAL 100 / 200 has an internal overpressure safeguard that protects the precision pressure measurement capsule from damage. Nevertheless, great caution should be taken when connecting the instrument to an unknown pressure source.

8 USB port (KAL 100 only optional)

The KAL 100 / 200 has a USB port, which is detected by a PC as a serial interface. This port allows the instrument to exchange information and commands with a PC. This feature allows the operator to save settings and to transfer results to a PC.

The interface (USB serial port (COMx)) has the following settings:

- 9600 baud
- 8 data bits
- no parity
- one stop bit

The following table provides an overview of commands and the corresponding data.

8.1 Commands for the serial interface

8.1.1 Operating modes

Command	Meaning	Echo
MT	Mode – test	MT
MZ	Mode – zeroing	MZ
MS	Mode – target value	MS
MP	Mode – pressure measurement	MP
MK1	Keyboard on	MK1
MK0	Keyboard off	MK0
MB	Block ports. Instrument is inactive. Cancel using commands MS or MP	MB
ME	Cancel purge in pressure or target value mode using MM	
MM	Measure in pressure or target value mode	
MI0	Positive P-input	MI0
MI1	Negative P-input	MI1
MI2	Differential pressure measurement	MI2

8.1.2 Setting parameters

Command	Meaning	Format		Description	
>PSxxx.xxxxx	Target value in hPa	Floating			
>PDx	Incrementation	1 digit, 8 bit	0..5	0: 5% 2: 20% 4: 50%	1: 10% 3: 25% 5: 100%
>PEx	Units	1 digit, 8 bit	0..9	0: kPa 2: hPa 4: psi 6: mmHg 8: inHg	1: Pa 3: mbar 5: Torr 7: mmH2O 9: inH2O
>PLx	Language	1 digit, 8 bit	0..4	0: German 2: French 4: Spanish	1:English 3: Italian
>PPxxx	Percentage value	1 digit, 8 bit	0 … 100		

8.1.3 Miscellaneous

Command	Meaning	Echo
STOS	Save setting parameters	OK
RCLS	Load setting parameters	OK
RCLP	Load device parameters	OK
RV	Retrieve device revision	Kal200 Rev. X.X

8.1.4 Query values

Command	Meaning	Format	Output string	Range of values
?PS	Target value in hPa	Floating	PS vxxx.xxxxx	
?PB	Measurement range in hPa	Floating	PB vxxx.xxxxx	
?PD	Incrementation	1 digit	PD x	0..5 (see also 8.1.2)
?PE	Units	1 digit	PE x	0..9 (see also 8.1.2)
?PL	Language	1 digit	PL x	0..4 (see also 8.1.2)
?PP	Percentage value	3 digits	PP xxx	0..100
?MI	Input mode	1 digit	MI x	0..2 (see also 8.1)
?ST	Status	8 digits, binary	ST bbbbbbbb	• bit 7 MSB, pressure OK • bit 6, unused • bit 5, keys active • bit 4 pressure meas. • bit 3, test mode • bit 2, target value mode • bit 1, zeroing active • bit 0, teach mode
?BR	Readout measurement range	Floating, in hPa	BR vxxx.xxxxx	
?AL	Battery charge status	Floating in %	AQ xxx.x	
?AU	Battery voltage	Floating in %	AU xxx.x	
?AI	Battery current	Floating in mA	AI xxx	
?AQ	Active current source	String	"Mains" or "Battery"	
?IP	Readout actual pressure	Floating, in hPa	IP vxxx.xxxxx	
?IV	Readout voltage	Floating in V	IV vxxx.xxxxx	
?IA	Readout current	Floating in mA	IA vxxx.xxxxx	
?ID	Readout pressure diff. (test)	Floating, in hPa	ID vxxx.xxxxx	
?IZ	Readout duration (test)	5 places, in s	IZ xxxxx	

v = prefix x = number, 0..9 b = binary digit; 0 or 1

8.1.4.1 Converting hPa/mbar to desired units

Multiplier	Units
100	Pa
0.0145038	psi
0.7500616827	Torr
0.7500616827	mmHg
10.1971623	mmH_2O
0.0295299875	inHg
0.40146307597	InH_2O

8.2 Interface configuration

Using Windows set up the following series interface configuration (COM port).

To find the interface configuration: go to Start/Settings/Control Panel: click on System and select the Hardware tab. Click on Device Manager and select Ports. Double-click on the used COM port and then select the Port Settings tab.

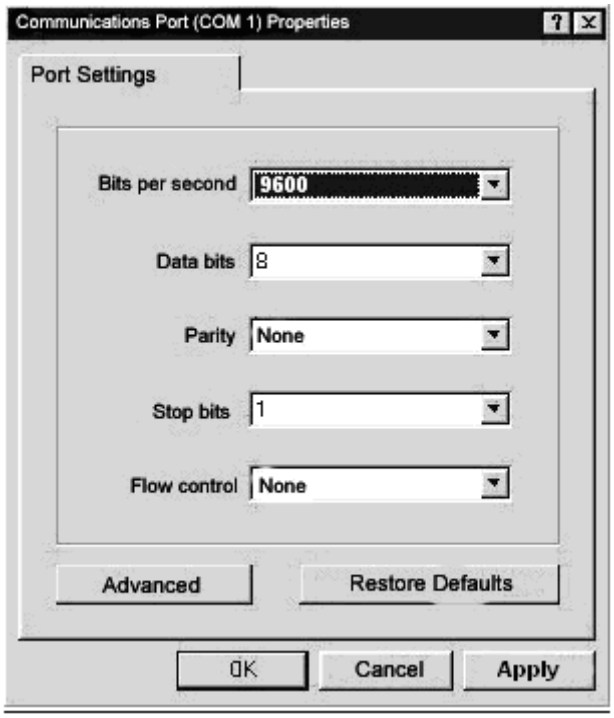


Fig. 4 Properties

9 PC software

You can download this PC software from the following link:
https://www.halstrup-walcher.de/en/downloads/software/index.php?choice[]=476401476401
To find a short description go to the menu item “?” and select “help”.

10 Troubleshooting

Problem	Cause	Corrective Action
Instrument is not functioning, display is dark	No power	→ Check to see if the electrical cord is plugged in properly at the inlet for non-heating apparatus → Switch on instrument at the primary switch (on rear panel) → Check fuse; replace if necessary (see electrical date) **Caution: Unplug power cord!**
Instrument does not reach set pressure; pump runs continuously	Leak in the system, diameter of tubing too large	→ Secure tubing properly; eliminate any leaks → Maximum tubing diameter 5 mm
Battery symbol does not appear in the display	No battery present Deeply discharged battery	→ Switch the device on and off several times until the battery is charged again. Charge the battery before long breaks from use.

11 Technical data

Measurement data	
Measurement ranges	0-100 Pa, 0-1 kPa, 0-10 kPa, 0-100 kPa
Overpressure range	20 %
Overload capacity	600 kPa for 10 kPa and 100 kPa measurement ranges 200x for 100 Pa and 1 kPa measurement ranges
Accuracy based on a pressure/measurement range of 0... 100% at +17…+27°C	KAL 200: ±0,3 % ±1 Digit (100 Pa measurement range) KAL 100: ±0,5% ±1 Digit) (100 Pa measurement range) >100 Pa: ±0,1% ±1 Digit (KAL 200) ±0,2% ±1 Digit (KAL 100)
Hysteresis	0.1 %
Resolution	0.01 % of the final value
Temperature-dependent drift in zero point	none (cyclic zeroing)
Temperature-dependent drift in measurement range	0.03 % / K
Voltage input	0..10V, Ri approx. 40 kOhm, accuracy: +/-0.2% of the final value
Current input	0..20mA, output load 240 Ohm, accuracy: +/-0.2% of the final value
Ambient conditions	
Medium	Air, all non-aggressive gases
Operating temperature	+10°C to +40°C
Storage temperature	0°C to +40°C
Relative humidity	0…80 %
EMC standards	EN 55011; EN 61000-4-3, EN 61000-4-6
Conformity	CE Certificate of conformity at the end of this document

Electrical data	
Power consumption	16 VA
Supply voltage options	230 VAC +6 %/ -15 % (50-60 Hz) 115 VAC +6 %/ -15 % (50-60 Hz) 100 VAC +6 %/ -15 % (50-60 Hz)
Fuse (Micro fuse, 5x20 mm)	100/115 VAC: 500 mAT 230 VAC: 315 mAT
Setting time	The setting time depends on the connected volume and ranges from 10s – 30s
Digital output	USB port (KAL 100 only optional)
Display	Alphanumeric LCD
Rechargeable battery	Li-ion; 14.8V; 3350mAh; permanently installed
Operating endurance – pressure	> 20 h
Operating endurance – target value	> 8 h
Charging time – KAL 100 / 200 in active mode	approx. 12 h
Charging time – KAL 100 / 200 switched off	approx. 6 h
Physical data	
Pressure ports	for NW5 tubing (5mm internal diameter)
Dimensions (w x h x d)	288 x 102 x 247 mm
Weight	4.3 kg
Operating position	horizontal

Appendix A

Parts in contact with measurement medium	
Beryllium bronze CuBe2	Araldite CY236 / HY988
Mu metal (nickel alloy)	Loctite 242e
Brass CuZn39Pb3	Carbonyl iron
Aluminium AlCuMgPb / AlMg3	KEL (FPM: (fluorinated rubber)
Silicon (tubing), optional: Viton	Vepuran Vu 4457/51
Crastin (PTBP)	UHU-Plus endfest 300

12 Certificate of Conformity

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Die Lösung liegt im Detail

EG-Konformitätserklärung im Sinne der
EG- Richtlinie 2014/30/EU, EMV Richtlinie und
2006/95/EG, Niederspannungsrichtlinie

Certificate of Conformity based on the
European Standard 2014/30/EU, and 2006/95/EG

Der Hersteller
The manufacturer

halstrup-walcher GmbH
Stegener Straße 10
79199 Kirchzarten
Deutschland

erklärt, dass die Bauart des Produktes
declares, that the construction of instrument type

Differenzdruck-Messumformer Typ KAL100/200
Differential Pressure Transformer Type KAL100/200

entwickelt, konstruiert und gefertigt ist in Übereinstimmung mit den EG – Richtlinien
is developed, designed and manufactured in accordance with the EC Directives.

EN 61000-6-2 : 2005
EN 61000-6-4 : 2011
EN 61010-1 : 2011

abgegeben durch / stated by:

Sura, Christian
(Nachname, Vorname / Surname, frst name)

Geschäftsführer, Managing Director
(Stellung im Betrieb des Herstellers / Position)

Kirchzarten, 19.10.2016
(Ort, Datum / City, Date)

(Rechtsgültige Unterschrift/ Signature)

13 Environmental protection

13.1 Disposal of packaging material

Environmentally friendly materials have been selected for the packaging, which can be recycled normally.
Ensure that plastic covers, packaging, etc. are disposed of properly.
Do not simply throw these materials away, but make sure that they are recycled. Follow the instructions and markings on the packaging.

13.2 Disposal of batteries and accumulators

Batteries and accumulators must not be thrown away or incinerated, but must be disposed of in accordance with local regulations for the disposal of hazardous waste.
The optional build-in lithium-ion batteries must be disposed of together with the device.
Please enquire about an appropriate collection point.

Notes