

PRIMELAB 1.0 MULTITEST PHOTOMETER

Accurate and reliable water testing

1 JENCOLOR Sensor - ALL Parameters

(visible wavelength range)

Fast *Bluetooth*[®] - Connection

Powerful Software



Sensor/Optics by

JENCOLOR



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PRIMELAB 1.0

MULTITEST

Photometer meets Future

Photometers for electronic and highly accurate determination of water values are standard equipment in every laboratory.

Similarly, mobile phones are standard equipment in our daily lives, and yet over the past few decades they have continuously adapted to technical progress.

Do you still make calls today with a mobile phone of past generations from 10 or 20 years ago or do you prefer the benefits of smartphones with fast *Bluetooth*[®] - wireless technology -, synchronisation with your PC software, apps and many other technical advantages?

How about your photometer ...? has it kept pace with technological progress, or do you still transmit your data via a serial port, an IR interface or even not at all!?

Is your data analysis restricted to predefined, parameters? Did you have a choice of which parameters you want to measure?

Is the performance of your photometer limited to a few or even only one wavelength?

Time for a change

Introducing the next generation of photometers!

Data connection via *Bluetooth*[®] - wireless technology - within seconds, similar to your smartphone in your car.

A sensor by JENCOLOR with unprecedented accuracy, able to measure all parameters where colour development is visible to the human eye after adding a reagent (visible wavelength).

Software that will offer you not only user based management of your measurement sources (e.g. pools) and related measurement data but also offer advice on adjusting the water values back to ranges defined by you.

Software allowing you to easily upload additional parameters on your Photometer.

A device that auto-calibrates itself within milliseconds at the push of a button without having to return it to the manufacturer!



PrimeLab.exe





The difference

When a coloured reagent is added to a water sample using a conventional photometer, light is passed through the sample, with an LED at a specific wavelength, to a sensor placed on the other side of the sample which detects how much light has passed through the water sample (transmission). From this single value on one wavelength then the water value, such as "pH 7.25", is determined, using a table previously defined in the unit.

Currently measurement of a comprehensive range of parameters on one device has required either installation of several light sources and sensors (set to specific wavelengths) or use of colour interference filters, to generate different wavelengths. Only one specific wavelength is measured using this technique only allowing limited parameters.

The JENCOLOR MultiColor sensor has the required filters already installed on the sensor itself, and measures across several channels. This enables the PrimeLab to measure all parameters that, after addition of a reagent, show a visible colour – with unprecedented precision, because the measurement is performed not "around" but precisely at the wavelength range of the sample measuring the colour in seven different scales simultaneously.

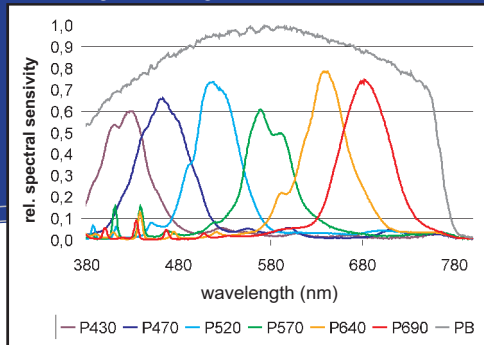
Tests have shown that the JENCOLOR sensor, once calibrated, achieves 98 % of the accuracy of a spectrometer! And all this with only 1 light source and only 1 sensor!

The PrimeLab is even future proof as you are able to add Parameters that are not installed on the device at purchase and can be conveniently installed by using "PrimeLab Desktop Assistant" software.

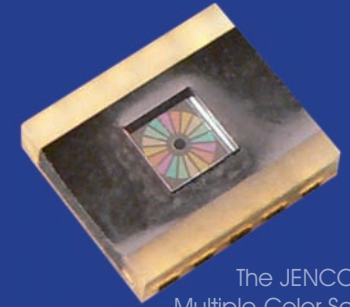
Colours and their wavelengths

colour	wavelength (nm)
purple	380 - 420 nm
blue	420 - 490 nm
green	490 - 575 nm
yellow	575 - 585 nm
orange	585 - 650 nm
red	650 - 750 nm

Wavelength coverage of the JENCOLOR sensor



The Sensor



The JENCOLOR Multiple-Color-Sensor (scale ~ 1:20)

1 Light-Source 1 Sensor ALL Parameters

Sometimes little miracles happen when two completely different industries happen to meet and previously unforeseen synergies arise.

This is happened when we started the development of the "PrimeLab" in late 2010 with our development partner.

JENCOLOR

JENCOLOR is the brand of a subsidiary of a globally renowned optics and sensor manufacturer, with its headquarters in Jena in Thuringia, Germany. The "JENCOLOR Multiple Color" sensors are currently used in medical equipment, pre-press and even in passenger aeroplanes for LED light control in the cabin.

Technology / Colour

The Human Eye sees colour when light falls on to the subject and light waves return to the human eye.

Depending on the shape of this wave – this is called "wavelength" – we see different colours, such as red, green, etc.

The wavelengths visible to the human eye range from 380 to 780 nm.

All colours recognizable by the eye are in this range (see graph).

Account- and Test-Result-Management



- Define any number of "accounts" (addresses, measuring sources with volume specifications...). Each measurement performed with the PrimeLab is assigned to such an "account".

- Transfer of 20 "Accounts" to the PrimeLab per mouse click.
- Synchronization of measurement data between the PrimeLab and the "PrimeLab Desktop Assistant"

- Convenient reporting function for printing results; account-related, selected by date and / or parameter.

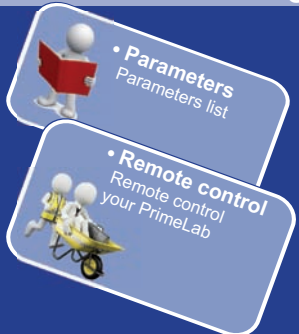
Dose recommendation

- You can input the water treatment chemicals that you use and ideal ranges for each parameter you can get dosage recommendations calculated, view them and print them.

- Store your individually used water treatment chemicals (e.g. "pH Minus").

- Store ideal ranges for each measurement parameter (e.g. "pH 7.2 – 7.4").

Parameter-Management / Remote Control



- Subsequent uploading of additional parameters on the PrimeLab by entering a code into the software.

- Overview of all methods of measurement with display of measurement ranges and stored ideal ranges.



- Remote control of the PrimeLab.

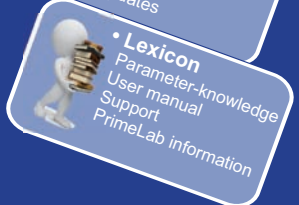
- Definition of customized ideal ranges per parameter.

Setup / Glossary / Support



- Update of the PrimeLab firmware and the "PrimeLab Desktop Assistant" software by mouse click.

- Networking with other users via the forum on www.PrimeLab.org.



- Personalisation of the PrimeLab / individual naming of your machine.

- Extensive information on water per parameter in the section "Glossary".

- Setting date and time / Internet access / reset to factory default values.

- Connection of multiple PrimeLabs to the software.

The Software



PrimeLab.exe

PrimeLab Desktop Assistant
One of the innovations of the "PrimeLab 1.0" is the lightning-fast wireless technology of the photometer to a Windows PC via *Bluetooth*.

The "PrimeLab 1.0" connects instantly and automatically after each power-up, just as you know it e.g. from your smartphone when entering your car.

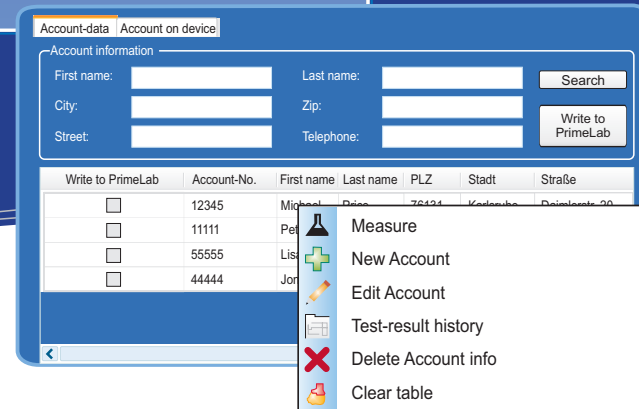
Each "PrimeLab 1.0" with integrated *Bluetooth*-module is supplied with a *Bluetooth*-USB dongle with which you can add wireless connection capability to your computer if this is not already enabled.

The Windows software "PrimeLab Desktop Assistant" is a strikingly powerful tool that allows you:

- Activating further measurement methods on the PrimeLab
- Convenient management and reporting of test results
- Dosage recommendations, based on our individual water treatment chemicals

Updating the PrimeLab firm and software
Remote control your PrimeLab

„PrimeLab Desktop Assistant“



Parameters list

As per 02/2014

ID	Parameter/Method	Test-Range	Resolution	Reagent
Active Oxygen (MPS)				
1	Active Oxyg. (MPS)	0 - 40 ppm	0.1	Tablet
Alkalinity				
6	Alkalinity P	5 - 300 ppm	1	Tablet
5	Alkalinity-m	5 - 200 ppm	1	Tablet
Aluminium				
4	Aluminium	0 - 0.3 ppm	0.01	Tablet
Ammonia				
2	Ammonia (LR)	0 - 1 ppm	0.01	Tablet
3	Ammonia (LR)	0 - 2 ppm	0.01	Powder
Boron				
7	Boron	0 - 2 ppm	0.1	Tablet
Bromine				
8	Bromine	0 - 18.00 ppm	0.01	Tablet
63	Bromine	0 - 18.00 ppm	0.01	Liq./Powd.
Carbohydrazide				
71	Carbohydrazide	0 - 1.3 ppm	0.01	Liquid
Chloramines (Mono-/Di-)				
95	Chloramines	0 - 8 ppm	0.01	Tablet
Chloride				
10	Chloride	0.5 - 25 ppm	0.1	Tablet
Chlorine				
11	Chlorine	0 - 8.00 ppm	0.01	Tablet
12	Chlorine	0 - 8.00 ppm	0.01	Liquid
14	Chlorine HR (KI)	5 - 200 ppm	1	Tablet
15	Chlorine HR (KI)	0 - 200 ppm	1	Liquid
Chlorine Dioxide				
16	Chlorine Dioxide	0 - 15.0 ppm	0.01	Tablet
64	Chlorine Dioxide	0 - 15.0 ppm	0.01	Liquid
108	Total Oxidant	0 - 8 ppm	0.01	Liquid
Chlorite				
106	Chlorite	0 - 8 ppm	0.01	Liquid
Chromium (hexavalent)				
94	Chromium (hexavalent)	0 - 2.2 ppm	0.01	Liquid
103	Chromium (hexavalent)	0 - 1 ppm	0.01	Liq./Powd.
COD				
79	COD (LR)	0 - 150 ppm	1	MERCK
80	COD (MR)	0 - 1500 ppm	1	MERCK
17	COD (HR)	0 - 15000 ppm	1	MERCK
Colour				
107	Colour	0 - 500 units	1	-
Copper				
18	Copper	0 - 5 ppm	0.01	Tablet
19	Copper	0 - 5 ppm	0.01	Powder
Cyanuric Acid				
20	Cyanuric Acid	2 - 160 ppm	1	Tablet
DBNPA				
65	DBNPA	0 - 13 ppm	0.01	Liquid
82	DBNPA	0 - 13 ppm	0.01	Tablet
DEHA				
21	DEHA	20 - 1000 ppb	10	Liquid
Erythorbic Acid				
70	Erythorbic Acid	0 - 3.5 ppm	0.01	Liquid
Fluoride				
72	Fluoride	0 - 2 ppm	0.01	Liquid

ID	Parameter/Method	Test-Range	Resolution	Reagent
Hardness				
78	Calcium Hardn.	0 - 500 ppm	1	Tablet
9	Calcium Hardn. (HR)	50 - 1000 ppm	1	Tablet
56	Total Hardn. (LR)	2 - 50 ppm	1	Tablet
57	Total Hardn. (HR)	20 - 500 ppm	1	Tablet
Hydrazine				
23	Hydrazine	0 - 2 ppb	1	Liquid
Hydrogen Peroxide				
24	Hyd. Peroxide (LR)	0 - 3.8 ppm	0.01	Tablet
66	Hyd. Peroxide (LR)	0 - 3.8 ppm	0.01	Liquid
25	Hyd. Peroxide (HR)	0 - 200 ppm	1	Liquid
109	DEWAN-50	0 - 300 ppm	1	Liquid
Hydroquinone				
26	Hydroquinone	0 - 2.5 ppm	0.01	Liquid
Iodine				
27	Iodine	0 - 28 ppm	0.01	Tablet
67	Iodine	0 - 28 ppm	0.01	Liquid
Iron				
28	Iron (LR)	0 - 1 ppm	0.01	Tablet
29	Iron (MR)	0 - 10 ppm	0.01	Powder
30	Iron (HR)	0 - 30 ppm	0.01	Liquid
Magnesium				
93	Magnesium	0 - 100 ppm	1	Tablet
Manganese				
31	Manganese (LR)	0.2 - 5 ppm	0.1	Tablet
104	Manganese	0 - 5 ppm	0.1	Liquid
Methylethylketoxime				
69	Methylethylketoxime	0 - 4.1 ppm	0.01	Liquid
Molybdat				
96	Molybdat (LR)	0 - 15 ppm	0.01	Tablet
32	Molybdate (HR)	1 - 100 ppm	0.1	Tablet
33	Molybdate (HR)	5 - 200 ppm	0.1	Liquid
Nickel				
90	Nickel (HR)	0.1 - 10 ppm	0.1	Tablet
99	Nickel (LR)	0 - 1 ppm	0.01	Liq./Powd.
100	Nickel (HR)	0 - 10 ppm	0.1	Liquid
Nitrate				
34	Nitrate	0 - 100 ppm	0.1	Powder
Nitrite				
35	Nitrite (LR)	0 - 0.5 ppm	0.01	Tablet
36	Nitrite (HR)	5 - 200 ppm	0.1	Powder
97	Nitrite (HR)	0 - 1500 ppm	1	Tablet
101	Nitrite (HR)	0 - 3000 ppm	1	Liquid
Ozone				
37	Ozone	0 - 5.4 ppm	0.01	Tablet
92	Ozone	0 - 5.4 ppm	0.1	Liquid
Phenol				
98	Phenol	0 - 5 ppm	0.01	Tablet
PHMB				
43	PHMB	2 - 60 ppm	1	Tablet
Phosphate				
44	Phosphate (LR)	0 - 4 ppm	0.01	Tablet
45	Phosphate (LR)	0 - 4 ppm	0.01	Liq./Powd.
46	Phosphate (HR)	0 - 80 ppm	0.1	Tablet
47	Phosphate (HR)	0 - 100 ppm	0.1	Liquid

The PrimeLab starts with about 90 different measurement methods for which we provide quality reagents "made in Germany/UK".

The option of using the JENCOLOR sensor to measure all parameters whose colour development is in the visible range (380 - 780

nm) after addition of a reagent, allows an even greater number of parameters to be measured with the PrimeLab.

The list shown here will become even longer over time. This does not mean that your PrimeLab will quickly become obsolete, since

via the "PrimeLab Desktop Assistant" it is simple to upload additional parameters by entering a code - within minutes- and also long after purchase of the device.

The software will actively alert you when updates are available!

ID	Parameter/Method	Test-Range	Resolution	Reagent
Phosphonate				
87	Phosphonate	0 - 20 ppm	0.01	Liquid
pH				
40	pH-value (LR)	5.2 - 6.8	0.01	Tablet
38	pH-value (MR)	6.4 - 8.4	0.01	Tablet
39	pH-value (MR)	6.4 - 8.4	0.01	Liquid
41	pH-Universal	5 - 11	0.1	Tablet
42	pH-Universal	4 - 11	0.1	Liquid
Polyacrylate				
85	Polyacrylate	1 - 30 ppm	0.1	Liquid
Potassium				
48	Potassium	0.7 - 12 ppm	0.1	Tablet
QAC				
83	QAC	25 - 150 ppm	1	Tablet
Silicia				
49	Silica (LR)	0 - 5 ppm	0.01	Liq./Powd.
50	Silica (HR)	0 - 100 ppm	1	Powder
Sodium Hypochlorite				
51	Sodium Hypochlorite	0.2 - 40 %	0.1	Tablet
68	Sodium Hypochlorite	0.2 - 40 %	0.1	Liquid
Sulphate				
54	Sulphate	5 - 100 ppm	1	Tablet
55	Sulphate	5 - 100 ppm	1	Powder
Sulfide				
52	Sulfide	0.04 - 0.5 ppm	0.01	Tablet
Sulphite				
53	Sulphite (LR)	0 - 5 ppm	0.1	Tablet
86	Sulphite (HR)	0 - 100 ppm	1	Liquid
105	Sulphite (HR)	5 - 50 ppm	0.1	Tablet
Suspended solids				
81	Suspended solids	0 - 750 ppm	1	-
Tannic acid				
91	Tannic acid	0 - 100 ppm	0.1	Liquid
Triazole				
58	Triazole	0 - 15 ppm	0.1	Powder
Turbidity				
59	Turbidity	20 - 1000 FAU	1	-
Zinc				
62	Zinc	0 - 1 ppm	0.01	Tablet

Basic equipment

- PrimeLab Multitest with integrated *Bluetooth*[®]-module
- Black plastic case
- DC adapter (220/110 V) with interchangeable international plugs
- 4 × AAA 1.5 V batteries
- *Bluetooth*[®]-USB dongle for wireless connection to your PC
- CD-ROM "PrimeLab Desktop Assistant"
- 2 × 24 mm standard round cuvette (glass / 10 ml) with light absorber integrated into lid
- Light protection lid for 16 mm standard cuvettes
- 10 ml syringe
- Cleaning brush for cuvettes
- Stirring rod

Optional

- Adapter for MERCK 16 mm "Prepared" cuvettes
- 100 ml plastic measuring tube
- Filter unit for filtering water samples

Installed parameters/ measurement methods

The parameters / measurement methods installed on the PrimeLab may be individually defined by the user and extended at any time after purchase by entering activation codes into the software. Thus also subsequently developed measurement methods can still be installed.

The PrimeLab will never become obsolete.

Technical details / features

Dimensions:	175 mm × 88 mm × 59 mm
Weight:	160 g
Spectral range:	380 nm – 780 nm with 7 open channels and ±40 nm overlap each
Data Transmission:	Built-in <i>Bluetooth</i> [®] -module
Calibration:	Auto-calibration by JENCOLOR sensor; determination of LED brightness
One Time Zero:	Intelligent OTZ (One Time Zero) function, detecting different ZERO types
Internal memory:	100 data records / 20 accounts records
Clock / Date:	RTC (real-time clock) with date function
Auto-Off:	Default = 10 minutes. Individually adjustable
Menu navigation:	Intuitive, display-controlled 4-button menu system; test instructions during the measurement process (can be skipped)
Power supply:	optionally 4 × 1.5 V AAA batteries or 100–240 V AC, 50/60 Hz, 0.2 A → 5.0 V, 1200mA, 6 W
Display:	Graphical LCD display, monochrome
Operating languages:	German, English, Spanish, French
Environment:	5 °C – 45 °C (41 °F – 113 °F) / 30 % – 90 % rel. humidity
Water resistancy:	The unit is splash-proof
Reagents:	The calibration curves of the individual parameters are matched to the reagents offered by the manufacturer. The use of reagents by other manufacturers may result in measurement errors! The scope of delivery of the PrimeLab includes solely high-quality reagents "Made in Germany" and "Made in Britain"!

PRIMELAB 1.0



The "PrimeLab 1.0 Multitest" is a high-tech photometer of the latest generation.

Small and handy, but incredibly powerful thanks to the multi-spectral JENCOLOR sensor.

Quick and easy wireless connection via *Bluetooth*[®] to a PC and the "PrimeLab Desktop Assistant" software.

Use the Software „PrimeLab Desktop Assistant“ for:

Uploading further measurement methods on the PrimeLab
Convenient management of test results with reporting function

Create proposals for water treatment on the basis of measurement results by entering your water treatment chemicals as well as ideal ranges (min/max) per parameter.

Update the PrimeLab firm- and software

Remote control your PrimeLab



PrimeLab.exe



Supported by:



on the basis of a decision by the German Bundestag





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