

# PRO 595

## PORTABLE MULTIPARAMETER WATER ANALYSIS METER AND DATA LOGGER



[www.senseca.com](http://www.senseca.com)

### INTRODUCTION

The PRO 595 are high class professional multiparameter handheld meters with a rich set of features, high grade robustness and operating comfort for safe and reliable use in water analysis applications.

They have data logging capabilities and an USB-rechargeable battery system. Water, drop and impact protection is making it a perfect choice for field use, integrated pop-up stand helps in laboratory use.

The combination of a BNC + temperature input for use of economic electrochemical sensors like pH directly and the digital input for long living high quality sensors like optical dissolved oxygen is an innovative combination to suit practical economic requirements.

With this feature set the instruments marks the top level of multifunctional water analyzers supporting a wide range of sensors plus being future proof for even more parameters to be integrated in the future.

### 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

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](http://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.

#### Alarm

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



### HIGHLIGHTS

- Water protected IP67
- BNC connection and temperature input Pt1000/NTC for interchangeable electrodes e.g. pH and ORP optical
- Two DX sensor inputs for wide range of interchangeable digital probes of DX-series, e.g. dissolved oxygen
- 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
- Built-in foldable stand and magnet for flexible operation

### 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.

### Ergonomics

The construction allows for both one-handed use as well as bench-top use with the foldable back stand.

Side rubber protection offers a secure grip during use in the field.

### Calibration support

Calibration reports or DAkkS certificates are available upon request.

The last calibration date is stored.

## CONFIGURATION & MEASUREMENT

### Probes BNC-Input

The high-impedance voltage input enables the connection of inexpensive replaceable pH or redox electrodes, which is particularly useful in harsh applications where electrodes are frequently replaced. The temperature input for compensation and convenient adjustment/calibration support makes measuring reliable and convenient and can be used with pH electrodes with integrated temperature sensor (1 banana plug).

### Probes DX-Input

The meters communicate digitally with the probes of the DX series, allowing the use of longer probe cables (up to 10 m). The wide range of digital probes available allows measuring temperature, dissolved oxygen, conductivity, pressure, humidity, photo radiometric quantities, indoor air quality (IAQ) and soil moisture.

The digital probes are supplied factory adjusted with adjustment data stored internally, allowing for interchangeability without the need for recalibration when changing the probes.

### Alternative USB supply

As soon as the device is connected, it switches the power supply from battery to USB and the batteries are charged.

### 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.

### Statistics

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

### Oxygen measurement

With the choice of DX53x sensors there are different application featured:

**DX 530: optical oxygen sensor, low-cost sensor for field measurements** in sweet water aquafarming, river monitoring, well water analysis and wastewater monitoring.

**DX 532: optical oxygen sensor, heavy-duty field model up to 30 m depth, depth measurement channel**

The extra robust field specialist for wastewater and sea water aquafarming. Due to integrated depth measurement oxygen saturation profiles can be recorded very comfortably.

**DX 535: optical oxygen sensor, laboratory sensor Ø12 mm**

Near-surface waters, wastewater up to 1 m water depth, also ideally suited for laboratories due to small diameter Ø 12 mm, e.g. BSB determination.

### Temperature measurement

The data logger is equipped with a banana temperature input for connecting economic and compact Pt1000 equipped pH electrodes for compensated and precise measurement. Alternative digital DX-temperature probes can be connected as well.



BNC, temperature and 2 x DX connections

## Measurement specifications

### Inputs

BNC	-2.00...+16.00 pH or -2000...+2000 mV Redox voltage
Temperature (banana 4 mm)	-5.0...150.0 °C (Pt1000) / -5.0...105 °C NTC 10K/30k
Digital DX	2 x M12 connector for DX digital probes

### Resolution

pH	0.001 pH
ORP	0.1 mV
Temperature Pt1000	0.1 °C / 0.1 °F
Digital DX	According to sensor specifications

### Accuracy (@ 25°C ±1 digit)

pH	±0.01 pH
ORP	±1 mV
Temperature Pt1000	±0.2 °C (in combination with adjusted sensor)
Digital DX	According to sensor specifications

Temperature compensation pH Manual, automatic

Temperature compensation DX sensors Sensor integrated, e.g. Oxygen: salinity, temperature, ambient pressure

Measurement rate 1 meas/s


## General specifications

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 CVS files
Logging type	Automatic with manual start/stop Easy visualization with Microsoft Excel Single recording logger (logging on keypress) Sequential data collection in JSON file, 3 modes: Standard, Multiselect, on hold
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: <ul style="list-style-type: none"><li>• Large digit single value</li><li>• Multi-row</li><li>• Statistical info (Min/Avg/Max)</li><li>• Chart view</li></ul>
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	20 mA typ.
Battery autonomy	> 100 h typ. continuous operation
Auto power off	Yes, 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 78 x 38 mm
Weight	395 g approx.
Housing material	ABS, TPE (side protection) Polyester (front panel)

## Ordering codes

<b>PRO 595</b> Art.No. 488748	Portable multiparameter water analysis meter and data logger. Supplied with 4 x AA NiMH rechargeable batteries, USB cable and software ProXware downloadable from Senseca website, without sensors.
<b>PRO 595 -PH/DX530</b> Art.No. 488749	Portable multiparameter water analysis meter and data logger. Supplied with 4 x AA NiMH rechargeable batteries, USB cable and software ProXware downloadable from Senseca website, Case PRO-400, pH GE135 5m + accessories, dO DX 530 5m + accessories.
Probes must be ordered separately. Please also check for available standard Set-combinations	

## Accessories and probes

DX temperature probes	
For the available temperature probes, please visit <a href="http://www.senseca.com">www.senseca.com</a> .	
pH and ORP electrodes	
Without integrated temperature sensor:	
<b>GE 114-BNC-WD -L01</b> Art.No. 610460	<p>Low-maintenance gel electrode GE 114 WD (waterproof BNC connection), 1 m</p>  <p>Measuring range: 0.0...14.00 pH Operational range: 0...60 °C Conductivity: &gt;200 µS/cm Waterproof: IP 67 Electrolyte: Gel electrolyte Diaphragm: 1 x Pellon</p>
<b>GE 100-BNC-L01</b> Art.No. 600704	<p>Universal electrode, replacement pH electrode, 1m</p> <p>Conductivity: &gt;100 µS/cm Measuring range: 0.0...14.00 pH Operational range: 0...80 °C Waterproof: only shaft Electrolyte: KCL Diaphragm: 2 x ceramic</p>
Integrated temperature sensor:	
<b>GE 135-WD</b> Art.No. 483292	Universal combination pH electrode incl. Pt1000, replacement pH electrode, 1 m
<b>GE 135-WD-L02</b> Art.No. 483293	<p>Universal combination pH electrode incl. Pt1000, replacement pH electrode, 2 m</p> <p>Conductivity: &gt;150 µS/cm Measuring range: 0.0...14.00 pH, 0...80 °C Waterproof: IP 67 Pressure resistant: 5 bar Electrolyte: Gel electrolyte Diaphragm: 1 x ceramic</p>
<b>GE 17-BNC-L02</b> Art.No. 600730	Pressure resistant pH electrode with Pt1000, 2 m
<b>GR 105-BNC-L01</b> Art.No. 607798	ORP electrode

## Digital DX-Probes

<b>DX-530-L05</b> Art.No. 488968	Digital optical dissolved oxygen sensor, economic field style, detachable cable 5 m. Device in carton box, incl. QuickStart
<b>DX-532-L05</b> Art.No. 488756	Digital optical dissolved oxygen sensor, robust with depth measuring fixed 5 m cable. Device in carton box, incl. QuickStart
<b>DX-535-L02</b> Art.No. 488758	Digital optical dissolved oxygen sensor, compact lab style Ø12 mm, fixed cable 2 m. Device in carton box, incl. QuickStart


## Other cable lengths on request

## Consumables

<b>GPH-DOS-4</b> Art.No. 485556	Ready-to-use buffer solution (pH 4.01 / 25 °C), 250 ml
<b>GPH-DOS-7</b> Art.No. 485554	Ready-to-use buffer solution (pH 7.00 / 25 °C), 250 ml
<b>GPH-DOS-10</b> Art.No. 485557	Ready-to-use buffer solution (pH 10.01 / 25 °C), 250 ml
<b>GAK 1400</b> Art.No. 603523	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
<b>GRL100</b> Art.No. 601422	100 ml pepsin/HCl cleaning solution
<b>KCL 3M</b> Art.No. 602477	KCL Solution: Storage solution / Electrode refill
<b>GSKA 3610</b> Art.No. 607267	Protection hat for depth measuring for sensors Ø 12 mm, gunmetal

## Other cable lengths on request

## Other Accessories

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