Measuring equipment for the laboratory and on site

Analytics with a maximum of comfort and measuring reliability
All from one partner.
Measuring equipment, sensor and accessories.

A strong team
The new CG series provides reliable results and facilitates daily routine work. And best of all: everything is available from one partner. Measuring equipment, sensor and accessories. Schott in the laboratory is the perfect team for measurement work in the laboratory. It fits. Immediately.
The new high performance pH meters by Schott were developed specifically for practical use in the laboratory. They are very easy to use, reliable and precise in all application areas. Routine work is facilitated thanks to automated procedures.

Display

The relevant data are easy to read on the large multi-function display. A sensor symbol signals the status of the pH measurements after calibration and can also remind the user of necessary calibrations to be performed.

Operation

The keys with defined pressure point for certain, precise operation have been arranged clearly. Display operating instructions have been included in the equipment.

Reliability

The additional special function AutoRead serves to monitor the drift of the measurements. The measured value is not released until the stability criteria has been fulfilled. This makes it possible to reproduce measurements.

Temperature compensation

Measurements can be made with and without the temperature sensor. The temperature compensation of the pH measurement can be automatic or manual. The type of connected temperature sensor (Pt 1000 or NTC 30) is recognised automatically.

Calibration

Three calibration processes are available for selection:
- The fully automatic two point or three point calibration (except CG 842) with technical buffers already programmed into the device. The buffer solutions are recognised by the equipment automatically.
- Fully automatic two point or three point calibration (except CG 842) with technical buffers already programmed into the device. The buffer solutions are recognised by the equipment automatically.
- Conventional two point calibration with two freely selectable buffers or one point calibration as fast method.

Energy supply

The pH meters can either be used mobile and independently of the mains power supply by using batteries (approx. 3000 h continuous operation) or be connected to the mains power supply using the optional power pack. If used with batteries, the display will indicate in plenty of time when the batteries are due to be changed. To print, the CG 843P requires the included universal mains power pack.

GLP

Calibration protocol, calibration monitoring and evaluation of the measurement conditions are included in the CG 843 and CG 843P as GLP-supporting functions. The printer integrated in the casing of the CG 853P serves to document measurements on site.

Measurements

The pH meters can be used to measure pH values, redox potentials and temperatures. Whilst the pH and mV is being measured, the temperature of the measurement medium is displayed if a temperature sensor has been connected.

Reliability

The additional special function AutoRead serves to monitor the drift of the measurements. The measured value is not released until the stability criteria has been fulfilled. This makes it possible to reproduce measurements.

Temperature compensation

Measurements can be made with and without the temperature sensor. The temperature compensation of the pH measurement can be automatic or manual. The type of connected temperature sensor (Pt 1000 or NTC 30) is recognised automatically.

Calibration

Three calibration processes are available for selection:
- The fully automatic two point or three point calibration (except CG 842) with buffers in compliance with DIN 19 266 already programmed into the device. The buffer solutions are recognised by the equipment automatically.
- Fully automatic two point or three point calibration (except CG 842) with technical buffers already programmed into the device. The buffer solutions are recognised by the equipment automatically.
- Conventional two point calibration with two freely selectable buffers or one point calibration as fast method.

The data of the last calibration can be recalled from the memory. Using an adjustable calibration timer (integrated in pH meters CG 843 and CG 843P), the user is reminded of imminent calibrations which need to be performed.

Measurement test memory

The pH meters CG 843 and CG 843P have an internal memory in which up to 200 data records can be stored. One record contains the measurement, temperature, date, time, memory place number and a free selectable identification number. Measurements can be saved manually by pressing on a key or automatically at adjustable intervals and then displayed later for further processing.

Measurement test memory

The pH meters CG 843 and CG 843P have an internal memory in which up to 200 data records can be stored. One record contains the measurement, temperature, date, time, memory place number and a free selectable identification number. Measurements can be saved manually by pressing on a key or automatically at adjustable intervals and then displayed later for further processing.

Data interface

The pH meters CG 843 and CG 843P have a data interface which recognises a connected printer, analogue recorder or PC. Using a bi-directional RS 232 interface these pH meters can also be controlled by a PC.

Integrated printer

The CG 843P can print current measurements, measurement memory as well as the calibration protocol using the integrated thermal printer. The special paper guarantees readability for up to 10 years.

Sensors

Both individual electrodes (glass and reference electrode) as well as pH combination electrodes can be connected. To measure temperature at the same time, pH combination electrodes with integrated temperature sensors or a separate temperature sensor can be used. They are connected using a plug in compliance with DIN 19 262 and 4 mm banana plugs.

Individual or as a set

This equipment is not only available individually but also as an inexpensive set. The set also includes: a matching stand, a suitable pH sensor with integrated temperature sensor and calibration solutions. With this set, you can get to work immediately.
The relevant data are easy to display. A sensor symbol read on the large multifunction display.

**Display**

The relevant data are easy to read on the large multi-function display. A sensor symbol signals the status of the measurement cell after calibration and can also remind the user of a necessary calibration to be performed.

**Operation**

The keys with defined pressure point for certain, precise operation have been arranged clearly. The touch pad is insensitive to dirt and easy to clean. Brief operating instructions have been included on the equipment.

**GLP**

Calibration protocol, calibration monitoring and evaluation of the measurement conditions are included as GLP supporting functions. The printer integrated in the casing of the CG 853P serves to document measurements on site.

**Measurements**

The pH meters can be used to measure electrical conductivity, total dissolved solids (TDS), salinity and temperature.

- electrical conductivity between 0.0 µS/cm to 500 mS/cm
- total dissolved solids (TDS) between 0 to 1999 mg/l
- salinity between 0.0 to 70.0
- temperatures between: -5°C to +100°C

**Temperature compensation**

The automatic temperature compensation works in a number of different modes:

- with adjustable linear temperature coefficient, with fixed non-linear temperature coefficient (for natural waters in compliance with EN 27888, pure water function for neutral waters) or with compensation switched off. The reference temperature can be selected to between 20°C and 25°C. The type of connected temperature sensor (Pt 1000 or NTC 30) is recognised automatically.

**Cell constants**

The cell constants can be set between 0.250 and 2.500. In addition, there are the two fixed constants 0.1 and 0.01. The cell constant can also be calibrated between 0.450 and 0.500 and between 0.900 and 1.100.

**Calibration protocol**

The calibration protocol contains the data of the last calibration. It can be recalled from memory at any time. In the case of the CG 853P, the protocol can be printed out after a valid calibration.

**Calibration timer**

Using an adjustable calibration timer the user is reminded of imminent calibrations.

**Energy supply**

The conductivity meters can either be used mobile and independently of the mains power supply by using batteries (approx. 2500 h continuous operation) or be connected to the mains power supply using the optional power pack. If used with batteries, the display will indicate in plenty of time when the batteries are due to be changed. To print, the CG 853P requires the included universal mains power pack.

**Measurement memory**

Both conductivity meters have an internal memory in which up to 200 data records can be saved. One record contains the measurement, temperature, date, time, memory place number and a free selectable identification number. Measurements can be saved manually by pressing on a key or automatically at adjustable intervals and then displayed later for further processing.

**Data interface**

The conductometers have a data interface which recognises a connected printer, analogue recorder or PC. Using a bi-directional RS 232 interface these pH meters can also be controlled by a PC.

**Integrated printer**

The CG 853P can print current measurements, measurement memory as well as the calibration protocol using the integrated thermal printer. The special paper guarantees readability for up to 10 years.

**Sensors**

Both cells of type LF 513T (two pole technology) and alternatively cells of type LF 613T (four pole technology) can be used. Both types are equipped with an integrated temperature sensor (NTC 30) for automatic temperature compensation. They are also equipped with a 1.5 m long cable with an 8 pole plug for direct connection to the conductivity meter. Using the appropriate adapter cable, other measurements can be made in two or four pole technology.

**Individually or as a set**

This equipment is not only available individually but also as an inexpensive set. The set also includes: a matching stand, a suitable four pole measurement cell with integrated temperature sensor (LF 613T) and calibration solutions. With this set, you can get to work immediately.
Technical data for the laboratory pH meters

<table>
<thead>
<tr>
<th>Measuring ranges</th>
<th>CG 842</th>
<th>CG 843/CG 843P</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH range max.</td>
<td>-2.000...+16.000</td>
<td>-2.000...+16.000</td>
</tr>
<tr>
<td>mV range max.</td>
<td>-1999...+1999</td>
<td>-1999...+1999</td>
</tr>
<tr>
<td>Drift control</td>
<td>±1.0 mV</td>
<td>±1.0 mV</td>
</tr>
<tr>
<td>Temperature</td>
<td>±1°C / ±1°C</td>
<td>±1°C / ±1°C</td>
</tr>
<tr>
<td>Zero point matching</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Input resistance</td>
<td>&gt;10 MΩ</td>
<td>&gt;10 MΩ</td>
</tr>
<tr>
<td>Offset current</td>
<td>±10 μA</td>
<td>±10 μA</td>
</tr>
</tbody>
</table>

Calibration:
- buffer sets: DIN (1.44/4.01/6.87/9.18) / Technical (2.00/4.00/7.00/10.00) ±0.01; ±0.005
- calibration interval control: any buffers ±0.1 K
- Real time clock: integrated with time/date
- Data storage: storage by depression of key 200 data records
- Connections: buffer switches to DIN 19.262 (or BNC) ±20...+130°C

Ambient temperature: storage temperature -25...+60°C ±0.1°C
- operating temperature 0...+55°C ±0.1°C
- Power supply: mains adapter automatic switch off at battery operation 4x1.5V batteries type IEC-LR 6
- Housing: only CG 843P 2500 h with continuous use
- Printer: integrated printer (paper width 58 mm) ±0.1°C
- Coverage:
- power supply ± 0.5% of measuring value ±0.2
- accuracy at resolution ± 1
- temperature ± 0.5°C ±0.1 K
- TDS ± 0.5% ±0.01/ ±0.005
- salinity ± 0.2
- Conductivity ± 0.05% of measuring value ±0.01

Technical data for the laboratory conductometers

<table>
<thead>
<tr>
<th>Measuring ranges</th>
<th>CG 853/CG 853P</th>
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<tbody>
<tr>
<td>Conductivity</td>
<td>0.0, 50...5000 mS/cm</td>
</tr>
<tr>
<td>at k=0.1 &amp; k=0.01</td>
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<td>Salinity</td>
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<tr>
<td>TDS</td>
<td>0...1999 mg/l</td>
</tr>
<tr>
<td>Temperature</td>
<td>-5...+100°C</td>
</tr>
<tr>
<td>Power supply</td>
<td>±0.1 K ±0.01 K</td>
</tr>
<tr>
<td>Cover power</td>
<td>±0.05°C</td>
</tr>
<tr>
<td>Resolution</td>
<td>±0.1 K</td>
</tr>
<tr>
<td>Temperature</td>
<td>±0.5°C</td>
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<tr>
<td>Resolution</td>
<td>±0.1 K</td>
</tr>
<tr>
<td>Reference temperature</td>
<td>selectable between 20°C and 25°C</td>
</tr>
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Temperature compensation mode: nonlinear compensation for natural water (EN 27888) ±1/0.299%/K
- Calibration: ±0.5% of measuring value ±0.2
- Accuracy: ± 1%
- Power supply: mains adapter automatic switch off at battery operation 4x1.5V batteries type IEC-LR 6
- Automatic switch off: stored data remain when changing batteries 2500 h with continuous use
- Housing: 285 x 240 x 85 mm ABS, key pad, weight 75 mm x 60 mm
- Printer: only CG 853P 2500 h with continuous use
- Printer: integrated printer (paper width 58 mm) ±0.1°C
- Coverage:
- power supply ± 0.5% of measuring value ±0.2
- accuracy at resolution ± 1
- temperature ± 0.5°C ±0.1 K
- TDS ± 0.5% ±0.01/ ±0.005
- salinity ± 0.2
- Conductivity ± 0.05% of measuring value ±0.01

Technical data for the laboratory pH meters

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Calibration:
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- calibration interval control: any buffers ±0.1 K
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- Housing: only CG 843P 2500 h with continuous use
- Printer: integrated printer (paper width 58 mm) ±0.1°C
- Coverage:
- power supply ± 0.5% of measuring value ±0.2
- accuracy at resolution ± 1
- temperature ± 0.5°C ±0.1 K
- TDS ± 0.5% ±0.01/ ±0.005
- salinity ± 0.2
- Conductivity ± 0.05% of measuring value ±0.01

Technical data for the laboratory conductometers

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<tr>
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</tr>
<tr>
<td>Temperature</td>
<td>-5...+100°C</td>
</tr>
<tr>
<td>Power supply</td>
<td>±0.1 K ±0.01 K</td>
</tr>
<tr>
<td>Cover power</td>
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</tr>
<tr>
<td>Resolution</td>
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Temperature compensation mode: nonlinear compensation for natural water (EN 27888) ±1/0.299%/K
- Calibration: ±0.5% of measuring value ±0.2
- Accuracy: ± 1%
- Power supply: mains adapter automatic switch off at battery operation 4x1.5V batteries type IEC-LR 6
- Automatic switch off: stored data remain when changing batteries 2500 h with continuous use
- Housing: 285 x 240 x 85 mm ABS, key pad, weight 75 mm x 60 mm
- Printer: only CG 853P 2500 h with continuous use
- Printer: integrated printer (paper width 58 mm) ±0.1°C
- Coverage:
- power supply ± 0.5% of measuring value ±0.2
- accuracy at resolution ± 1
- temperature ± 0.5°C ±0.1 K
- TDS ± 0.5% ±0.01/ ±0.005
- salinity ± 0.2
- Conductivity ± 0.05% of measuring value ±0.01
### Overview of ordering program

<table>
<thead>
<tr>
<th><strong>Type No.</strong></th>
<th><strong>Ordering No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pH meters</strong></td>
<td></td>
</tr>
<tr>
<td>pH-Meter CG 842</td>
<td>28 520 2609</td>
</tr>
<tr>
<td>pH-Meter CG 842 Set, complete, ready to start with pH combination electrode BlueLine 14pH with integrated temperature sensor, stand set Z 853 and calibration solutions</td>
<td>28 520 2641</td>
</tr>
<tr>
<td>pH-Meter CG 843</td>
<td>28 520 2617</td>
</tr>
<tr>
<td>pH-Meter CG 843 Set, complete, ready to start with pH combination electrode BlueLine 14pH with integrated temperature sensor, stand set Z 853 and calibration solutions</td>
<td>28 520 2658</td>
</tr>
<tr>
<td>pH-Meter CG 843P, with integrated printer, with universal mains power supply Z 850</td>
<td>28 520 2633</td>
</tr>
<tr>
<td>pH-Meter CG 843P Set, complete, ready to start with pH combination electrode BlueLine 14pH with integrated temperature sensor, stand set Z 853, calibration solutions and universal mains power supply Z 850</td>
<td>28 520 2666</td>
</tr>
<tr>
<td><strong>Conductivity meters</strong></td>
<td></td>
</tr>
<tr>
<td>Conductivity meter CG 853</td>
<td>28 520 0702</td>
</tr>
<tr>
<td>Conductivity meter CG 853 Set, complete, ready to start with 4-pole-conductivity cell LF 613T with integrated temperature sensor, stand set Z 853 and calibration solutions</td>
<td>28 520 0727</td>
</tr>
<tr>
<td>Conductivity meter CG 853P, with integrated printer, with universal mains power supply Z 850</td>
<td>28 520 0719</td>
</tr>
<tr>
<td>Conductivity meter CG 853P Set, complete, ready to start with 4-pole-conductivity cell LF 613T with integrated temperature sensor, stand set Z 853, calibration solutions and universal mains power supply Z 850</td>
<td>28 520 0735</td>
</tr>
<tr>
<td><strong>Accessories for pH meters</strong></td>
<td></td>
</tr>
<tr>
<td>pH combination electrode, with integrated temperature sensor, 1 m fixed cable and DIN plug</td>
<td>BlueLine 14pH 28 512 9147</td>
</tr>
<tr>
<td>Redox combination electrode with plug head</td>
<td>BlueLine 31Rx 28 512 9311</td>
</tr>
<tr>
<td>Plug cable combination e.g. for BlueLine 31Rx, 1 m cable, DIN plug</td>
<td>LB 1 A 28 512 2653</td>
</tr>
<tr>
<td>Electrolyte solution KCl 3 mol/l, 1000 ml DURA N® bottle</td>
<td>L 300 28 513 8554</td>
</tr>
<tr>
<td>DIN buffer solution pH 4.01 / 6.87, 2 x 30 ampoules, with manufacturer certificate</td>
<td>L 4790 28 513 8402</td>
</tr>
<tr>
<td>Redox test solution 180, 430, 600 mV Pt/calomel; 220, 470, 640 mV Pt/Ag/AgCl, 3 x 20 ampoules</td>
<td>L 4648 28 513 8784</td>
</tr>
<tr>
<td><strong>Accessories for conductivity meters</strong></td>
<td></td>
</tr>
<tr>
<td>2-pole conductivity cell, with integrated temperature sensor, plastic shaft, 1.5 m fixed cable</td>
<td>LF 513 T 28 510 6037</td>
</tr>
<tr>
<td>4-pole conductivity cell, with integrated temperature sensor, plastic shaft, 1.5 m fixed cable</td>
<td>LF 613 T 28 510 6131</td>
</tr>
<tr>
<td>Conductivity test solutions KCl 0.01 / 0.1 / 1 mol/l (1.41 mS/cm / 12.9 mS/cm / 112 mS/cm), 3 x 6 ampoules</td>
<td>LF 995 28 512 5293</td>
</tr>
<tr>
<td><strong>Further accessories</strong></td>
<td></td>
</tr>
<tr>
<td>Universal mains power supply unit, 100...240V</td>
<td>Z 850 28 520 4889</td>
</tr>
<tr>
<td>Power supply unit, 230V</td>
<td>Z 851 28 520 4897</td>
</tr>
<tr>
<td>Power supply unit with US plug, 120V</td>
<td>Z 852 28 520 4901</td>
</tr>
<tr>
<td>Stand set, including electrode double clamp</td>
<td>Z 853 28 520 4926</td>
</tr>
<tr>
<td>Printer paper, document quality, 3 rolls</td>
<td>Z 854 28 520 4934</td>
</tr>
<tr>
<td>Connection cable for printer</td>
<td>Z 391 28 520 4918</td>
</tr>
<tr>
<td>Connection cable for recorder</td>
<td>Z 394 28 520 4942</td>
</tr>
<tr>
<td>Interface connection cable for PC</td>
<td>Z 395 28 520 4959</td>
</tr>
</tbody>
</table>

More instruments, sensors and accessories please refer to our other catalogues.
The new range of laboratory equipment. Precise measurements for pH values, redox potentials and conductivity.

The CG range has been developed specially for use in the laboratory using experience gained over 60 years. Special care taken in combining function and completely new designs was worth it. As you can see.