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pH ORP
- hand-held instrument SL-pH-GL
- full set SL-pH Set



- **Water-proof and shock resistant instrument**
- **Water-proof pH electrode and temperature probe**
- **Buffer solution in dosage bottles (pH 4, pH 7, pH 10)**
- **Software for operation, configuration, data read-out, etc.**
- **USB adapter**
- **High-class case**
- **Calibration certificate**
- **Gratis calibration after 1 year with automatic recall from calibration laboratory**

Characteristic

The SL-pH measures pH values, ORP, temperature and rH.

The devices feature min-/max- value memory, HOLD, auto range, logger function with cyclic recording (10 000 data sets) or single values (1 000 data sets), analog output and a large illuminated 4 $^{1}/_{2}$ - digit display.

The device can be optimally adjusted to the specific application via a menu-based configuration. For the calibration one can select between automatic and manual calibration (1-, 2-, and 3- point calibration). Standard or DIN buffers can be chosen for automatic calibration.

The housing, connectors and probes are water-proof.

Specifications

Instrument SL-pH



Measuring range

pH	:	-2.000..+16.000 pH
ORP / mV	:	-2000.0..+2000.0 mV
Temperature	:	-5.0..+150.0 °C / 23.0..302.0 °F
rH	:	0.0..70.0 rH

Accuracy

pH	:	±0.005 pH
ORP / mV	:	±0.05 % FS (mV or mV_H)
Temperature	:	±0.2 °C (in range of -5.0..100.0 °C)
rH	:	±0.1 rH

Connections

pH / ORP	:	BNC socket, compatible to standard and water-proof BNC plugs, additional banana socket (4 mm) for separate reference electrode, input resistance: 10^{12} Ohm
Temperature	:	2 banana sockets (4 mm) for temperature probe (Pt1000 or NTC10k)
Interface / supply	:	4-pole bayonet socket for serial interface and supply
Display	:	two 4 $^{1}/_{2}$ - digit 7-segment displays (15 mm and 12 mm)

pH calibration

perm. electrode specifications	:	asymmetry: ±55 mV slope: -62..-45 mV/pH Buffer is automatically detected. Temperature dependency is automatically compensated. Status rating of pH electrode at calibration. 1-, 2- or 3-point calibration with characteristic curve kink for GHM standard buffers or buffer acc. to DIN19266 or manual buffer input.
ORP measurement	:	2 choices: „mV“ „mV_H“ standard ORP or mV measurement conversion to hydrogen system acc. to DIN38404 part 6
rH measurement	:	Using a ORP measurement and input of pH value the rH value is calculated.
Protection class	:	IP67 (housing and connection)
Housing	:	material made of shock-resistant ABS w/ support, incl. silicone protection cover
Supply	:	2 x AAA battery (incl. in scope of supply) current consumption <1.0 mA
Battery operation	:	approx. 1000 hours
Dimensions	:	160 x 86 x 37 mm (H x W x D)
Weight	:	250 g incl. battery

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Product information

GHMsilverline

Functions

- **Min- / max- value memory**
  Highest and lowest value are saved
- **Hold / Auto-Hold**
  Automatic measured value stability detection
- **Automatic-Off function**
  Device gets automatically turned off after selected time.
  (0..120 min., or deactivated)
- **Status rating for pH electrode and battery**
  Bargraph display, battery change indicator “BAT” display
- **Background illumination**
  Duration selectable (on / off or 5 s … 2 min)
- **Automatic temperature compensation**
- **Selectable calibration intervals (GLP)**
- **Calibration storage (GLP)**
  Latest 16 calibrations are stored.
- **Serial interface**
  Connection: 4-pole bayonet socket
- **Analog output**
  0..1 V freely scalable, connection: 4-pole bayonet socket
  Resolution: 13 bit, accuracy: ±0.05 % at nominal temp.
- **Data logger**
  With measuring point input, recoding interval: 1 s to 1 h
  Recording duration: 416 days at interval 1 h, measuring value memory: cyclic: 10 000 data sets, single: 1000 data sets
- **Real time clock**
- **Min- / max- alarm**
  Continuous monitoring of alarm boundaries,
  3 alarm conditions:
  - off: alarm function inactive
  - on: alarm notification via display, integrated buzzer, interface
  - no Sound: alarm notification via display and interface

pH electrode and temperature probe SE100



A high-class, robust and water-proof pH electrode with integrated Pt1000 temperature sensor is included to the measuring set.

Specifications:

Measuring range		
pH	:	0..14 pH
Temperature	:	-5..+80 °C
Shaft	:	diameter 12 mm length 120 mm
Reference system	:	Ag/AgCl
Reference electrolyte	:	Gel (KCl), low-maintenance, not refillable
Temperature probe	:	Pt1000
Connection	:	1 m fixed cable with BNC plug and banana plug

Buffer solution SPHL



Buffer solution for calibration of pH electrodes

SPL 4: pH 4 (red)	:	pH 4.01 (25 °C) ±0.015
SPL 7: pH 7 (green)	:	pH 7.00 (25 °C) ±0.015
SPL 10: pH 10 (blue)	:	pH 10.01 (25 °C) ±0.030

Buffer solutions, each in 250 ml dosage bottles.
Dosage volumes 20 ml and 25 ml.

Deionized water SDW500



Deionized water for cleansing of electrodes after / during calibration or after soiling.
Water in 500 ml dosage bottles. Guarantee seal 28 mm, dosage volume 20 ml and 25 ml.

KCL electrolyte SKCL



100 ml KCL electrolyte (3mol) for refilling of protection cap for pH electrode.

Case SKK 2019



High-quality case made of robust PP incl. rigid foam inlay with cut-outs for equipment.

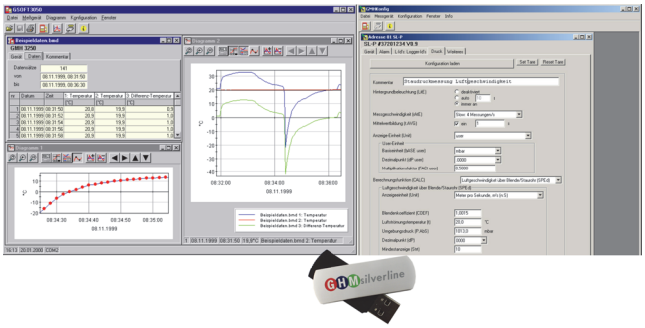
Dimensions : 450 x 360 x 140 mm (H x W x D)

Manufacturer's calibration WSP3 / WSP10

Calibration certificate

WSP3	:	**included to set and as voucher** 3 test values ~4.00 pH, ~6.87 pH, ~9.18 pH
WSP10	:	**optionally upon surcharge** 10 test values from ~1.09 pH till ~12.75 pH

Software GSOFT 3050 and GMHKonfig



GSOFT 3050
The software allows operation of the logger function of hand-held measuring devices. The logger recording can be started and stopped and the logger data can be read-out and visualized.
The multilingual software is executable with Windows 98, Me, NT, 2000, XP, Vista and 7.

The data is read-out via USB interface of a PC by means or an USB adapter and cable (included).

- Display of status information
- Setting of alarm function
- Operation of logger function
- Diagram display of logger data
- Logger data print-out
- Save logger data
- Export of logger data to ASCII (text, usable for MS Excel®)
- Memorizing of window settings
- Display of calibration history (GLP)

GMHKonfig
The software GMHKonfig allows the configuration of hand-held measuring instruments. It automatically detects the connected device type and provides the corresponding functions.

- Device configuration
- Set logger IDs
- Initialization of menu parameters
- etc.

Adapter and cable SL-USB



Electrically isolated interface converter with power supply via USB incl. connection for analog output.

Consumables

SE100	:	pH electrode with temperature probe
SPHL4	:	buffer solution pH 4, 250 ml
SPHL7	:	buffer solution pH 7, 250 ml
SPHL10	:	buffer solution pH 10, 250 ml
SDW500	:	deionized water, 500 ml
SKCL	:	KCl electrolyte, 100 ml
WSP3	:	calibration certificate, 3 test values
WSP10	:	calibration certificate, 10 test values

Other set parts upon request.

Scope of supply SL-pH-GL

Device bulk:
- SL-pH (pH / ORP hand-held measuring device),
- Operating manual,
- Short manual,
- Battery 2 x AAA

Scope of supply SL-pH Set

Set:
- SL-pH (pH / ORP hand-held measuring device),
- SE100 (pH electrode with integrated Pt1000 temperature probe),
- SKK 2019 (case incl. inlay),
- SL-USB (adapter and cable),
- Flash drive with GSOFT 3050 (software),
- SPHL (buffer solution pH 4, pH 7, pH 10; each 250 ml),
- SKCL (KCl electrolyte; 100 ml),
- SDW500 (deionized water),
- WSP3 (calibration certificate),
- Voucher for 1x WSP3,
- Operating manual,
- Short manual,
- Battery 2 x AAA

Product key

SL-pH-GL (device bulk)
SL-pH-Set

Accessories

GEH 1



Electrode holder
suitable for electrodes with plastic handle