

PRO 51x

PORTABLE pH METER / DATA LOGGER WITH BNC CONNECTION



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INTRODUCTION

The **PRO 511** and **PRO 515** are **top-of-the-range professional pH meters** offering a wide range of features, high-grade robustness and user-friendly operation for safe and reliable use in **water analysis applications**.

The **PRO 515** has **data logging capabilities** and a long-life battery. Its water, drop and impact protection make it a perfect choice for field use, and its integrated pop-up stand makes it ideal for laboratory use.

The specialized BNC + temperature input allows the use of cost-effective electrochemical sensors, such as pH electrodes, which provide IP water protection. The analogue input is practical and economical. The banana-plug temperature input allows operation with pH & T combi-electrodes or pH electrodes plus separate temperature sensors, such as the GF1T-T3-B-BS.

Calibration is comfortably automated – the user interface will guide you safely through the process.

The multilingual graphical display with a live chart feature sets this instrument apart from traditional pH meters on the market.

FEATURES

Display

The multilingual large dot matrix/clear text LCD has ergonomic wide-angle visibility from daylight to darkness, thanks to the backlight.

It displays either large scale values, statistical data or the live chart of measurement history.

The HOLD feature allows freezing the measurements on display.

Many units of measurement are available, depending on the connected probes.

Data Logging (PRO 515)

Large storage capacity: up to 1 million data sets, file system based.

The logged data are stored in CVS files that can be easily viewed connecting the instrument to a PC via USB: the instrument is seen by the PC as a mass storage device, the data can be read out and evaluated without software necessarily needed. Automatic log with configurable interval. The comfortable data management software **ProXware** is **downloadable at senseca.com - for free**.

Alternatively the logger can be used as a manual data collector: Datasets are recorded on demand into .json-file.

The instruments integrate a real time clock: date and time of each logged sample are stored.



HIGHLIGHTS

- Water protected IP67 (with suitable pH electrode GE 114 or GE 135)
- BNC connection and temperature input Pt1000/NTC for interchangeable electrodes e.g. pH and ORP
- Life chart display
- Easy to use due to backlit dot matrix/clear text display and multilingual
- Data logger with files read out via USB - no extra software necessary (only PRO 515)
- Built-in foldable stand and magnet for flexible operation
- Integrated magnet at backside

Alarm

Configurable alarm thresholds and optionally hysteresis can be set. LCD indication and buzzer activation when thresholds are exceeded.

Power supply

4 powerful rechargeable AA NiMH batteries, the low power design and the configurable auto-off feature ensure long operation. For permanent operation the instrument can also be powered via its USB C port. Any standard 5 Vdc power adapter with min 800 mA or PC USB port can be used. Configurable LCD backlight for more energy saving options.

Connection to PC

Via the USB C port, for viewing or downloading the files stored in the instruments internal memory or connecting to the application software ProXware.



CONFIGURATION & MEASUREMENT

Probes BNC-Input

The high impedance voltage input allows connection of pH or ORP electrodes, which specially makes sense in harsh applications where electrodes are replaced often. The temperature input for compensation and comfortable adjustment/calibration support makes measuring reliable and comfortable and can be used with pH electrodes with integrated temperature sensor (1 banana plug).

Temperature input

With the help of banana sockets, separate temperature sensors can be connected or pH combination electrodes with integrated temperature sensors can be used.

Adjustment with buffer solutions

Comfortable adjustment ("calibration") can be accomplished with guided user interface, reliable and precise due to fully temperature compensated. In combination with our GPH buffer solutions, this is an excellent economic and practicable solution.

Calibration support

Calibration reports or DAkkS/ACCREDIA certificates are available upon request. The last calibration date is stored.

Statistics

Detection of MIN, AVG (average) and MAX. The user can clear the statistical info to start a new statistical calculation.



**BNC and 2 x Banana sockets
for temperatur**

Measurement specifications

Measuring range	
pH	-2...+16 pH
ORP	-2000...+2000 mV
Temperature	-5...+150 °C (Pt1000) / -5...+105 °C (NTC 10k/30k)
Resolution	
pH	0.001 pH
ORP	0.1 mV
Temperature Pt1000	0.1 °C / 0.1 °F
Accuracy (@ 25°C ±1 digit)	
pH	±0.01 pH
ORP	±1 mV
Temperature Pt1000	±0.2 °C (depending on connected sensor)
Temperature compensation pH	Manual, automatic
Measurement rate	1 meas/s

General specifications

Input channels	1 BNC connector for pH/ORP electrodes 2 x 4 mm banana connectors for temperature sensor and/or reference electrode	
DATA LOGGER ONLY PRO 515	Storage capacity	Up to 1 million data sets, file system based. Each data set includes date/time stamp and measurements of all channels. Data are stored in CSV files
	Logging type	Automatic with manual start/stop or manual single re-cording
	Logging interval	1, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 20, 30 min / 1 hour
Clock	User settable RTC Max. drift 1 min/month @ 25 °C	
Display	140 x 160 dot matrix backlit LCD / visible area 42 x 50 mm Multiple choice of measurement screens: • Large digit single value • Multi-row • Statistical info (Min/Avg/Max) • Chart view	
User interface	Multilingual (de, en, it, fr, es)	
PC connection	USB C Mass Storage Device	
Power supply	4 x AA NiMH batteries External 5 Vdc via USB C (power adapter or PC USB port)	
Power consumption	12 mA typ.	
Battery autonomy	> 200 h typ. continuous operation (backlight off)	
Auto power off	user configurable Automatically disabled if external power is connected	
Operating conditions	-5...50 °C 0...85 %RH non-condensing	
Storage temperature	-25...65 °C (without batteries)	
Protection degree	IP 67 IK 04	
Dimensions	170 x 80 x 38 mm	
Weight	345 g approx.	
Housing material	ABS, TPE (side protection) Polyester (front panel)	

pH and ORP electrodes

Without integrated temperature sensor	
GE 114-WD... - Low-maintenance gel electrode	
	
Measuring range:	0.0...14.00 pH
Operational range:	0...60 °C
Conductivity:	>200 µS/ cm
Waterproof:	IP 65/67
Electrolyte:	Gel electrolyte
Diaphragm:	1 x Pellon
GE 100-BNC... - Universal electrode, replacement pH electrode	
Measuring range:	0.0...14.00 pH
Operational range:	0...80 °C
Conductivity:	>100 µS/ cm
Waterproof:	only shaft
Electrolyte:	KLC, refillable
Diaphragm	2 x ceramic
Integrated temperature sensor	
GE 135-WD... - Universal combination pH electrode incl. Pt1000	
Measuring range:	0.0...14.00 pH, 0...80 °C
Conductivity:	>150 µS/ cm
Waterproof:	IP 67
Pressure resistant	5 bar
Electrolyte:	Gel electrolyte
Diaphragm	1 x ceramic
Pressure resistant pH electrode with Pt1000	
GE 117-BNC... - pH-electrode incl. Pt1000, pressure resistant	
Measuring range:	0.0...14.00 pH, 0...80 °C
Operational range:	0...80 °C
Conductivity:	>100 µS/ cm
Waterproof:	only shaft
Pressure, Thread	6 bar, PG 13.5
Electrolyte:	Gel
Diaphragm	2 x ceramic
ORP / Redox electrode	
GR 105... - ORP-Electrode	
Measuring range:	±2000 mV
Operational range:	0...80 °C
Conductivity:	>100 µS/ cm
Waterproof:	only shaft
Electrolyte:	KCL, refillable
Electrode:	Platinum

Ordering codes

PRO 511 <i>Art.No. 488814</i>	Waterproof pH-/ORP-/temperature measuring instrument, graphic display, incl batteries, Quickstart, device in carton box, test-protocol, without electrode.
PRO 515 <i>Art.No. 488815</i>	Waterproof pH-/ORP-/temperature measuring instrument, graphic display, with data logger, incl batteries, Quickstart, USB-C cable, device in carton box, test-protocol, without electrode. Software ProXware downloadable from Senseca website
Probes must be ordered separately.	
Ready-to-use available sets	
PRO 511-G135L02 <i>Art.No. 489592</i>	Waterproof pH-/ORP-/temperature measuring instrument, graphic display, incl batteries, Quickstart, device in carton box, test-protocol, pH electrode GE 135-L02 (PT1000)
PRO 511-SET_135 <i>Art.No. 489593</i>	Waterproof pH-/ORP-/temperature measuring instrument, graphic display, incl batteries, Quickstart, device in Case PRO-400, test protocol, pH electrode pH GE135, 2 m, KCL3M, 3 x 2 GPH-BAG
PRO 515-G135L02 <i>Art.No. 489594</i>	Waterproof pH-/ORP-/temperature measuring instrument, graphic display, with data logger, incl batteries, Quickstart, USB-C cable, device in carton box, test-protocol, pH electrode GE 135-L02 (PT1000). Software ProXware downloadable from Senseca website
PRO 515-SET_135 <i>Art.No. 489595</i>	Waterproof pH-/ORP-/temperature measuring instrument, graphic display, with data logger, incl batteries, Quickstart, USB-C cable, device in Case PRO-400, test protocol, pH electrode pH GE135 2 m, KCL3M, 3 x 2 GPH-BAG Software ProXware downloadable from Senseca website.
pH and ORP electrodes	
Without integrated temperature sensor	
GE 114-BNC-WD-L01 <i>Art.No. 610460</i>	Low-maintenance gel electrode GE 114 WD (waterproof BNC connection), 1 m cable
GE 100-BNC-L01 <i>Art.No. 600704</i>	Universal electrode, replacement pH electrode, 1 m cable
Integrated temperature sensor	
GE 135-WD-L01 <i>Art.No. 483292</i>	Universal combination pH electrode incl. Pt1000, replacement pH electrode, 1 m cable
GE 135-WD-L02 <i>Art.No. 483293</i>	Universal combination pH electrode incl. Pt1000, replacement pH electrode, 2 m cable
GE 117-BNC-L02 <i>Art.No. 600730</i>	Pressure resistant pH electrode with Pt1000, 2 m cable
GR 105-BNC-L01 <i>Art.No. 607798</i>	ORP electrode, 1 m cable
Other cable lengths on request	

Consumables

GPH-DOS-4 <i>Art.No. 485556</i>	Ready-to-use buffer solution (pH 4.01 / 25 °C), 250 ml dosing bottle
GPH-DOS-7 <i>Art.No. 485554</i>	Ready-to-use buffer solution (pH 7.00 / 25 °C), 250 ml dosing bottle
GPH-DOS-10 <i>Art.No. 485557</i>	Ready-to-use buffer solution (pH 10.01 / 25 °C), 250 ml dosing bottle
GPH-BAG-4-20 <i>Art.No. 488912</i>	Ready-to-use buffer solution (pH 4.01), sachet 25 ml, 20 pcs
GPH-BAG-7-20 <i>Art.No. 488913</i>	Ready-to-use buffer solution (pH 7.00), sachet 25 ml, 20 pcs
GPH-BAG-10-20 <i>Art.No. 488914</i>	Ready-to-use buffer solution (pH 10.01), sachet 25 ml, 20 pcs
GAK 1400 <i>Art.No. 603523</i>	Working- and calibration set consisting of: 5 x buffer capsules GPH 4.0, GPH 7.0 and GPH 10.0, 3 x 100 ml plastic bottle GPF 100, 1 x 3 mol KCL electrolyte, KCL3M and 1 x cleaning solution GRL 100
GRL100 <i>Art.No. 601422</i>	100 ml pepsin/HCl cleaning solution
KCL 3M <i>Art.No. 602477</i>	KCL Solution: Storage solution / Electrode refill
GSKA 3610 <i>Art.No. 607267</i>	Protection hat for depth measuring for sensors Ø 12 mm, gunmetal

Other accessories

CASE PRO-400 <i>Art.No. 486900</i>	Case for PRO Line. Recess for one instrument, space for accessories, carrying handle, zipper. Dimensions: 415 x 245 x 70 mm (W xHxD). 
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