



WINLAB®

A TRADEMARK OF WINDAUS-LABORTECHNIK

SAMPLE
TAKING SYSTEM

TESTKITS AND
MOBILE LAB
MEASURING
BOXES

PHOTOMETER
FOR FIELD
TESTS

pH-
CONDUCTIVITY-
DO-METERS

MANUFACTURERS OF LAB EQUIPMENT

ECOLOGY



FOR MORE THAN 100 YEARS FOR YOUR LAB – EVERYTHING FROM A SINGLE SOURCE

Dear Customer,

In September 2012 we celebrated our 100th anniversary!

During those unique days we made the experience of getting a great and outstanding valuation from all our customers, suppliers and friends.

This is one of the reasons to draw strength for the challenges of the future work and for new ideas to create sophisticated, innovative products.

Have a look at our new WINLAB digital electrodes, which are a real innovation!

These new developed electrodes for pH-Conductivity and DO make you flexible to use electrodes with laptop, tablet PC or WINLAB measuring devices !

In 2015, in order to match applications in the lab or on-site, we will continue to create further new designed measuring devices.

Please remember our motto

„FOR YOUR LAB – EVERYTHING FROM A SINGLE SOURCE.“

This comes to life, because we have short delivery times – fair delivery conditions and competitive prices for you as our valued export partner.

Visit www.windaus.de here you will find information about prices and new products.

We are really looking forward to having a great and fruitful cooperation with you!

Your Windaus-Labortechnik team



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SAMPLE TAKING

4-20



TESTKITS AND MOBILE MEASURING INSTRUMENTS

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PHOTOMETER

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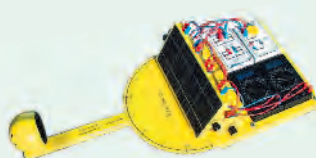
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WINLAB®

SAMPLE TAKING-SYSTEM **INGENIOUS**



EXTENSIBLE TO **6,00 m**



EXTENSIBLE TO **5,00 m**



EXTENSIBLE TO **3,85 m**



EXTENSIBLE TO **2,80 m**



INGENIOUS FROM THE BEGINNING TO REALISATION:

- **four pole variants up to a length of 6,00 m**
- **as universal as never before (for 20 sample taking devices)**
- **easy exchange of the vessels or nets**
- **extremely robust telescope poles**
- **non-corrosive**

The WINLAB® fibre glass telescope poles are especially comfortable at low temperatures. Light and easy hold!

The »extra-long« WINLAB® telescope poles are also made of fibre glass. They are extensible from 1,50 to 6,00 m and work with a solid and easy to handle spring mechanism.

The idea of quickly exchanging many different sample taking devices or catching nets was our first priority! We have realised this idea by developing the very comfortable spring mechanism on all poles!





By easily pressing down the spring mechanism the sample taking device can be removed and exchanged by another one. Couldn't be easier!

Distortion of the sample taking device (as it is common with screwing systems) is prevented by the continuous boring. This way, you can be sure to work always in the desired position with your sample taking device – even under water.

Our scoop bottle versions have an adjustable click-into-place angle. The beaker will always stay in the desired position.

By means of the new spring mechanism all sample taking devices, catching nets or tools can directly be connected to all fibre glass WINLAB® -telescope poles.



ONE FOR ALL

WINLAB® -FIBRE GLASS TELESCOPE POLES



WINLAB®

Change the length of the extra long telescope poles from 1,50 to 6,00 m by using the clamp easily!



Easy and quick exchange of nets and beakers by pressing the spring mechanism!



Using the standard telescope pole – change the length from 1,45 to 2,80 m by a quarter rotation!

With extreme length adjustment from 1,50 to 6,00 m!

The snap mechanism is very easy to handle. The well fixed telescope pole can be used for lakeshores which are difficult to approach or high bushes and trees.

Despite of a length up to 6 m the extra long telescope poles are comfortable to transport and not too heavy.

	EXTENSIBLE TO 6,00 m Cat. No. 3943 02025		NEW
	EXTENSIBLE TO 5,00 m Cat. No. 3943 02015		NEW
	EXTENSIBLE TO 3,85 m Cat. No. 3943 02055		
	EXTENSIBLE TO 2,80 m Cat. No. 3943 02005		



WINLAB®-water scoop beaker

Scoop beaker for sample taking of surface water. 1000 ml beaker made of graded polyethylene with drain. (Beaker is exchangeable). The construction of the beaker holder (high-grade steel tension band) makes it possible to turn the beaker around in order to change the pouring direction as well as the adjustment of the click-in angle construction (0 to 180°). With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02027



WINLAB®-mud sampler (stainless steel beaker)

Especially for taking mud samples. Sample vessel as beaker with reinforced rim. With new adjustable click-in angle from 0 to 180°. Measures of the beaker: 100 mm diameter, 130 mm height, 1000ml volume. With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole. Made of stainless steel.

Cat. No. 3943 02044



WINLAB®-pendulum-beaker (Beaker and frame made of stainless steel)

Measures of the beaker: 100 mm diameter, 130 mm height, 1000 ml volume.

Cat. No. 3943 02030



WINLAB®-pendulum-beaker (beaker for sample taking in narrow drains)

The latest WINLAB®-INGENIOUS idea! The pendulum-beaker can always be positioned into horizontal flow direction. Very practical for sample taking in rainwater-drains. Beaker volume 1000 ml, pendulum frame made of stainless steel, beaker made of PE with graduation. Measures of the beaker: 100 mm diameter, 130 mm height, 1000 ml volume.

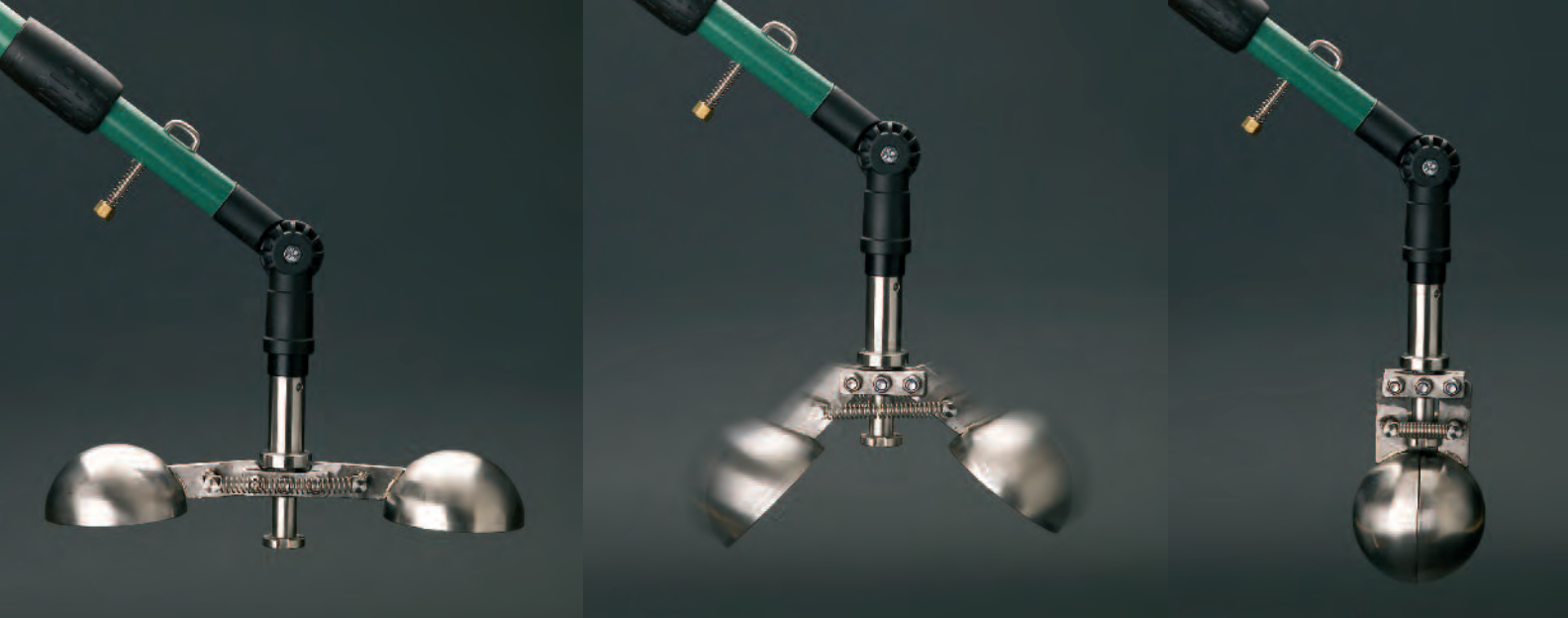
Cat. No. 3943 02029

WINLAB®-all purpose clamp

Fitting to our telescope pole, we offer the all purpose clamp for sample bottle of any kind with neck diameter from 10 to 80 mm! This way you are flexible when having to use various sample bottles. You simply put them into the clamp and so surface samples can directly be collected into your sample bottle.

The new version has an adjustable angle which can click into place. This device allows many different dive-in angles of your sample vessel. Click-in angle is adjustable from 0 to 180°. With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole. New improved version incl. stainless steel clamp!

Cat. No. 3943 02028



WINLAB®-sediment grab sampler

The last idea to upgrade the WINLAB® INGENIOUS sampling system!

Now you can take together with the very practical WINLAB® telescope pole sediment samples.

Cat. No. 1003 02066



WINLAB®-waterlanding net with sieve bottom

Very good for preparing and sorting out. This landing net is very often used during flowwater evaluation. The construction allows to recognize and to remove small animals easily on the 2 mm sieve bottom. Diameter 260 mm, 240 mm height. With robust aluminium ring and sturdy green linen net. Sieve bottom width of meshes 15 mm made of stainless steel. With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02050

It is really easy to use:

Open the grab sampler, then bring the sampler to the position where you want to take the sample. When touching the ground or the product, the sample (sediment) is captured inside the two bowls.

Ideal for sampling sediments by using the long telescope poles, to enable to take samples from a longer distance.

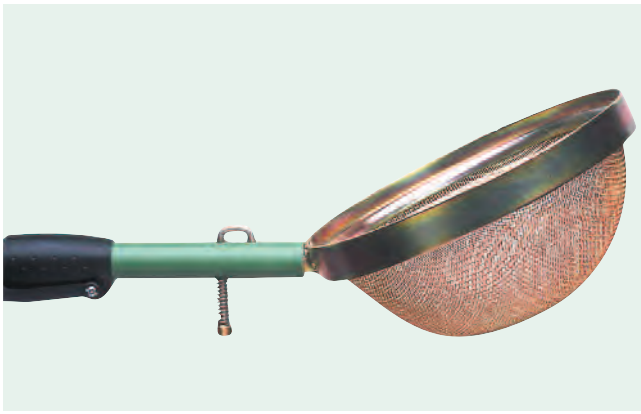
The sediment sampler is made of stainless steel AISI 304, the volume of the sampler bowls is approx. 260 ml, diameter of bowls 80 mm, distance while opened 280 mm.



WINLAB®-waterlanding net

A very robust water landing net with a nylon net, which is hardly to devastate, for catching fleas, bugs, floating particles and water insects. Holes wide 0,8 mm. With robust galvanised ring – 200 mm diameter. Net height to the top up to 330 mm, as well as universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02002



WINLAB®-robust wire sieve net

Especially robust and reinforced net version. This landing net also has a reinforced net at the edges and therefore allows you to catch small animals directly off the ground. A possible bending is avoided by the strong and simple construction. Net diameter of 200 mm; hole width 1.5 mm. With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02013



WINLAB®-robust wire sieve net

Reinforced version with crossed protection strings on the outside (to prevent the net from deforming).

Cat. No. 3943 0201



WINLAB®-plankton net

Robust version with sturdy galvanised ring of 200 mm diameter. The ring is covered with green linen fabric to protect the silk gauze from ripping up. With 100 ml collecting vessel (100 ml Kautex flask) With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02006 hole width 65 µm

Cat. No. 3943 02007 hole width 105 µm



WINLAB®-scraper

With robust, sharpened edge made of high-grade steel for scraping on piles and to collect small animals and plants living under water on piles of all kind. The collecting net is made of indestructible nylon with a hole width of 0.8 mm.

Measures:

width of scraper edge:	140 mm
length :	150 mm
height of nylon net :	250 mm

With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02010



WINLAB®-insect catcher

Robust version with strong, wide aluminium ring to hold the nylon net, holes are ca. 0.2 mm wide. Diameter is ca. 360 mm and net depth 600 mm.

With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02011

WINLAB®

SAMPLE TAKING-SYSTEM

INGENIOUS



WINLAB®-vegetation scraping net

With its **double reinforced aluminium ring** this version can be used for scraping off particles from bushes, and trees. The net is made of nylon. Holes are 0.2 mm wide. Diameter is 280 mm and net depth 500 mm. With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02111



WINLAB®-vegetation scraping net

Very well equipped catcher, which can also be used as net for scraping insects off bushes. With robust corrosion protected aluminium ring, 260 mm diameter, very robust linen (yellow) model, depth of the net: 450 mm With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02051



WINLAB®-butterfly catcher

Butterfly catcher with robust aluminium ring. Simple and light catcher for butterflies with nylon net. Diameter is 290 mm, net depth 680 mm. With universal connecting part with boring for spring mechanism of the WINLAB® fibre glass telescope pole.

Cat. No. 3943 02052



Dip net

For sample taking of solid material and organisms from water surfaces.

Measures:

Opening of 400 mm width x 200 mm length, depth 250 mm.

Net made of polyamide (holes wide approx. 2 to 3 mm), frame made of PVC material, incl. universal adapter suitable for all WINLAB®-INGENIOUS telescope poles.

Cat. No. 3943 02023

Dip net

(low cost version) for sample taking of solid material and organisms from water surfaces. Large version with nearly **320 mm width and length.**

Net made of polyamide (holes wide approx. 2 to 3 mm), frame made of PVC material, incl. universal adapter suitable for all WINLAB®-INGENIOUS telescope poles.

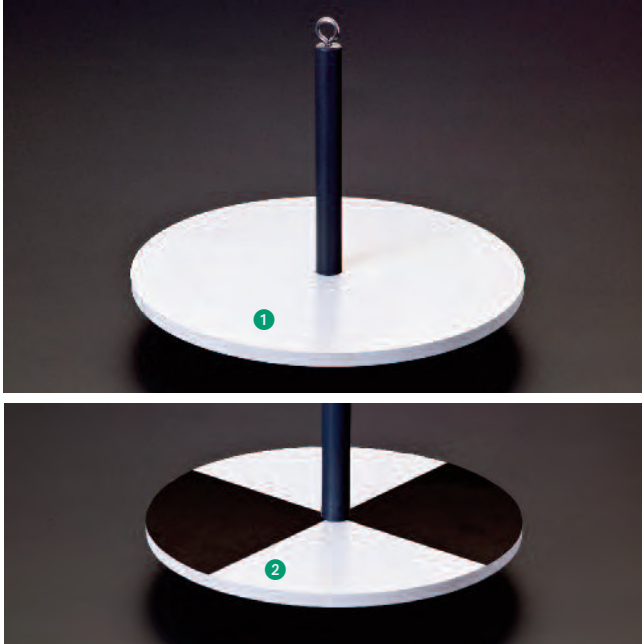
Cat. No. 3943 02022

Hand net acc. Böttger

Small rectangular net with an opening of 250 x 250 mm, net bag 800 mm deep And with a mesh size of 500 µm (other mesh sizes available on request)

The net frame is made of stainless steel and is equipped with the universal adapter suitable for WINLAB®-INGENIOUS telescope poles.

Cat. No. 3943 02026



Secchi-disk

For determination of sight depth and light transmission factor of water.

The new sturdy design consists of hard plastic and is also equipped with a sinking lead. The approx. 15 cm high torch has a loop to connect the sinking line. The sinking line is marked every meter, so you can read the sight depth while letting down the line.

with plain white surface,
250 mm diameter with loop (without sink line)

① Cat. No. 3943 28009

with black and white surface,
250 mm diameter with loop (without sink line)

② Cat. No. 3943 28003



Plankton net as throwing net (professional)

For the professional use, a very durable version. The gauze is **protected against destruction with a linen layer**. The upper ring is equipped with a robust aluminium part. The plankton net is preferably used as throwing – and dragging net. On this purpose the extend of delivery includes a tear proved nylon line and a robust snap-hook. Diameter of the upper ring is 250 mm.

Plankton net with 25 µm Gaze
Cat. No. 3943 28019

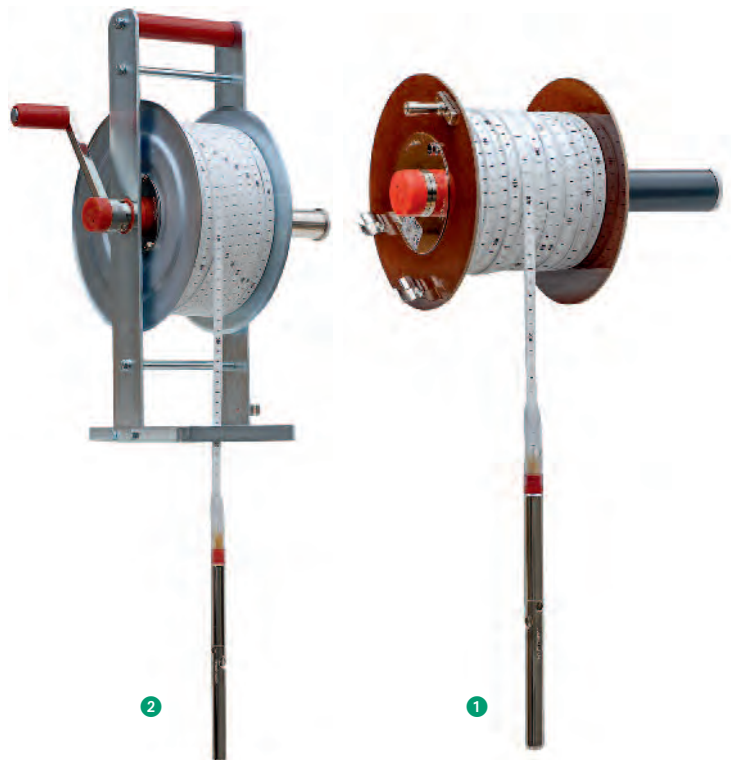
Plankton net with 65 µm Gaze
Cat. No. 3943 28020



ACCESSORY:

Sink line, made of nylon, 10 m long, marked every meter

Cat. No. 3943 28001



Cable light lead

For easy, fast and reliable measurements of water levels in wells, observation tubes and in narrow openings. The measuring value can be read directly from the very precise measuring cable.

Working method: As soon as the water level is reached, a signal lamp will indicate this on the cable box. The electronic switch without movable contacts can only be released by the water. Therefore you do not have any errors.

Measuring cable, 2-core PE flat cable with steel wire of high tensile strength, pressed black cm-division and decimeter label and red meter numbers. Lead: 15 mm diameter, approx. 190mm long, with stainless steel electrode.

Cat. No.	cable length	Cat. No. for leader-bag
① 8024 30030	30 m/with hand reel	8024 31030
① 8024 30050	50 m/with hand reel	8024 31050
② 8024 30080	80 m/reel on stand	8024 31080



Plankton net as throwing net (standard)

A very inexpensive version with a fine nylon net. (approx 150 µm) This model is also designed as throwing and dredging net, for catching zoological and botanical plankton. The extend of delivery includes a 10 m tear proof nylon line. The upper aluminium ring with 250 mm diameter, and the snap-hook are part of the equipment as the above mentioned version.

Cat. No. 8024 28021



WINLAB®-bottle sample taking set

Practical and versatile sample taking set with bottle rack and six different sample bottles for most sample types! This way, your samples have an easy and safe way back to your lab. Complete set with bottle rack for six bottles with up to 90 mm diameter, including the following sample bottles:

2 narrow-neck Bottles made of PE	1000 ml
2 wide-neck bottles made of PE	1000 ml
1 PET wide-neck bottle	500 ml
1 brown glass bottle	500 ml
for light sensitive samples	

Cat. No. 2303 00006



Water scoop thermometer

for determination of water depth temperature, with thermometer 0 to + 50° C, and sturdy brass jacket

Cat. No. 8024 28000



Water sampling instrument

A professional model for exact sample taking of water of a desired depth. The function principle of this reliable instrument is easy to describe: The instrument for sampling is lowered to the desired depth, so that water flows into the sample taking instrument and can be pulled to the surface. The ball-valves technique makes sure that no other water can get in.

For filling up oxygen bottles cf. Winkler a special stopcock is fixed on the instrument, which provides – with help of small tube – that the water can be filled in the bottle without outside influences of oxygen.

Volume of sampler ca. 1200 ml, outside diameter 90mm of cylindrical part
Height 145 mm incl. stopcock, **complete with 20 m sink line** on a wooden winch.

Cat. No. 3943 28022



New improved version with support frame for a better fixation of thermometer and balls!





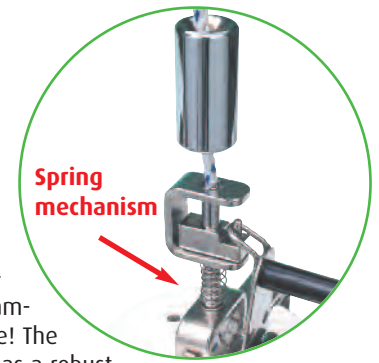
The sturdy version of a Ruttner sampler

For taking samples from the desired depth. With exact close-up technique.

Procedure:

The opened sample taker is lowered down to the desired depth. You adjust the heavy body to a rope and also lower it down. (see detail in picture)

By means of a spring mechanism, the close-up mechanism is activated. Therefore any sample taking from any desired depth is possible! The container is closed up very tightly now. It has a robust fine steel case and a metal/plastic lid.



1,7 l sample taking vessel, acc. Ruttner

195mm outside diameter / height of acrylic glass tube is 150mm, diameter of tube 135mm, total height is 630mm, weight 5 kg

Cat. No. 3943 28100

3 l sample taking vessel, acc. Ruttner

195mm outside diameter / height of acrylic glass tube is 250mm, diameter of tube 135mm, total height is 720mm, weight 6 kg

Cat. No. 3943 28135

Long sinkline with winch,

25m length. (marked every meter, marked by ring-marks with printed in numbers, 6mm diameter)

Cat. No. 3943 28160

Any other length up to 60 m can be ordered



Wading pants

The right protection for doing measurements in standing or current water. The wading pants are made of Soft - PVC and protect you from getting wet, but are also smooth, flexible and have robust suspenders. With inner water-proof pocket. The PVC boots welded to the pants are well proofed against water or getting wet on the inside. The model includes a repair set.

Cat. No.	Size of boots
3603 00595	39
3603 00596	41
3603 00597	43
3603 00598	44
3603 00599	45



Hook for wading pants

Practical and effective hook construction for wading pants. Trousers can easily be aired and stored. Safe and easy mounting.

Cat. No. 3603 23020

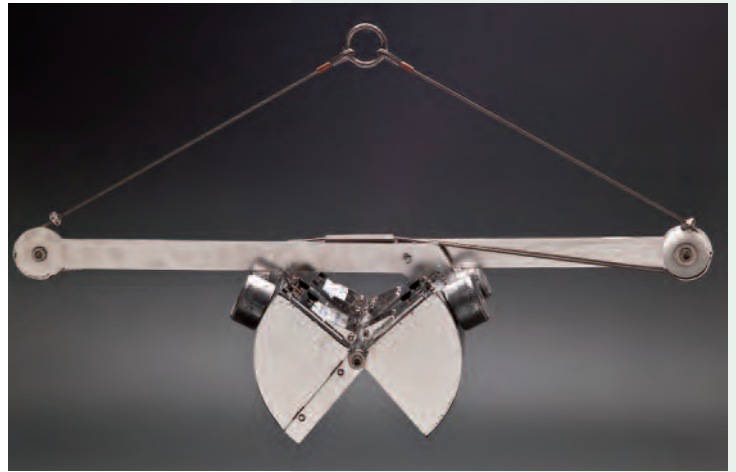




EKMAN-power shovel

for mud and soil samples. Very robust version, **made of stainless steel**. Sample volume max. 5 l, basic surface of shovel 150 x 150 mm, total height 450 mm, weight 5,5 kg.

Cat. No. 3943 20001



van VEEN-power shovel

for mud and soil samples. Practical, robust version, made of stainless steel, basic surface of shovel 200 x 150 mm (opened shovel), total height 470 mm, max. sample weight 1000 g, weight 6,5 kg

Cat. No. 3943 22001

cf. above, but basic surface of shovel is 360 x 250 mm, total height 720 mm, max sample weight 5 kg, weight 20 kg

Cat. No. 3943 22005

Sturdy sink rope

6mm diameter, 25 m length, marked every meter, rolled on stuff winch

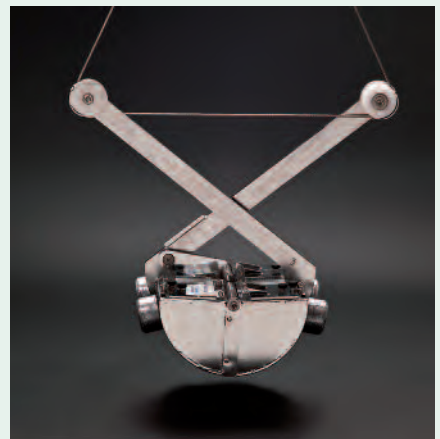
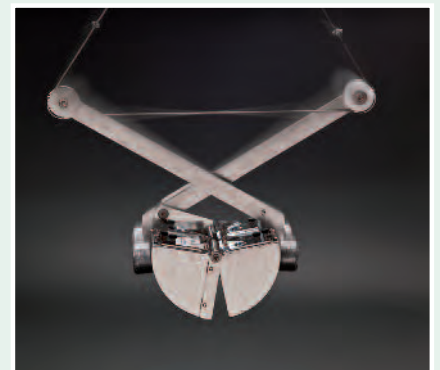
Cat. No. 3943 28160



made of high quality stainless steel



perfect mechanism



SUB SAMPLER PRO



Sub sampler Pro

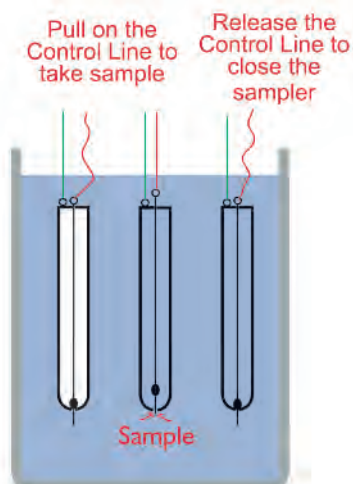
The Sub Sampler Pro (also called a bomb sampler) is used throughout the world for both, chemical and environmental sampling. Its unique double action means, it can sample from a set distance from the bottom of a container or alternatively at a mid point of a lake or well, but also in container.

Sub Sampler Pro, made of 316 stainless steel, capacity 500 ml, length 280 mm

Cat. No. 3943 50725

Sub Sampler Pro as 3943 50725, made of Nickel plated brass (Ex rated!)

Cat. No. 3943 50721



How to use for mid height sampling

1. Use a lowering cable and a control line
2. Lower the Sub Sampler into the liquid.
3. At the required sampling depth, pull on the control line to raise the plunger
4. This allows the liquid to enter the sampler
5. Release the control line and the plunger will drop down and seal the sampler

ENVIRO DIPPER



Polypropylene (PP) braided cord, 25 m length incl. heavy duty reel, made of PP

Cat. No. 3943 50702

PTFE coated stainless steel wire, 25 m length incl. heavy duty reel, made of PP

Cat. No. 3943 50703



Copper-braided cable, 25 m, with Ex hand-for Ex use rated environments.

Made from conductive plastic. Supplied with earthing leads and clip.

Cat.No. 3943 50711



Enviro Dipper

The Enviro Dipper is a simple and effective method of taking surface sample.

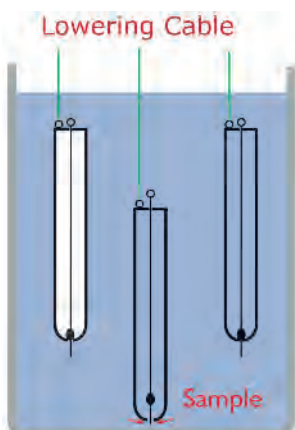
Simply lower the bucket into a liquid. Bucket and chain are made of stainless steel, so this combination can be sterilized by flame.

Stainless steel bucket, capacity 300 ml

Cat. No. 3943 72430

Chain – 316 stainless steel – 25 m with shackle and standard heavy duty hand reel

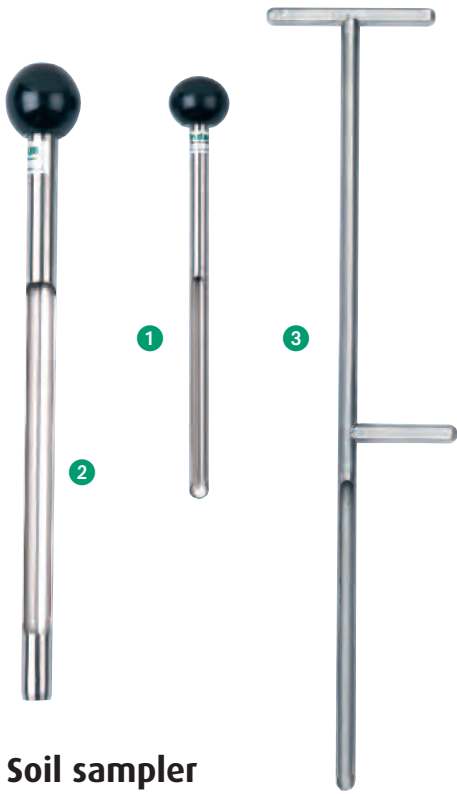
Cat.No. 3943 50704



Liquid flows in when the sampler hits the bottom

How to use to sample from the bottom of a container

1. Use a lowering cable
2. The Sub Sampler Pro is lowered until the plunger assembly touches the bottom of the container
3. As the plunger assembly is pushed up the sample is able to enter the device.
4. When the sampler is raised the plunger will drop down and seal the sampler



Soil sampler

- 1 Small handy sampler for sample taking in pot plants or garden soils total length 350 mm, groove length 200 mm, outside diameter 16 mm, inside diameter 14 mm
- 2 total length 380 mm, groove length 250 mm, outside diameter 22 mm, inside diameter 17 mm

Cat. No. 8003 05000

Cat. No. 8003 05002

3 Sampler with foot halt

Sturdy sampler for soil samples, tube of steel with foot halt for easy use in soil. total length 810 mm, groove length 300 mm, outside diameter 20 mm, inside diameter 14 mm

Cat. No. 8003 05006

Soil sampler »Edelman«

With these handdrills it is easy possible to take soil samples. The »Edelman«-drills are designed in a way that friction is minimised while screwing it in:

Soil type	diameter	Cat. No.
2 Gravel	70 mm	8003 01060
3 Sand/Clay	70 mm	8003 02027
4 Clay/peat	30 mm	8003 04021
5 extension stick = 100		8003 01107
1 handle, necessary for all drills above mentioned		8003 01104

Massive T-drill stick of brass, length 1000 mm

parted in 100 mm, about one third of the stick is cut up, outside diameter of stick 16mm, inside 9mm.

Cat. No. 8024 28015 (without image)

Pürckhauer-special types

Special Pürckhauer, completely made of spec. Titan steel alloy resp. steel tube, special hardening, drill handle insertable, drill handle especially sharpened for removing of the soil.

total length 1175 mm, groove length 1000 mm, outside diameter 28 mm, groove inside diameter 18 mm (for stony soils)

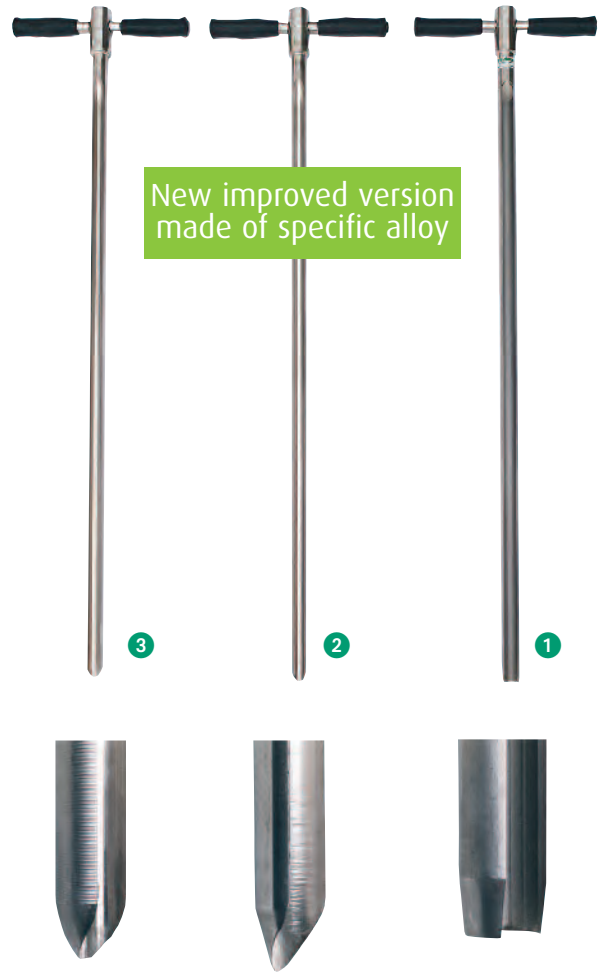
1 Cat. No. 3943 10015

total length 1175 mm, groove length 1000 mm, outside diameter 28 mm, groove inside diameter 20 mm (for light soils)

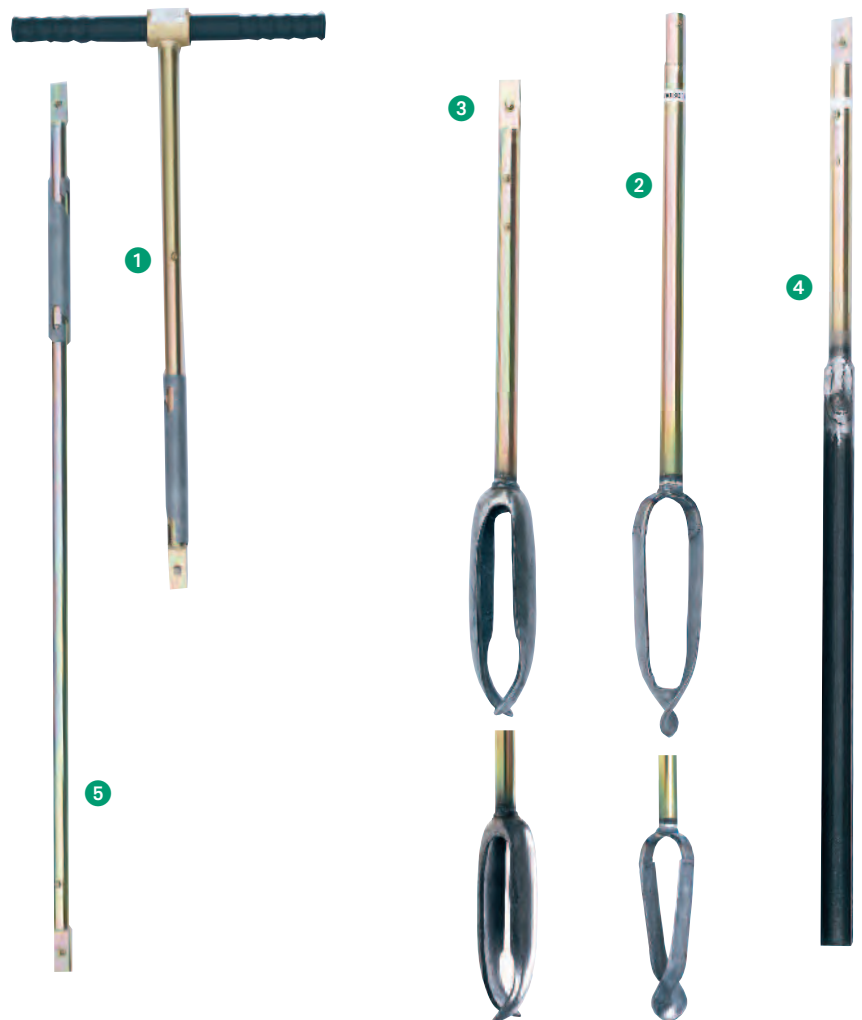
2 Cat. No. 3943 10020

total length 1175 mm, groove length 1000 mm, outside diameter 28 mm, groove inside diameter 18 mm (for heavy soils), Extend of groove slightly tapered from 28 to 25 mm

3 Cat. No. 3943 10025



New improved version made of specific alloy



New improved version made of specific alloy

Pürckhauer-soil sampler

Precision steel sampler completely made of special Titan hardening steel. The drill handle is sharpened for removing of the soil, insertable with rubber mantle for safe handling, reinforced percussion head, diameter ca. 34 mm, also appropriate for sample-hammer. Marked each 100 mm.

total length 810 mm, groove length 600 mm,
groove outside 20 mm, **groove inside 13 mm**

Cat. No.. 3943 10001

total length 1000 mm, groove length 600 mm,
groove outside 25 mm, **groove inside 20 mm**

Cat. No. 3943 10005

Two Parts-Pürckhauer soil sampler

New two parts Pürckhauer soil sampler, completely made of special alloy of stainless steel, Set can be used for depths up to 2 meters. The drill handle is sharpened for removing of the soil. Drill handle insertable.

Total length 2000 mm
Outer diameter 22 mm
Inner diameter 14 mm (groove diameter)

length of first part 1165 mm
(groove length 1000 mm)
length of second part 900 mm
(groove length 900 mm)

Cat. No. 3943 05500

Pulling device for Pürckhauer sampler



In some soil types it can be very difficult to use the Pürckhauer sampler without having problems to pull it out again. The pulling device is a big relief in these situations. It easily fits into the horizontal boring of the Pürckhauer sampler. By pumping with the pulling device the Pürckhauer sampler can be released and pulled out easily.

Lifting capacity: 350 kg,
weight: 2.3 kg

Cat. No. 3943 42600



Safety hammer – safety 2000

High quality safety hammer for easy use on the Pürckhauer soil sample taking devices! With its safety compound for taking the two hardplastic heads it is designed for extremely high capacities (the surface of the safety compound is powder covered). The two hardplastic heads are cadmium-free, shatter-proof, do not break or wear out. They are exchangeable and have a diameter of 80mm. The Hickory wooden stick, grade A, has an ergonomic anti-slide surface, 800 mm long. The total weight of the safety 2000 hammer is 3,3 kg.

complete safety hammer as described, type Safety 2000

Cat. No. 3943 10010

Spare head (single) in white,
made of hard plastic for Safety 2000 hammer.

Cat. No. 3943 10011

Spare Hickory wooden stick für Safety 2000 hammer.

Cat. No. 3943 10012



Soil sample taking set

Useful device for sample taking of soils in gardens, parks and fields!

Set Soil sample taking set

consisting of:

Small handy sampler with a total length of 380 mm, groove length 250mm and a groove diameter of 17 mm

Cat. No. 8003 05002

Stainless steel spoon-spatula for scraping off the soil sample, 185 mm length,

PE-bowl in white for sample, 240 mm diameter,

PET wide neck sample bottle, glass clear, 500 ml content.

Cat. No. 3903 00010 (complete set)



Soil sampler-set in aluminium box

Universal hand drill-set for heterogenous soils for depth up to 5 m.

Set Soil sampler-set in aluminium box

consisting of:

4 Edelman-drills for clay-, sand and coarse sand soils as well as universal drills

1 Riverside drill for hard, stony soils

1 Gravel drill for soils with coarse gravel

1 Sand pump (absorbent drill) for sample taking in sand below the level of ground water and in muddy soils (for samples with 75 cm height)

1 Stab drill for smooth, stab proof materials, e.g. peat, 50 cm length, diameter 30 mm

1 Universal handle, attachable to all above mentioned drills, with removable handle, 60 cm length

4 Extension sticks for extension of 1 m each

1 Accessory set, measuring tape, nylon cable, gloves, etc., cleansing brush, everything easy to distinguish in an aluminium box.

Cat. No. 3943 00111



Sturdy and versatile for many soil types

Set of test sieves

For determination of the grain size of soil. This set is sufficient enough for determining the class of grain size and therefore also supports the determination of the type of soil.

E.g. coarse soil / coarse gravel / coarse sand / middle sand / fine sand / coarse silt / middle silt / fine silt / clay

The edging of the sieves consists of plastic / diameter 170 mm, the sieve bottom is made of brass resp. stainless wire.

Set Test sieves

SET 1 consisting of:

a sieve of each size: 3,35 / 1,7 / 0,25 / 0,071 mm

Cat. No. 8024 28060

SET 2 consisting of

a sieve of each size: 3,35 / 1,7 / 0,43 / 0,25 / 0,125 / 0,071 mm

Cat. No. 8024 28065

Tensiometer for soil moisture

Effective, convincing and inexpensive version of a measuring instrument for soil moisture.

REMARK:

A water saturated porous clay cell is connected to an exchangeable manometer by means of a water filled airtight acrylic glass tube for measuring underpressure. Water in soil is under influence of certain bonding energies with a corresponding water tension. By contact of the water saturated cell with soil the existing underpressure of the soil water is transferred to the manometer via clay cell and water filling .

MECHANISM:

The absorbing tension of soil waters which is displayed as underpressure on the manometer rises when the soil moisture decreases.

TENSIOMETER VERSIONS:

All versions are equipped with a manometer 0 - 600 mbar/hPa.



Reading on top, length 300 mm

Cat. No. 8103 85300

Reading on top, length 600 mm

Cat. No. 8130 85600

Reading on top, length 1000 mm

Cat. No. 8103 85999

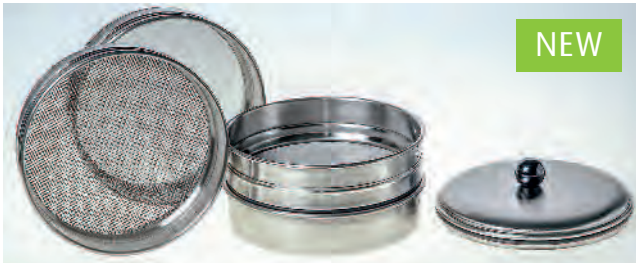


Version of a Tensiometer, with digital display!

Press only the button and then read off the result of tension of soil waters (as underpressure)

The tensiometer consists of the digital display and the tensiometer tube, 330mm long, incl. porous clay cell.

Cat. No. 8103 86330



WINLAB® – professional-sieve-set for soil tests, 200 mm diameter

For the determination of the grain size of soil. Professional version of sturdy test sieves, made of high quality stainless steel.

The optimum tension of the sieve bottom guaranties a long service life. The test sieves are suitable for dry-and wet sieving

The sieves are manufactured acc. to the following standards, ISO 565, DIN ISO 3310, ASTM E11, BS 410, AFNOR etc. So the most important types of soil can be determined, e.g. fine and middle silt / 0,063 mm up to 0,2 mm Fine and middle-sand / 0,2mm and coarse soil , coarse gravel, coarse sand / 2 mm and more.



Set WINLAB® – professional-sieve-set

consisting of:

- 1 each sieve of 0,063 mm / 0,2 mm and 2 mm
- incl sieve cover and sieve bottom
- Sieve diameter 200 mm, height 50 mm

Cat.No. 8024 60000



Compost thermometer

(Bimetall version)

Inexpensive, bimetal thermometer, for Compost temperature measurement. Sturdy version for stationary measurements, with handle and analogue measuring indicator.

Technical data:

Measuring range:	0 to 120°C
Accuracy:	1% of meas. val.
Diameter of analogue display:	80 mm
Diameter of probe:	13 mm

Length of probe 1000 mm

Length of probe 1500 mm

Cat.No. 8103 04006

Cat. No. 8103 04007



Soil thermometer (bimetal with sturdy shaft)

Inexpensive, simple bimetal thermometer of a sturdy design.

Technical data:	
Measuring range:	-20 bis +55 °C
Diameter of shaft	9 mm

Bimetal thermometer with 300 mm shaft length

Cat. No. 8024 28070

Bimetal thermometer with 400 mm shaft length

Cat. No. 8024 28072



Bimetal thermometer with 500 mm shaft length

Cat. No. 8024 28074



Soil and compost thermometer, digital display

Very robust and handy construction of a thermometer for measurements to stick in soils, composts, straw, gravel soils, hay, etc.

The waterproof probe for sticking in, is equipped with a sturdy grip, which has a layer of non skidding rubber and enables to stick in soils e.g.

The therefore delivered measuring instrument accepts – beside this special probe – every other thermocouple of the type K (NiCr-Ni)

Technical data:	
Measuring range:	-100 to 800° C
Accuracy:	+/- 1° C (from -20 to +180° C)
Diameter of probe:	8 mm
Length of probe:	500 resp.1000/1500 mm

Cat. No. 8003 00500

incl. probe of 500 mm length

Cat. No. 8003 01000

incl. probe of 1000 mm length

Cat. No. 8003 01500

incl. probe of 1500 mm length



Soil thermometer

For temperature measurement in soil.

The thermometer with a built in glass thermometer has a sturdy metal holder with a strong insertion tip at the lower pole part.

A defect glass thermometer is easy to change.

Two handles at each side (screwed in) optimise easy handling, in order to penetrate harder or thicker soils.

Technical data:	
Measuring range:	-30 bis +50° C
Penetration depth:	300 mm maximum

Thermometer with frame

Replacement thermometer

Cat. No.1610 90100

Cat. No.1610 90140

Soil – pH-direct measuring instrument pH 2000

Besides salinity, the soil pH-value is the most important parameter for the evaluation of plant nutrition. The intake of nutrients by plants strongly depends on the pH-value, because

- low pH-values block the intake of main nutrients as phosphor and potassium
- high pH values prevent the plants from intake of trace elements like iron.

Therefore, fast, simple and accurate soil pH measurements are indispensable. The pH 2000 is especially equipped for these demands. The insertion pH-glass electrode with special membrane is very well suited for these types of measurements. The ceramic diaphragms guarantee a short response time, prevent stopping and generally promise the electrode a long life. The pH electrode is automatically calibrated by dipping it into the respective buffer solutions. The device with integrated stability indicator automatically acknowledges the end of the calibration. The calibration will only be indicated as finished, when the pH-electrode gives a stable signal. The condition of the pH-electrode can be tested at any time by means of the slope function pH/mV.

Technical data:	
Measuring range:	0.00 to 14.00 pH
Resolution:	0.01 pH
Accuracy:	+/- 0.02 pH
Calibration:	automatic with 2-point calibration function

Extend of delivery:

pH 2000 with pH-glass insertion electrode (3 diaphragms) as well as buffer solutions pH 4.0 and pH 7.0, 50 ml 3 mol KCL refill res. storage solution with stable aluminium transport box with foam material interfacing.

Cat. No. 6103 03000

Spare parts: pH glass insertion electrode

Cat. No. 6103 03003



PE-Controller for plant nutrition

Within seconds you know whether too much fertiliser has been used or too little!

Working with the PE-Controller means working without chemical solutions. Compost or garden soil can be directly measured between the plants. Pot plants inside or on balconies and hydro-culture can quickly be tested. The PE-Controller gives immediate results and also displays tendencies for fertilisation in the main growth phase of plants. Th PE-Controller actually prevents over-fertilisation or nutrition shortage.

Complete measuring instrument contains:

Box, 6 nitrate-nitrogen measuring sticks, 9 V battery, measuring probe 200 mm long, diameter 10 mm, as well as instructions with table of cultivation values.

Cat.- No. 8003 01011



Mikrobiology-box for field experiments

Complete set of instruments for microbiological analysis of water and soil. This box is very appropriate for the proper analysis on the spot.

The included instruments provide an easy working on the spot of sample taking.

The comprehensive manual contains general instructions for the use of the included instruments, as well as an exact description of the methods of the following experiments:

- proof of micro-organism in water and air
- effects of antibiotics
- formation of gas during alcoholic fermentation
- proof of micro-organism in soil
- proof of yeast in nature
- growth of bacteria in different temperatures

The complete equipment consisting of Polycarbonate-filtration instrument for over and under pressure, 250 ml 47 mm diameter, Three-way valve for filtration attachments, plastic adaptors, Disposable syringes, Special tweezers for diaphragm filter, Inoculation hook with holder, Fertile solution in tubes, sterile, (50 x 20 ml), Endo-condiment standard fertile cardboard slices in petri-dishes with sterile filters, Cellulose nitrate-diaphragm filter, 25 mm, 0,2 µm porosity, Glassfilter-attached filter. Altogether clearly arranged in stable aluminium box with insertions of foamed plastic.

Cat. No. 8003 24002



Box lab for soil analysis

This box lab contains all the necessary reagents, instruments and accessories for soil analysis: type of soil (sedimentation analysis), ammonium, phosphor, potassium, nitrate, nitrite and pH-value.

Altogether it contains 38 different instruments, reagents and aids. This box is very good for quick, easy and reliable soil analysis in the lab and outside. Before analysing soil samples they have to be transformed into a liquid by extraction with calcium chloride solution or calcium acetate-lactate solution. The determination itself is carried out with either colorimetric quick tests or easy-to-handle test strips. These methods are sufficient enough to evaluate the nutrient facts of soil samples.

The enclosed working instructions are very comprehensive. Even non-professionals or beginners can carry out the test by carefully reading the instructions.

Box lab for soil analysis, as shown on the photo.

Cat. No. 8046 14601



Soil analysis box Type 1

For direct measurements on plants!

With this analysis box a fast statement can be made concerning salt content g/l and activity in soil. Also a display for the content of nitrogen with the statement:

Fertilizer: too little - sufficient - too much

It can also be carried out the control over depot fertilizer, control of fertilizer solutions and their activity in soil.

Plants can only use the activity, res. under the given circumstances, dissolved salts.

The new PNT 3000 can reliably and fast detect these active salts by means of modern SMD instrument technology. The operation is very easy by pressing one key. Measurement is done no re-calibration necessary.

The robust insertion probes are made of stainless steel and do not need additional maintenance.

They are available in three length. Just insert into soil and read the result. You are done!

The manual with comprehensive scales is also included – with optimal values for comparison when working with horticulture plants.

Technical data:	
Measuring range:	0 to 10 activity in ger l
Resolution:	0,01 activity in g per l
Probe:	stainless steel, diameter 10 mm (length: 250 – 500 – 750 mm)
Measuring instrument:	180 x 85 x 50 mm 9 V block battery (max. 4000 measurement)

PNT 3000 measuring instrument with stainless steel probe 250 mm in sturdy aluminium transport box

Cat. No. 8003 10100

Accessories:

Stainless steel – measuring probe 500 mm long

Cat. No. 8003 10112

Stainless steel – measuring probe 750 mm long

Cat. No. 8003 10113



Teststicks for half quantitative determination

Test sticks with a labelled test tape on the stripes for the proof and for the half-quantitative determination of the following ions (100 stripes per each package).

parameter	measuring range	Cat. No.
Aluminium	5 - 500 ppm	2446 91307
Ammonium	10 - 400 ppm	2446 91315
Chromate	3 - 100 ppm	2446 91301
Iron	2 - 100 ppm	2446 91308
Formaldehyde	10 - 200 ppm	2446 91328
Hardness	3/4/7/14/21 °dH	2446 91220
Copper	10 - 300 ppm	2446 91304
Manganese	2 - 100 ppm	10080 00
Nickel	10 - 1000 ppm	2446 91305
Nitrate	10 - 500 ppm	2446 91313
Nitrite	1 - 80 ppm	2446 91311
Phosphate (Orthophosphate)	3 -100ppm	2446 91320
Sulphate	200 - 1600 ppm	2446 91329
Sulphite	10 - 1000 ppm	2446 91306



WINLAB® pH indicator-test-sticks

Non bleeding pH-indicator test sticks for fast pH-value determination.

Predestinated for a first evaluation of pH-values in aqueous solutions.

100 sticks in plastic box (stick size 85 x 6mm) incl. well distinguishable scale on both sides of the box.

Measuring range pH 0 to 14 (devided, pH 1/1)

Cat. No. 2446 921101



pH-Indicator-test-sticks

For fast pH-value determination – the indicator area on the plastic stick wil not fade out (will not bleed).

Well distinguishable scaling.

Measuring range:	Cat. No.:
pH 0-14	2446 92110
pH 0,0 - 6,0	2446 92115
pH 4,5 - 10	2446 92120
pH 7,0 - 14	2446 92125



Oxygen testkit (winkler test)

The test kit contains sufficient solutions for carrying out 110 oxygen-tests. All the necessary material for carrying out the tests is stored in an easy to survey, practical portable box.

Content:
6 bottles of reagent and titration solution
Winker-glass bottle
special vessel and syringe with slip on spout
Measuring range:
0 - 10 ppm

Complete testkit

Cat. No. 6903 04810



CALDUR-test sets for water analysis

Very reliable and inexpensive test sets for quick water tests on the spot. Very easy to carry out! With the optimum measuring ranges you can test a wide spectrum. They are stored in a robust box with hinges. The measures are 108 x 86 x 35 mm which is very small and can easily be carried along. According to the procedure the water analysis is carried out by either adding a titration liquid or by generating a colour reaction (which is compared to a colour test sheet.)

Strong Testkits easy to handle

Special advantages:

- very good price performance
- can be evaluated by means of either colour
- test sheet or Photometer WINLAB® Dataline
- economical dosage of reagents.

parameter	measuring range	number of determination	test Duration	Cat. No. Original-Test-Set	Cat. No. refill kit
Caldur TH Total Hardness	1 Drop = 0,5°dH	100	1 min	10320 00	10321 00
Caldur TH100 Total Hardness	1 Drop = 1 ,0°dH	100	1 min	10310 00	10311 00
Caldur CH Carbonate Hardness	1 Drop= 1,0°dH	100	1 min	10420 00	10421 00
Caldur RG 10 Remaining Hardness	1 Drop = 0,1°dH	250	1 min	10230 00	10231 00
Caldur Ammonium	0,1 - 10 mg/L	100	15 min	20210 00	20211 00
Caldur Chloride	1 Drop = 5 mg/L	200	3 min	10530 00	10531 00
Caldur Chloride	0,05 - 1 mg/L	150	1 min	20250 00	20251 00
Caldur Chromium	0,05 - 2 mg/L Cr (VI)	150	5 min	20280 00	20281 00
Caldur Iron	0,05 - 1 mg/L	100	4 min	20310 00	20311 00
Caldur Iron	0,25 - 10 mg/L	200	3 min	20315 00	20316 00
Caldur Manganese	0,03 - 1 mg/L	200	10 min	20360 00	20361 00
Caldur Nitrate	1,0 - 50 mg/L	200	6 min	20340 00	20341 00
Caldur Nitrite	0,05 - 1 mg/l	200	5 min	20350 00	20351 00
Caldur Phosphate LR	0,25 - 10 mg/L	200	5 min	20410 00	20411 00
Caldur Phosphate HR	2,5 - 100 mg/L	100	1 min	20415 00	20416 00
Caldur Sulphite	0,5 - 20 mg/L	150	3 min	20530 00	20531 00



AQUANALplus watertest laboratory

A really compact box-laboratory for a fast analysis of waters (e.g. drinking water, surface water, water of aquaria). All the applied chemicals are neutral in reaction to the environment, which means, all the test solutions do not endanger water (classification for the endangering water = 0). The used test solutions can be disposed via the hime waste water net. Sufficient for 50 to 60 tests.

Following parameter can be determined:

Ammonium	0,05-10 mg/L
Nitrate	10-80 mg/L
Nitrite	0,02-1,0 mg/L
Phosphate	0,5-6,0 mg/L
pH-Value	5,0 - 9,0
Total hardness	1 drop = 1° German hardness (dH)

It may be especially be emphasized that the sensitivity of the tests is applied to the very strict values of the German Decree on drinking water and can be proved.

Compact Box

Cat. No. 37556 00

Complete refill kit

Cat. No. 37558 00



Ozone test kit

Finally we found a very easy way to determine the actual ozone content in air!
With our rapid test set, the content of ozone can be determined within 10 minutes.

Procedure:

Put on an wind protected place one of the stripes. (eventually it must be fixed by a tape) After 10 minutes the test area should be compared with the scale on the package. The different colours on the package stand for the evaluated concentration of ozone in air.

Measurable steps:

<90 / 90 bis 150 / 150 bis 210 / >210 µg/m³ = ozone

Set with 12 stripes

Cat. No. 8024 36102



Soil-pH-indicator solution

For colorimetric pH-measurement of soil.
With this practical compact set the pH-value of the soil can be determined quite fast and uncomplicated.

Procedure:

Put some drops of the indicator solution and the soil sample into the mixing area. If the reaction is finished the coloured liquid will be lead through the rim into the tray and the colour can be compared with the scale of the side.

Extend of delivery:

50 ml indicator solution (sufficient for 100 det.) Mixing area with pH-scale, in plastic box, as well as sheets with operating instructions.

Cat. No. 8024 28080

Indicator solution, replacement bottle, 250 ml content

Cat. No. 8024 28082



WINLAB®

THE MOBILE ENVIROMENTAL LAB

THE PERFECT SYSTEM FOR FIELDWORK INVESTIGATIONS

You can carry out all measurements directly outside at the pond, river, lake or in the garden or on the field. The EcoLabBox is especially designed for groups and class projects in school, for students age 12 or up.

The following parameters (s. page 29) can be examined (The reagents for testing these parameters are sufficient for 50 tests each.)

All reagents for the determination of the above mentioned parameters can be easily disposed – whether in concentrated or diluted form.

All reagents are classified as not harmful to the environment !

Therefore, you can dispose everything in the sink at home or in school !

Set What is in the box?

- Testkits for 50 determination of pH / Ammonium/Nitrate / Nitrite / Phosphate / total hardness / extraction solutions for soil tests / 2 x 250 ml and 1 x 250 ml
- 6 test glasses
- Colour chart for test kits
- Beaker 120 ml
- Cress seed
- Sampling bottle 100 ml and 250 ml
- Funnel and stand for filtration
- Filter paper (folded)
- Bug viewer (cup magnifying glasses for easy determination of small animals)
- Special tweezers for careful observation of small animals
- Waterproof DIN A4 mat for biological tests
- 2 plastic pipettes

EcoLabBox®



By the way!

The robust plastic box and inlays for all the reagents and working aids are made of 100 % recycled polypropylene (PP).

The shoulder belt is adjustable.

All working aids and reagents can be ordered separately!



The new handbook, 82 pages, offers important advantages:

It is designed for children, teenagers and teachers who are not especially familiar with investigating the environment! The manual allows easy access to environmental matters and

investigations for everyone. You can examine your direct neighbourhood and test the quality of air, water or soil. Altogether you can carry out 21 tests. All the things you need for these you will find in the kitchen or household.

Measuring ranges of the testkits:		Order information:	Cat. No
pH-value in water	3 to 9	EcoLabBox with German manual, complete	3943 50050
Nitrate in water	10 to 80 mg/ l	EcoLabBox with English manual, complete	3943 50075
Ammonium in water	0,05 to 10 mg/l	Manual for EcoLabBox, German version, 96 pages, illustrated	3943 50090
Phosphate in water	0,5 to 6 mg/l	Manual for EcoLabBox, English version, 82 pages, illustrated	3943 50095
Total hardness in water 1 drip = 1°dH (German Hardness Degree)		refill kit, incl. reagents for water analysis of pH / Ammonium / Nitrate / Nitrite / Total Hardness / Phosphate	3943 50060
pH-value in soil	3 to 9	refill kit , incl. 6 sample tubes with coloured marks of PS, for water analysis	3943 50065
Nitrate in soil	10 to 80 mg/l	refill kit, incl. 2 x 250ml extraction solution No. 1 and 1 x 250ml extraction solution No. 2 and 1 package of 30 pcs folded filter papers, 125mm	3943 50070
Phosphate in soil	0,5 to 6 mg/l		
Ammonium in soil	0,05 to 10 mg/l		

WINLAB®

MOBILE LABBOX UW 2000

FOR WATER ANALYSIS

A real lab in the box with sturdy, waterproof lab measuring instruments:

- WINLAB® Data Line pH-temperature
- WINLAB® Data Line conductivity
- WINLAB® Data Line oxygen (DO)
- WINLAB® Data Line photometer

Professional instruments with high performance:

- integrated Data-Logger for 250 data sets
- automatic measurement at a set time, RS 232 interface
- waterproof case according to IP 66 and IP 67
- additional input for temperature measurement via Pt 100 or PTC probe
- simultaneous display
- isplay cover made of scratch resistant mineral glass
- calibration via pushing button
- easy handling with help of alike buttons
- ideal for user who wants to carry out quick and reliable tests on the spot.
- very good for environmentalists, project groups, school classes, etc. The ideal mobile lab for field use!

Set Economy

Same version as „Comfort“, but without luxmeter and only the following reagents: Ammonium / Nitrate / Phosphate / Iron / Sulphate / Nitrite.

Cat. No. 8003 02225

Set Comfort

Same content as described in levels 1 to 4 with luxmeter, but without oxygen meter

Cat. No. 8003 02495

Set Top

Same content as described in levels 1 to 4 with WINLAB® Data Line oxygen meter instead of luxmeter.

Cat. No. 8003 02210



First level

- 10 cuvettes
- cuvette stand
- beakers made of PP and glass
- cleaning brush
- set of test syringes
- 2 sample bottles, 100 ml each
- test tubes for dilution
- spatula
- hydrochloric acid, sodium hydroxide



Second level

- Test kits for water analysis with photometer WINLAB® Data Line for determination of:
Ammonium / Nitrate / Phosphate / Iron / Copper / Chromate / Chloride / Sulphate / Sulphide / Cyanide / Chlorine / Nitrite.



Third level

- Photometer WINLAB® Data Line
(cf. description page 31-33)
Cat. No. 8003 25000
- WINLAB® Data Line pH- temperature Measuring instrument with RS 232 interface and data logger (cf. description p. 42-47)
Cat. No. 6103 10001
- WINLAB® Data Line conductivity meter with RS 232 output and data logger (cf. description page 48, 49)
Cat. No. 6103 20001
- WINLAB® Data Line – DO- meter with RS 232 output and data logger (cf. description page 50, 51)
Cat. No. 6103 30001

Fourth level



- WINLAB® PTC temperature sensor with handle and 5 m cable with metre marking for deep water measurements
Cat. No. 6103 00033
- DO-electrode incl. calibrationvessel, with 1,5 m cable (optional with 4 m cable)
Cat. No. 6103 30030
- Conductivity measuring electrode with 1 m cable
Cat. No. 6103 20030
- Standard pH electrode for pH-measurements with 1 m cable
Cat. No. 6103 00029



FOR UP TO 250 TESTS



Lab Field Box UW 400 and UW 600

A very well approved analysis box – very suitable for team working.

All versions of the UW boxes are equipped with AQUANAL - plus test sets and therefore, offer the right productivity per parameter.

The checking solutions are also part of the basic version in order to control the test results.

The UW 400 version can be extended with the relevant tests to the UW 600 box.

Now in a very well arranged plastic box, with new foams.

Lab Field Box UW 400 contains:

- Checking solutions for nitrate and phosphate
- Reagents for determination of total hardness, phosphate, nitrate
- 100 measuring stripes with indicator pH 4,5 to 10
- 6 test tubes for 10 and 20 ml,
- various syringes,
- handbook

Cat. No. 8003 00400

Cat. No. 8003 00470 incl. pH-meter UW 70

	measuring range	number of tests
Ammonium	0,2 bis 8 mg / l	250
total hardness	1 drop= 1 ° dH	300 bis 400
Nitrate	1 bis 50mg / l	200
Nitrite	0,005 bis 0,1 mg / l	110
Phosphate	0,02 bis 0,4 mg / l	200
pH	4,5 bis 10	100 test stripes
with pH meter	pH 0 bis 14 / readability 0,1	
oxygen	0 bis 10 mg / l	110

Lab Field Box UW 600 contains:

- Checking solutions for ammonium, nitrate and phosphate
- Reagents for determination of total hardness, phosphate, nitrate, nitrite, oxygen,
- 100 measuring stripes with indicator pH 4,5 to 10
- 6 test tubes for 10 and 20 ml,
- various syringes,
- handbook

Cat. No. 8003 00600

Cat. No. 8003 00670 incl. pH-meter UW 70

Both versions have boxes made of robust material PP with 2 foam trays for easy storage of all accessories.



For fast reliable tests without photometer

AQUANAL-plus water analysis box Fishwater Lab

The newly developed AQUANAL-plus box for examining waters. This box is especially designed to examine the water quality of fish water and waters for bathing. The productivity per each parameter is **50 tests**.

Measuring range:	
Ammonium	0,05 bis 10 mg / l
Carbonathardness	1 drop = 1 ° dH (dH = German hardness)
Iron	0,05 bis 1 mg / l
Total hardness	1 drop= 1 ° dH
Nitrate	0 bis 80 mg / l
Nitrite	0,02 bis 1 mg / l
Phosphate	0,5 bis 6 mg / l
pH	4,5 bis 10
Oxygen	0 bis 10 mg / l

Cat. No. 37566 00

WINLAB®

DATA LINE PHOTOMETER



NAME WHATEVER YOU EXPECT OF A PORTABLE PHOTOMETER – **WE HAVE IT!**



- High Precision
- Flexibility with reagents
- Documentation with data logger
- Big method storage for 250 Data sets
- Robust and water-proof case and cuvette shaft acc. IP 67
- Working instruction on the display

THE WINLAB® DATA LINE PHOTOMETER WITH MANY TECHNICAL HIGHLIGHTS!

WIDE SPECTRAL RANGE

Nearly all relevant parameters for quick analysis on the spot can now be measured. New wave lengths are available (LED and filter):

380 - 430 - 470 - 500 - 520 -
560 - 610 - 700 - 810 nm

FREE CHOICE OF REAGENTS!

Whatever you choose is working. Use your favourite reagents and any type will work with our photometer. Just take the reagents you have always wanted to work with:

HACH - Merck (Spectranal) - Sigma Aldrich (AQUANAL) - Nanocolor (M&N)

You will hardly find a reagent that cannot match with the new WINLAB® Data Line Photometer. We have a large pool of calibration plots of various manufacturers!

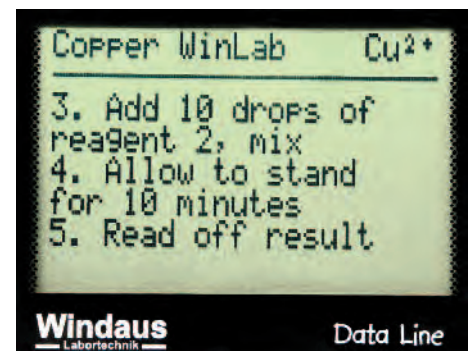
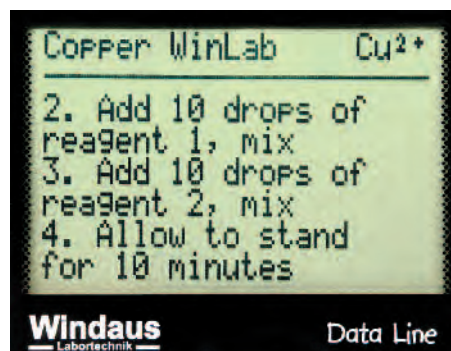
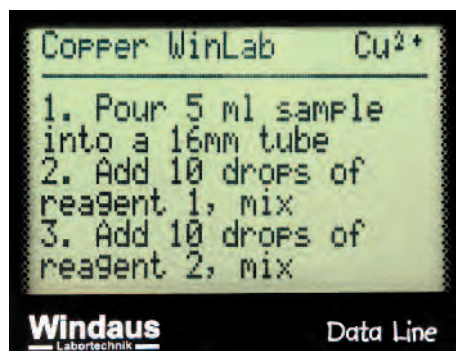
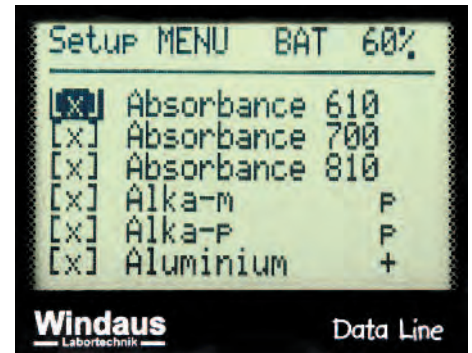
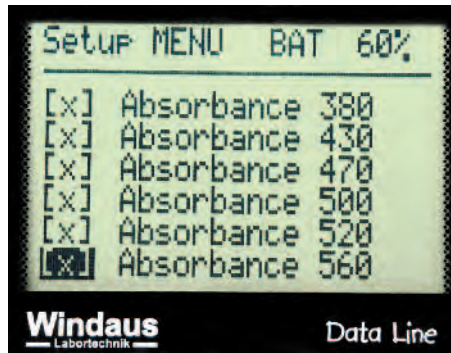
METHOD STORAGE

We have 150 calibration plots for you - together with working instructions in many languages!

VERY COMFORTABLE OPERATION

Simpler as ever before! All operation steps for the many reagents are shown directly on the display!

You don't need a manual! Choose your language: English, German, French, Spanish, Polish, Turkish, Swedish, and more.



HIGH PRECISION

Even while working in the field you can rely on high precision. The electronic optical accuracy is guaranteed within a wide extinction range from -0.5 to 2.000 at 1.5% of your test value! The photometric precision is 3% (deviation of the calibration filter).

DISPLAY

WINLAB® Data Line Photometer has an especially well designed display. It has background illumination, so you can read all results, even under poor lighting conditions. The mineral glass cover is scratch resistant and remains clear. The digits on the display measure 12 mm and test values are easy to read. All further information as date, time, wave lengths and the many more possible working steps for handling the reagents are shown on the 60 x 40 mm big display with a resolution of 128 x 64 Pixel.

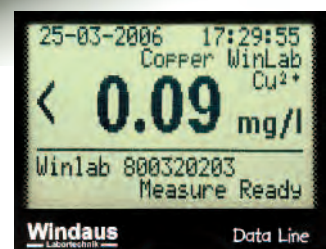
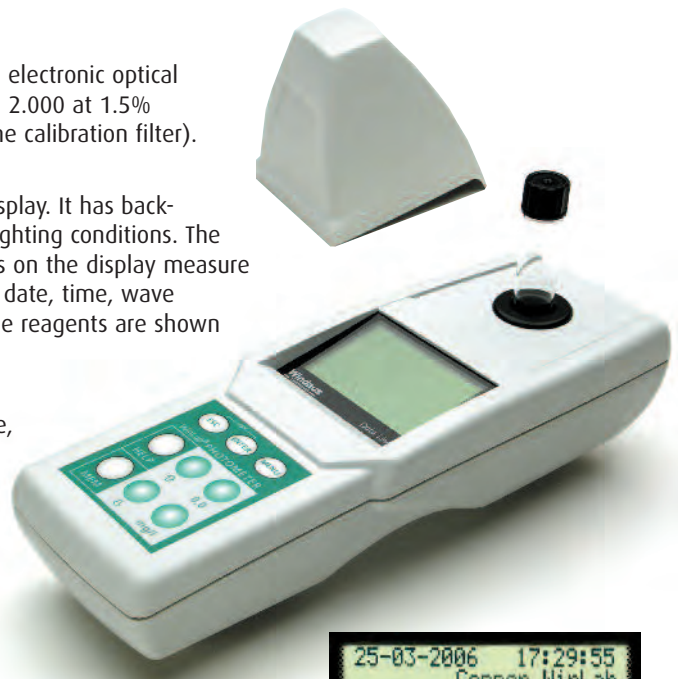
DATA LOGGER AND INTERFACE

Documentation is vital when doing many measurements. Therefore, the new photometer has a big storage for 250 data sets (test results). You measure according to GLP and save per data set: date, time wave length, parameter (reagent), test result, test number and location.

The IrDA infrared interface allows you to transfer data without cable either via data logger directly on your laptop or to your PC by means of the enclosed USB-transmitter.

SOFTWARE

With a few mouse clicks you can put together your individual photometer! With the enclosed software you can choose from a pool of calibration plots those that fit your work best. Theoretically speaking you can equip your photometer with only a few calibration plots for reagents or with 150, if you like! For working with the collected test values and data sets, you have an EXCEL data export module for transferring data into an EXCEL sheet.



WINLAB® Data Line Photometer (only)

incl. Software and accu charger (without any further accessories)

Cat. No. 8003 25000

Soil analysis set for the photometer WINLAB® Data Line

With this set of reagents in connection with the photometer, a very evidential and exact determination of the need and consumption of nutritive substances resp. whole series of useful and cultivated plants can be carried out. The newly reorganised reagent set was immensely improved by the use of more durable reagents. The enclosed working instructions do not only show photometrical calibrating curves, resp. explain procedures, but also proposals for the after treatment concerning fertilisation and care are given.

Working procedure is described as:

First of all add extraction solution and shake out the soil sample. After a clear filtration add reagent to sample, and measure colouring resp. turbidity with the photometer. The determined concentration of ions is related to a recommended scale for fertilisation of soil (or eventual excess fertilisation) Therefore a practical help for decisions or evaluation criterion for the real need of nutritive substances of plants is easy to follow.

The following parameter can be determined:

soil pH-Wert	pH 3,8 bis 8,0
Lime need	recommendation for lime need
Magnesium	0,5 bis 10 mg / Ltr
Manganese	0,5 bis 13 mg / Ltr.
Nitrate	5 bis 100 mg / Ltr
Phosphate	5 bis 130 mg / Ltr
Potassium	5 bis 100 mg / Ltr.

Cat. No. 8003 40950



Set Soil analysis set

Consisting of:

1 Ltr extraction solution for lime need	8003 20955
1 Ltr extraction solution for soil pH	8003 20956
1 Ltr extraction solution for magnesium	8003 20957
1 Ltr extraction solution for manganese	8003 20958
1 Ltr extraction solution for nitrate	8003 20959
1 Ltr extraction solution for potassium/phosphate	8003 20960
1 Set - magnesium reagents	8003 20954
1 Set - manganese reagents	8003 20953
1 Set - nitrate reagents	8003 20204
1 Set - potassium reagents	8003 20962
1 Set - phosphate - reagents	8003 20952
1 50 g adsorption graphite	8003 20961
1 Pack of 100 pcs. folded filter papers	2502 04504
1 beaker of polypropylene, 50 ml	2385 13176
10 test tubes 160 x 16 mm	1126 11021
2 snap lid glasses, 100 ml	1256 12099
2 PE - wide neck bottles, 500 ml	2252 03101
1 hand shovel of aluminium	3305 08816
1 working instruction, DIN A 5 in transparent plastic foils	

AVAILABLE TEST KITS FOR WINLAB® DATA LINE PHOTOMETER (CALIBRATION PLOTS APPROVED)

Inexpensive mixing test-kits

(sufficient for up to 250 tests!)

Cat. No.	Reagent	Measuring range in mg/l	Number of tests
37465 00	Aluminium	0,01 - 0,5	200
8003 20201	Ammonium	0,05 - 3	250
37472 00	Cadmium	0,01 - 2	140
37459 00	Chlorine	0,1 - 5	300
8003 20210	Chloride	1 - 50	300
8003 20202	Chromium	0,005 - 1	150
8003 20203	Copper	0,1 - 12	100
37464 00	Copper, low	0,05 - 5,0	150
37443 00	Cyanide	0,01 - 0,5	150
37461 00	Iron	0,02 - 0,3	100
8003 20206	Iron	0,05 - 6,0	100
37444 00	Iron	0,14 - 15	200
37537 00	Gold	0,1 - 5	100
37473 00	Hydrazine	0,01 - 2	140
37466 00	Magnesium	100 - 1500	60
37446 00	Manganese	0,01 - 5	110
37447 00	Nickel	0,02 - 2	125
8003 20204	Nitrate	0,1 - 30	200
37448 00	Nitrate	10 - 150	200
8003 20207	Nitrite	0,01 - 2	55
37474 00	Peroxide	1 - 100	140
37467 00	Phenol	0,05 - 5	300
37451 00	Phosphate	0,01 - 5	200
8003 20205	Phosphate	0,2 - 10	100
37463 00	Phosphate	1 - 150	200
37428 00	Oxygen	0,5 - 12	30
37438 00	Silver	0,05 - 1,5	100
37452 00	Silicon	0,01 - 2	150
8003 20220	Sulphate	20 - 1000	100
37469 00	Sulphate	50 - 500	100
8003 20221	Sulphide	0,05 - 2	100
37539 00	Zinc	0,01 - 0,3	120
37476 00	Tin	0,01 - 1	140

Further cuvette test kits

(ready mixed cuvette test)

Cat. No.	Reagent	Measuring range in mg/l	Number of tests
8082 50313	Lead	0,1 - 5	25
8046 91826	COD 160	15 - 160	20
8046 91829	COD 1500	100 - 1500	20
8046 91840	Fluoride	0,1 - 2	20
8082 50407	Potassium	5 - 50	25
8082 50409	Nickel	0,1 - 6	25
1081 25074	Nitrite	0,02 - 1,5	25
1148 7800	TOC	5,0 - 80	25
8082 50417	Zinc	0,2 - 2,5	25

Test-kits, type AQUANAL – professional

(test-kits with tablets and powder pillow packages)

Cat. No.	Reagent	Measuring range in mg/l	Number of tests	ACC.HACH Cat. No.
26037-00	Aluminium	0,01 - 0,3	100	X
70057/59	Ammonium	0,02 - 1,0	100	
26680-00	Ammonium	0,01 - 0,5	100	X
70471	Boron	0,1 - 2,0	100	
70063/64	Bromine	0,1 - 5,0	100	
70061	Bromine (DPD)	0,1 - 5,0	100	
70071	Chloride	5 - 60	100	
70063/64/67	Chlorine (DPD)	0,01 - 5,0	100	
70061/64	Chlorine (DPD)	0,05 - 1,5	100	
21056-69	Chlorine (total)	0,01 - 2,0	100	X
14064-99	Chlorine (total)	0,1 - 5,0	100	X
70068/70	Chlorine (total)	5 - 200	100	
70085/86	Copper	0,5 - 5,0	100	
21058-69	Copper	0,05 - 5,0	100	X
70075/73	DEHA	0,02 - 1,0	100	
	Diethylhydroxyamine (tests Oxygen bond capacity)			
70084	Hardness (total)	1 - 30° dH	100	
70076/77	Iron	0,1 - 1,0	100	
26087-99	Iron	0,1 - 8,0	100	X
21057-69	Iron	0,1 - 5,0	100	X
70087/88	Manganese	0,05 - 4,0	100	
24300-00	Manganese	0,1 - 20	100	X
26517-00	Manganese	0,05 - 0,7	100	X
70089/91	Molybdate	1 - 50	100	
26041-00	Molybdate	1 - 35	100	X
22434-00	Molybdate	1 - 35	100	X
70106	Nickel	0,02 - 0,5	100	
14065-99	Nitrite	0,01 - 1	100	X
21071-69	Nitrite	0,01 - 1	100	X
70102	Peroxide	0,5 - 1,5	100	
70245/095	ortho-Phosphate	0,05 - 40	100	
21060-69	ortho-Phosphate	0,2 - 5,0	100	X
70096/97/453	Silicon	0,05 - 30	100	
24593-00	Silicon	0,05 - 1,6	100	X
22443-00	Silicon	1 - 200	100	X
21067-69	Sulphate	1 - 100	100	X
12065-99	Sulphate	1 - 100	100	X
70098/101	Sulphide	0,04 - 0,5	100	

WINLAB® DATA LINE PHOTOMETER IN ALUMINIUM BOX

VERY PRACTICAL AND ROBUST IN EVERY WAY!

**Complete sets with us means to have a ready-to-go box:
Just add your reagents!**

**The box contains cuvettes, cleaning brush, cuvette stand,
USB transmitter and cable for PC data transfer, manual**

ALL IN ONE!

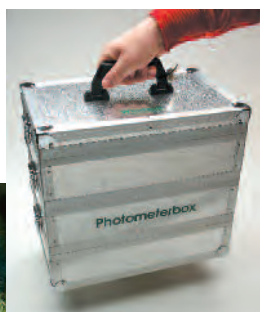
With the new WINLAB Aluminium Photometer Box we designed a handy and robust box system for working in the field to meet your expectations.

Has one very distinctive feature:

- You have three separate boxes in one!
- Dirt, spilled cuvette content or reagent
- material cannot harm the other boxes.

WINLAB® Data Line photometer in NEW Aluminium Box:
content as described above, incl. reagent/cuvette stand made of steel, plastic covered (without reagents)

Cat. No. 8003 02550



Box 2

contains sample taking glasses, cuvettes, cuvette stand and manual.



Box 1

contains photometer, battery charger, USB transmitter and cable



Box 3

is equipped with water resistant foam material interfacing for the various reagents.



WINLAB® DATA LINE PHOTOMETER IN STANDARD PLASTIC BOX

contains:

- Battery charger for built-in accumulators
- software, manual
- 10 round cuvettes – 16 mm
- 2 dilution tubes
- funnel for cuvette
- cleaning brush for cuvettes
- cuvette stand
- syringes 5 ml, USB transmitter
- 1 m long cable for USB transmitter
- foam material interfacing in all three box parts
- photometer
WINLAB® Data Line



Cat. No. 8003 02540



Technical data of WINLAB® Data Line Photometer

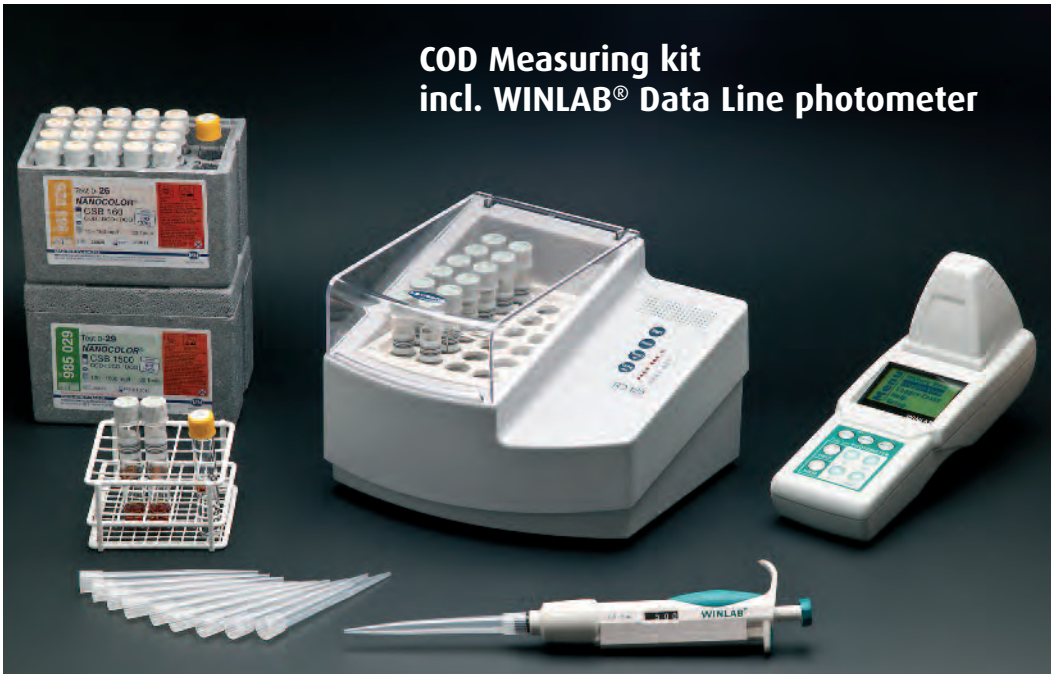
Optics:	LED and filter
Wave length range:	380 – 430 – 470 – 500 – 520 – 560 – 610 – 700 – 810
Extinction range:	- 0.500 to 3.000
Electro-optical accurac:	In the range of -0.100 to 2.000 1.5 % of the test value
Photometric accuracy:	+/- 3% (on filter)
Language selection:	max. 6 different (currently) Standard languages German, English, French, Spanish, Swedish, Turkish
Method storage:	For 150 reagents – calibration plots, including working steps for these reagents
Data storage:	for up to 250 data sets with date, time, test result, parameter (reagent) test number, location.
Graphic / display:	128 x 64 Pixel, size 60 x 40 mm, background light, Scrap-proof mineral glass cover
Date / time:	with calendar (summer- and wintertime will be adjusted automatically)
Power supply:	4 built-in accumulators, rechargeable with enclosed battery charger 230 Volt
Power saving function:	shut down can be adjusted (time selection)

WINLAB® Data Line Photometer (only)

incl. Software and accu charger (without any further accessories)

Cat. No. 8003 25000

COD Measuring kit incl. WINLAB® Data Line photometer



Completely equipped measuring-kit for photometer survey of COD! Of course you can use the included photometer WINLAB® Data Line for further water and waste water analysis.

Set Cod measuring kit

consisting of:

1 x photometer WINLAB® Data Line inc. software and charger

Cat. No. 8003 02500

1 x thermoblock for digestion of COD, total-Phosphate or total Nitrogen.

3 choices of digestion temperatures 100°C/120° C and 150° C.

24 places (holes) for round cuvettes 16 mm diameter.

Timer adjustable for 30min / 1h / 2h and continuous time.

A built-in over temperature protection switches off at 190° C.

case dimensions: 250 x 220 x 170mm (L x W x H)
power consumption: 550 W, power supply: 230 V
Cat.No. 8003 55000

1 x automatic pipette, variable from 1 to 5 ml
Cat. No. 1443 55000

1 x package of pipette tips, 100 pcs for above type
Cat. No. 2900 20507

1 x cuvette stand for 20 pcs round bottom cuvettes
Cat. No. 8003 20415

1 x package (20 pcs) of COD ready mixed cuvettes, COD 160, range 15 to 160 mg/l
Cat. No. 8046 91826

1 x package (20 pcs) of COD ready mixed cuvettes, COD 1500, range 100 to 1500 mg/l
Cat. No. 8046 91829

Complete COD measuring kit, as described above
Cat. No. 8003 92450



Portable Turbidity Measuring Instrument TN 100 (NTU)

Compact, portable turbidity measuring instrument for usage on the spot and in the lab. **FOR A WIDE VARIETY OF APPLICATIONS**

- Drinking water
- Boiler
- Water treatment
- Petrochemical
- Aquaculture
- Food and beverage industry

Turbidity is one of the most important parameters for the determination of drinking water quality. Drinking water should not have more than 5 NTU, The TN 100 is designed to get a precise measurement from 0 to 100 NTU at any stadium of the water preparation.

Technical data:

Principle:	Nephelometric method (in compliance to ISO 7027 or DIN EN 27027)
Range:	0,01 to 19,99 / 20,0 to 99,9 / 100 to 1000 NTU
Resolution:	0,01 / 0,1 / 1
Accuracy:	+ - 2% of reading (at range 0 to 500 NTU) + - 3% of reading (at range 501 to 1000 NTU)
Calibration:	4 points (0,02 / 20,0 / 100 / 800 NTU)

The instrument will be delivered in a sturdy, practical carrying case incl. 4 standards and 2 cuvettes.

Cat. No. 6303 10000

THE MANY FEATURES OF THE TN 100

- Push-button calibration
- Auto ranging up to 1000 NTU, freezes measured readings for easy viewing
- Highly repeatable, stable readouts with up to +-2% accuracy
- infrared light source in line with DIN & ISO standards
- Energy saving meter delivers over 1200 tests with single battery set.
- Self diagnostic messages (low battery indicator) and maintenance free
- NON formazin standards; non carcinogenic, US EPA approved

WINLAB®

PIPETTES



Having smart soft finger-grip of Thermoplastic Elastomer (TPE) ensuring

- minimum transfer of body heat to the pipette resulting in high accuracy even on continuous use
- minimum fatigue of hand and fingers
- reduced thumb stress
- light weight of the pipette makes the job less tiresome
- precise setting of the selected volume ensures accurate dispensing of the liquid
- tip ejector for smooth ejection of the tip, preventing any contamination
- comfortable finger rest

MICROPIPETTES

Volume	Order-No.
0,5 - 10 µl	1400 00100
5 - 50 µl	1443 00550
10 - 100 µl	1443 10100
20 - 200 µl	1443 20200
100 - 1000 µl	1443 11000
500 - 5000 µl	1443 55000
2 - 10 ml	1443 10000

PIPETTE TIPS

for Volume	PU	Order-No.
2 - 200 µl	1000	2900 00110
50 - 1000 µl	1000	2900 00210
1 - 5 ml	100	2900 20507
2 - 10 ml	100	2900 20508
Stand for 6 Pipettes		1443 00006



WINLAB®

NEW

THE NEW COM-EASY PIPETTE

THE BEST IN ELECTRONIC PIPETTING!

This new electronic pipette has been designed for maximum performance, accuracy and simple operation. Its light weight and ergonomic control helps to reduce the risk of repetitive strain injuries (RSI) that are frequent in manual pipetting! The price is really so attractive, that you will not continue with a mechanical pipette.

INGENIOUS SINGLE OPERATING

all software controls and functions of the WINLAB®-com-easy pipette is done by one patented user friendly knob!
No more small switches and no more snippy buttons, which confuses you during your daily work.

MODERN VISUAL DISPLAY

An innovative OLED-display for a graphic readout as status indicator of all functions is built in

SUPERIOR IN FORM AND FUNCTION

The new WINLAB®-com-easy pipette is designed to meet performance, highest accuracy and innovative ergonomic and safety criteria

NEW ESM-SYSTEM

A real novel selfcalibration system, where the user can calibrate his new WINLAB®-com-easy pipette for solutions of different viscosities.
The system controls also all functions and indicates all errors!

RESOURCEFUL SCS-SYSTEM.

This system controls the piston movement of the new WINLAB®-com-easy pipette and guarantees highest precision and accuracy.

Cat.No.	volume range in µl	steps in µl	test vol. µl	% inaccuracy	% imprecision
1443 02010	0,2 to 10	0,01	0,5/5/10	5/2,5/0,9	3/1,5/0,5
1443 10200	10 to 200	0,1	10/100/200	0,9/0,4/0,3	0,5/0,5/1
1443 50100	50 to 1000	1,0	100/500/1000	0,4/0,4/0,3	0,5/0,2/0,1
1443 10500	100 to 5000	5,0	500/2500/5000	0,4/0,1/0,1	0,5/0,1/0,1



PIPETTE TIPS

for volume	PU	Order-No.
0,2 - 10 µl	1000	1478 00170
2 - 200 µl	1000	2900 00110
50 - 1000 µl	1000	2900 00210
100 - 5000 ml	100	SON 240063



NEW

WINLAB® Pipette stand, new model

Universal model for electronic pipettes and mechanical pipettes.
It can take up to 3 COM-EASY-pipettes (electronic pipettes) and up to 4 mechanical pipettes (not only WINLAB® pipettes, also from other manufacturers!)

Cat. No. 1443 00050

DATA LINE

pH-MV-T MEASURING INSTRUMENT

WINLAB® Data Line

This name stands for a variety of applications and functions of portable measuring instruments, as you have so far only known from expensive laboratory devices.

WINLAB® Data Line

is easy to operate, robust, waterproof and equipped with a data logger for the GLP designed documentation of data.

WINLAB® Data Line

is pH-meter and temperature measuring instrument (-100 to 400° C) in one!



A WELL APPROVED INSTRUMENT GENERATION!

DESIGN

Slightly different by its ergonomic well designed form: rounded edges and a big display field give WINLAB® a unique design. The integrated rubber areas guarantee a safe and comfortable operation.

ROBUST CASE

WINLAB® has a completely new designed and individual case. Only this way, WINLAB® can compete with today's requirements as there a waterproof case according to IP 66 and IP 67 and high impact protection.

EASY HANDLING

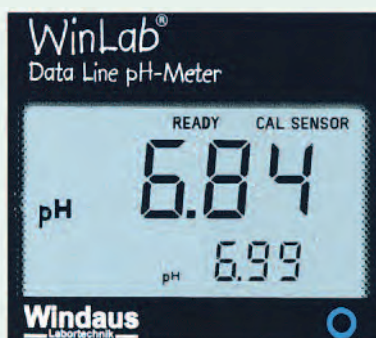
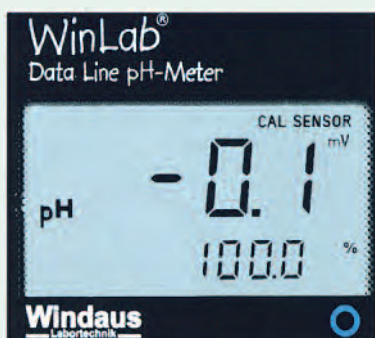
You have four keys – therefore, you will quickly know how to use your WINLAB® and the different procedures are similar. For safety during operation, you get an acoustic confirmation by WINLAB® Data Line.



ON-SITE-USE

For many years, we have been manufacturing handy measuring instruments for on-site-use.

So far, WINLAB® Data Line has been our best piece of work for the matter. It is robust, waterproof, has well approved accessories and it guarantees a comfortable operation even under difficult and rough working conditions.



DISPLAY

- What a nice display! The WINLAB® display shows you test values in 14mm high LCD digits. Simultaneously the temperature is displayed in the second line.

As a matter of fact, your display will also inform you about the state of the electrode, electrode errors, type of buffer solution, date time and much more.

As we really want you to have a clear sight, we chose a mar resistant mineral glass cover for the display field.

SCRATCH-RESISTANT DISPLAY-COVER

DATA LOGGER

- saves up to 250 test values with date and time according to GLP. and you choose between automatic time control and manual adjustment
- Choose the time, when your measurement is supposed to start and WINLAB® will carry out all necessary steps in order to do all measurements and their documentation. The ideal device for long term measurements!
- At least for 250 measurements.
- with serial interface RS 232

MULTIFUNCTIONAL

WINLAB® offers you three absolutely complete measuring functions:

pH-MV-TEMPERATURE

The precise temperature meter automatically recognizes whether a NTC 30 kOhm probe (part of the combined electrode), a PTC temperature probe with 5 or 10 m cable (for determination of water depth temperature) is used or a Pt-100 precision temperature probe (for temperatures from -100 to 400° C) with an accuracy of ±0,2° C.



CALIBRATION

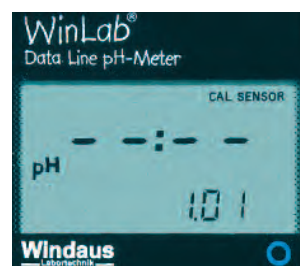
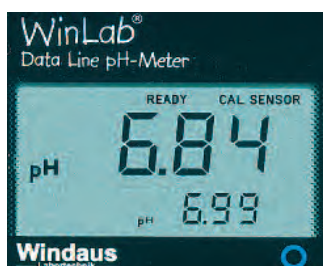
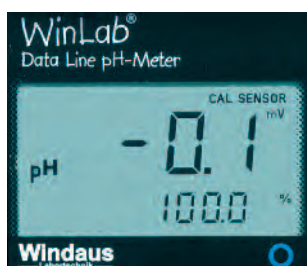
WINLAB® automatically recognizes a buffer. If you calibrate by pushing a key, you only have to choose the right buffer, (NBS buffer, WINLAB®-buffer or manually one of your choice). WINLAB® will do the rest for you.

Also by pushing a key, enter the next date for calibration and WINLAB® will remind you to calibrate when you start up again.

INSTRUMENT AND ELECTRODECHECK

WINLAB® guarantees you safe and profound use of all applications.

When you start up WINLAB®, the capacity of the batteries, resistance of the electrode, the calibration interval, the software of the instrument and various electrical parameter are checked.



Technical Data:			Automatic measurements	
Measuring range/resolution		Accuracy	time controlled storage at intervals 1/2/3/5/10/20/30 min and 1/2/3/4 h.	
pH	-1,00 bis 15,00	0,01		
mV	± 399,9 mV und ± 1999 mV	0,4 mV + 0,1 % v. M. 2 mV + 0,1 % v. M.		
Temperature			Auto off	
mit PTC	- 50,0 bis +150,0° C	0,2° C + 0,2 % v. M.	adjustable from 1 to 59 min (after last operation)	
mit Pt 100	- 100,0 bis 400,0° C	0,2° C + 0,4 % v. M.		
mit NTC 30	- 5,0 bis +105,0	0,2 ° C	Clock	
Temperature compensation			with calendar, summer and wintertime will be adjusted automatically	
automatically for pH-electrodes WINLAB® pH/T30 with built-in temperature sensor, and by PTC or Pt100 temperature sensor manual by entering sensor manual by entering sample temperature				
Display			Power supply	
LCD-Display, 60 x 32 mm 4 digits in main display 14 mm high, 4 digits in second line 7 mm high, for simultaneous measurement and special signs			4 x 1,5 V AA operating time ca. 4000 h	
Calibration interval			Interface	
adjustable from 1 to 25 days			RS 232 C/Baud/8/E1	
Calibration protocol			Protocol	
GLP-conform calibration protocol incl. last calibration datas in memory			ASCII	
Memory/data storage			Dimension	
250 data sets with identity No./measuring value/time/date			170 x 79 x 39 mm	
			Weight	
			350 g (incl. batteries)	
			Case	
			Protection type IP 66 and IP 67 (using WINLAB® -plugseals)	

WINLAB® measuring instrument,
without accessories
Cat. No. 6103 10001

WINLAB®

pH PROFI-BOX-SETS



ACCESSORIES PH-METER

Standardelectrode, with plastic body, refillable with KCl-solution, 1 m cable and BNC plug with new practical opening and closing mechanism for KCL electrolyte solution.

1 Cat. No. 6103 00029

WINLAB® pH/T 30 electrode with built in temperature sensor, 1 m cable, WINLAB® plug-seal and BNC plug, gelfilled

2 Cat. No. 6103 00030

WINLAB®-pH-electrode with glass body, refillable with KCl-solution, with S7 plug head, with new practical opening and closing mechanism for electrolyt solution.

3 Cat. No. 6103 00039

WINLAB® pH electrode with built in temperature sensor with glass body, refillable with 3mol KCL-solution, 1 m cable, WINLAB® plugseal and BNC-plug

4 Cat. No. 6103 00038

pH combined electrode with glass body refillable with KCL-solution, with detachable ground sleeve diaphragm eliminates nearly all measuring problems in samples with low ionic strength (e. g. drinking water)

5 Cat. No. 6103 00060

pH combined electrode for piercing soft, moist samples such as meat, fruits or cheese gelfilled. With conicalmembrane, total length 120 mm diameter 6 mm on 35 mm length

6 Cat. No. 6103 00062

WINLAB®-redox-electrode with S7 plug head refillable with electrolyt

7 Cat. No. 6103 00040

WINLAB®-PTC-temperature sensor, special type for determination of water depth temperature, 5 m cable and WINLAB® plug-seal

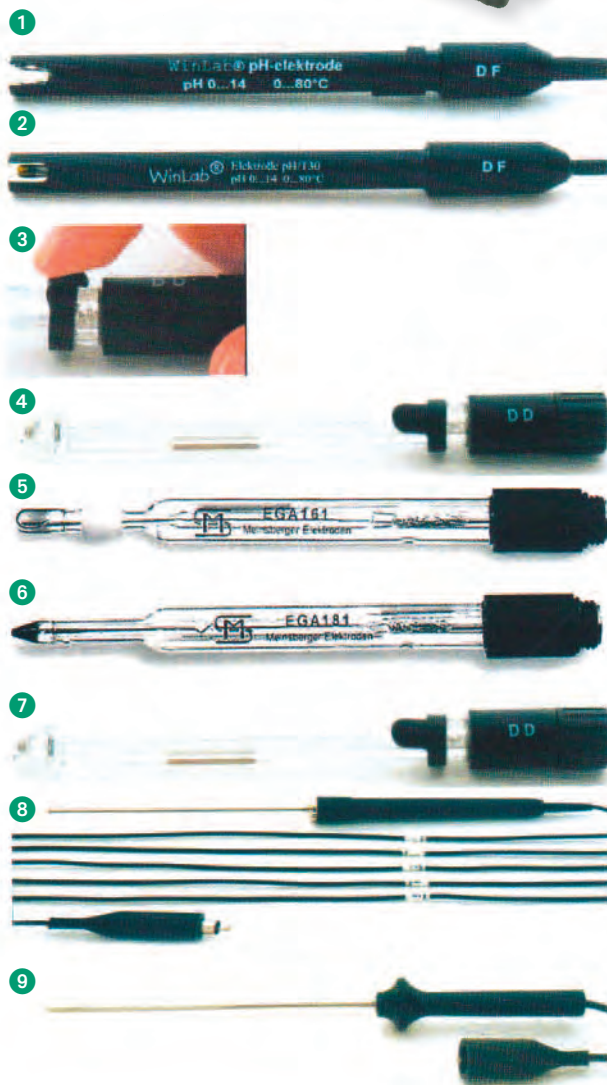
8 Cat. No. 6103 00033

WINLAB® connection cable with BNC-plug and S7 socket for plug-head electrodes, 1 m cable (incl. WINLAB®-plug-seal)

Cat. No. 6103 00041

WINLAB®-Pt 100 temperature sensor with handle, 160 mm length, 3 mm diameter for precise temperature measurement (incl. WINLAB®-plug-seal)

9 Cat. No. 6103 00034



Set WINLAB® profi-box-set 1

Consisting of:

pH-mV-temperature measuring instrument

Cat. No. 6103 10001

combined electrode with integrated temperature sensor pH/T30

Cat. No. 6103 00030

Set of buffer solutions 3 x 100 ml of pH 4/7/10
100 ml 3 mol KCL solutions

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat. No. 6103 10020

Set WINLAB® profi-box-set 1 L

Consisting of:

pH-mV-temperature measuring instrument

Cat. No. 6103 10001

csatndard pH electrode

Cat. No. 6103 00029

Set of buffer solutions 3 x 100 ml of pH 4/7/10
100 ml 3 mol KCL solutions

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat. No. 6103 10018



Accessories pH-Meter

WINLAB®-buffer solution acc. EN 10204-2.3

Designation	Size	Cat. No.
pH 4,00 (20 °C)	100 ml	6103 10005
buffer solution	500 ml	6103 04044
	1000 ml	6103 04054
pH 7,00 (20 °C)	100 ml	6103 10006
buffer solution	500 ml	6103 07044
	1000 ml	6103 07054
pH 9,00 (20 °C)	500 ml	6103 09044
buffer solution	1000 ml	6103 09054
pH 10,00 (20 °C)	100 ml	6103 10007
buffer solution	500 ml	6103 10044



Desk-Box

For a perfect use in the lab!

Even as mobile measuring instruments the WINLAB® Data-Line system offers you all advantages of modern measuring technique. Why should you buy an additional instrument? We have the better answer for you: Just take your WINLAB® measuring instrument and combine it with the WINLAB® Desk-Box. Within seconds you have a lab station with:

Software for WINLAB® Data Line measuring instruments

A real quite new and easy to operate software supports the user while taking measurements. Even already collected datas can be managed easily! The software is compatible to the three WINLAB® Data Line instruments for pH/redox/temperature Conductivity/TDS/Salinity and Dissolved Oxygen (DO)

The most important software features are:

- manual data-import
- automatic data-import (online-measurements)
- read out of data logger measuring values
- filtering datas (acc. to the primary measuring unit)
- datas can be read out graphically parallelly to the digital numbers



Electrode storage rack for 5 pH-electrodes

This is the ideal rack to store your pH-electrodes in the proper electrolyte (3 mol KCL) and in an upright position. This prolongs the life of your pH-electrodes.

Rack, coated by PVC plastic incl. 5 glasses with screw caps and seals, suitable for the diameter of pH-electrodes

Cat. No. 6103 80200



WINLAB® electrode-storage bottle

WINLAB® electrode-storage bottle for electrodes complete with 250 ml 3 mol KCL-solution

Cat. No. 6103 80136

- electrode stand
- the integrated WINLAB® storage vessel and KCL-solution for your pH-electrodes (as a result, your electrodes will last longer!)
- storage space for temperature probes and further electrodes

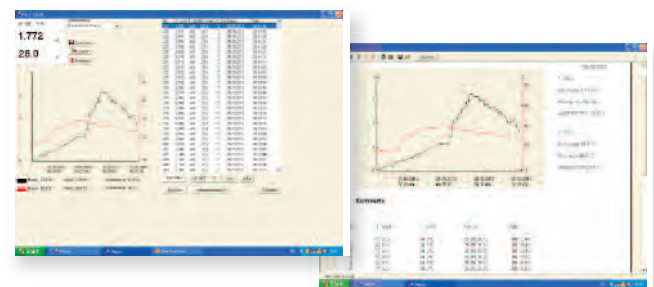
WINLAB® Desk-Box is delivered with:

- Rod of stainless steel
- electrode clamp
- electrode storage vessel made of DURAN glass and 250 ml 3mol KCL-Solution.

Cat. No. 6103 00065

Electrode vessel made of DURAN glass

Cat. No. 6103 00066



- commenting datas (you have many possibilities to comment the datas)
- printing datas
- deleting datas
- EXCEL data transfer (easy to transfer to EXCEL files)

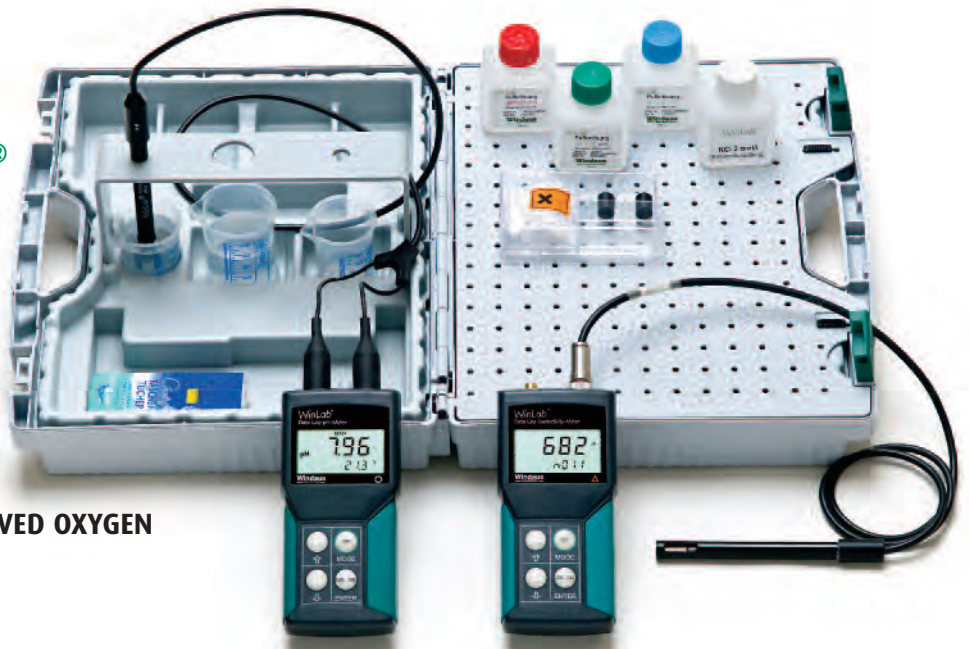
Cat. No. 6103 10040

CHOOSE THE MEASURING BOX VERSION, FOR YOUR PURPOSE!

WINLAB®

THE COMBI MEASURING BOXES

TDS - SALT CONTENT AND DISSOLVED OXYGEN



You always have two instruments in the new WINLAB® Combi-Box! Even in case of failure, you can measure with the second instrument.

Look how comfortable this NEW Box can be used – put buffers or calibration solutions or measuring solutions on the one side of the opened box – there is plenty of space!

On the other side the stand for the electrode enables a safe and clean working!

PLEASE REMEMBER – ALL WINLAB® DATA LINE MEASURING INSTRUMENTS are so sophisticated by IP 67 waterproof cases, Data Logger for 250 data-sets, RS 232 output, scratch resistant glass cover for the display, simultaneous display of pH and temperature or Conductivity and temperature or dissolved Oxygen (DO) and temperature extra input for Pt100 temperature probe.

**We HAVE FOLLOWING
WINLAB® COMBI BOX VERSIONS**
for you:

Set WINLAB® Combi measuring Box pH/DO

Consisting of:
WINLAB® DATA LINE pH-meter
pH/T30 combination-electrode
WINLAB® DATA LINE DO-meter (dissolved Oxygen)
DO-electrode for dissolved Oxygen, with 1,5meter cable
accessories for DO electrode
buffer solutions and electrolyte solution for DO-electrode

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat No. 6103 10026

Set WINLAB® Combi measuring Box pH/Cond

Consisting of:
WINLAB® DATA LINE pH-meter
pH/T30 combination-electrode
WINLAB® DATA LINE Conductivity-meter
Conductivity four cell electrode
buffer solutions and Conductivity check solutions
some accessories (beakers and cleaning material)

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat No. 6103 10025

Set WINLAB® Combi measuring Box Cond/DO

Consisting of:
WINLAB® DATA LINE Conductivity-meter
Conductivity four cell electrode
WINLAB® DATA LINE DO-meter (dissolved Oxygen)
DO-electrode for dissolved Oxygen, with 1,5meter cable
accessories for DO electrode
Conductivity check solutions and electrolyte solution for DO-electrode

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat No. 6103 10027

WINLAB® DATA-LINE CONDUCTIVITY-METER

WINLAB® DATA LINE IS EASY TO HANDLE, ROBUST, WATERPROOF AND MOST OF ALL CONDUCTIVITY-METER AND TEMPERATUREMETER (-100 BIS 400°C) IN ONE!

TECHNIQUE

- simultaneous conductivity and temperature display
- automatic sensor recognition for temperature probe Pt 100 or PTC. The type of probe is shown on the display
- extra port for temperature measurements
 - a) for PTC probe with 5 or 10m long cables, especially designed for temperature measurements in deeper waters.
 - b) for Pt 100 probe for exact temperature measurements in the range of -100 to +400° C
- cell constant is individually adjustable from 0,050 to 3,999 cm⁻¹
- temperature coefficient can either be linear or non linear acc. to EN 27888 linear range from 0,000 to 2,999% per °C (adjustable)

CASE

- very robust and ideal for outdoor usage, water- and dustproof (acc. IP66 and Ip 67) with fixed green rubber handle!

DISPLAY

- it is 14 mm high, excellent readable, with display of measuring unit, with information on electrode status, measuring faults with the electrodes, calibration intervals, calibration faults, date, time, type of buffer solution, etc. With scrape-proof mineral glass as display cover!

DATA LOGGER

- in series production designed for up to 250 sets of data, including the display of the test value, measuring unit, location as well as date and time
- WINLAB® starts measurements at desired time automatically and permanent measurements can be carried out easily.
- with RS 232 interface for immediate data transfer to your PC



Technical data:

Measuring:	0,10 to 39,99 μS/20,0 to
Ranges:	399,9 μS / 200 to 3999 μS
	2,00 to 39,99 mS/20,0 to 399,9 mS
	°C PTC -50,0 to + 150,0
	0 to 3999 ppm TDS 2% +- 1 ppm
	Pt 100 -100,0 to +399,9
	NTC 30 -5,0 to 105,0
Accuracy:	0,5% +- 0,05 μS/0,5% +- 0,1 μS /
	0,5% +- 1 μS
	0,5% +- 0,01 mS/2% +- 0,1 mS to
	20 mS and 6% from 100 to 399 mS
	°C PTC 0,2°C + 0,2% v.M.
	Pt 100 0,2°C + 0,4% v.M.
	NTC 30 0,2°C
Power supply:	4 x AA Alkaline batteries





Set WINLAB® Data Line Profi-Box-Set 1 Conductivity/Temperature

Consisting of:
WINLAB® conductivity-temperature measuring instrument
LF-standard-electrode set of test solutions 2 x 100 ml, 1413 µm and 12,88 mS at 25° C

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat. No. 6103 20020

Set WINLAB® Data Line Profi-Box-Set 3 Conductivity incl. PT 100 temperature probe

Consisting of:
WINLAB® conductivity-temperature measuring instrument
LF-standard-electrode
Set of test solutions 2 x 100ml, 1413 µm and 12,88 mS at 25° C
Pt 100 temperature probe with handle, 125mm long, 3mm diameter.

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat. No. 6103 20023

Accessories for WINLAB® Data Line Conductivity meter

WINLAB®-LF-standard electrode with integrated temperature probe, cell constant approx. 0,5 to 0,6 (each is marked) material is epoxy Electrode consists of graphite, electrode dimensions 120 x 12 mm (L x diameter)

Cat. No. 6103 20030



WINLAB®-LF-electrode for low conductivities for the range from 0,1 to 100 µm

Cat. No. 6103 20039

WINLAB®-PTC-temperature probe for temperature measurements in deeper waters with 5m long cable, marked each meter, dimensions of probe 125mm long, 3mm diameter



Cat. No. 6103 00033

WINLAB® Pt 100 temperature probe with handle dimensions of probe 160 x 3 mm

Cat. No. 6103 00034



WINLAB® Conductivity test solutions

With certificate according to EN 10204-2.3, Temperature of reference is 25°C

LF-Testsolution 1413 µS, 250 ml
Cat. No. 6103 11413

LF-Testsolution 1413 µS, 500 ml
Cat. No. 6103 21413

LF-Testsolution 12,88 mS, 250 ml
Cat. No. 6103 11288

LF-Testsolution 12,88 mS, 500 ml
Cat. No. 6103 21288

LF-Testsolution 111,8 mS, 250 ml
Cat. No. 6103 11118

LF-Testsolution 111,8 mS, 500 ml
Cat. No. 6103 21118

WINLAB®

DATA LINE OXYGEN METER (DO-METER)

FOR LAB AND ESPECIALLY
FOR HEAVY USAGE ON SITE!

NATURALLY WITH ALL FEATURES OF THE WINLAB® DATA LINE MEASURING INSTRUMENTS:

- waterproof case acc. to IP 66 and IP 67
- integrated data logger and RS 232 output
- display with 14 mm high LC digits. Simultaneously the temperature is displayed in the second line.
- for a long term clear sight we have chosen a scratch-resistant glass cover for the display field!

SPECIFIC FEATURES OF THE DO METER, AND THE WINLAB® DO-SENSOR:

- with integrated air pressure meter for automatic calibration in ambient air
- automatic calibration of the oxygen sensor:
- the WINLAB® Data Line initiates a calibration sequence at a predetermined time. The time selected can be shortly before work begins. WINLAB® turns on, calibrates the oxygen sensor in the calibration vessel and then shuts off again.

Calibration data are documented in conformance with GLP requirements. You can select the calibration interval.

- with built-in temperature sensor and specially adapted software for temperature compensation.
- one electrolyte filling lasts long time
- Free of zero current
- low sensitivity of the readout ref. water speed
- improved membrane head - durable and easy to replace

DO-SENSOR:

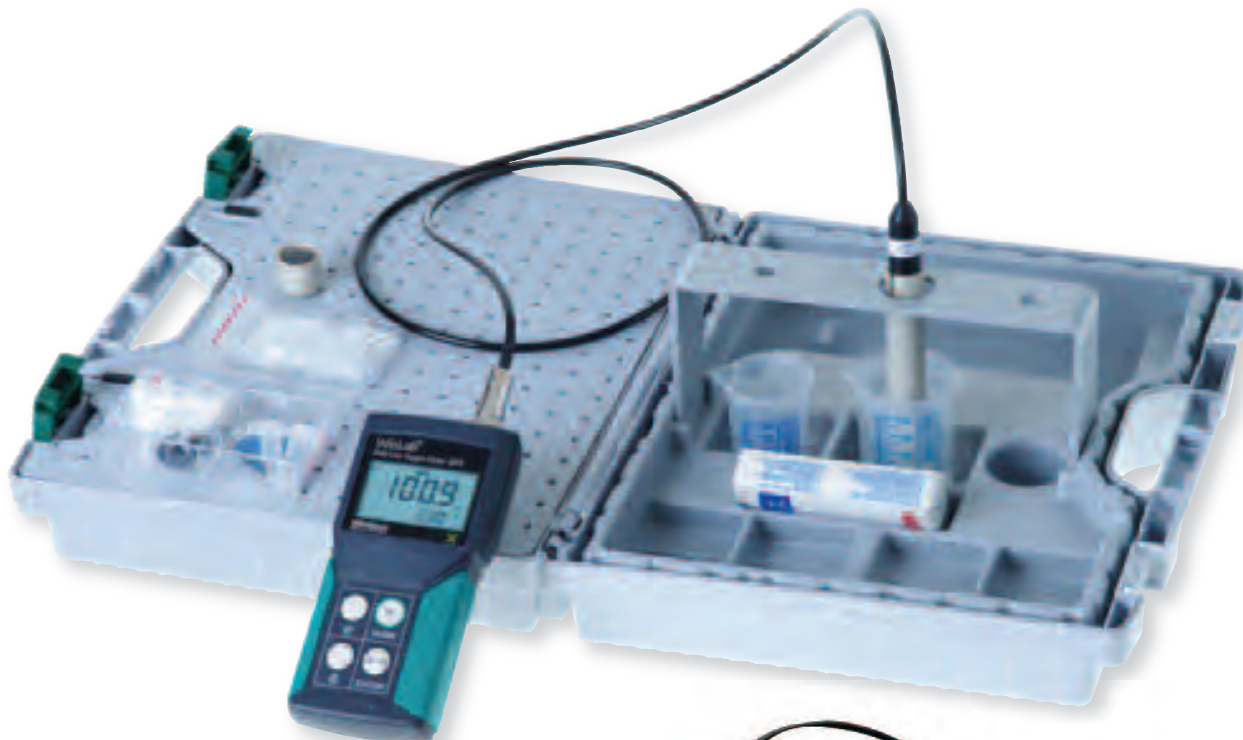
- supplied as standard with 1,5 m of cable with a water-proof plug
- available in four cable lengths: 1,5 / 4 / 7 and 10 m



Technical data of WINLAB® Data Line Do-meter

Measuring range:	0,00 bis 20,00 mg/l	Temp. compensation:	0 bis 40 °C
Resolution:	0,01 mg/l	Salinity compensation:	0 bis 40 g/l
Measurement accuracy:	+/-0,5% +0,5% measurement value	Pressure range, air:	700 bis 1150hPa
Measurement range:	0,0 bis 200,0%	Battery life:	ca. 1000 bis 1500 h
Resolution:	0,1%	Data logger capacity:	250 data sets with measurement value, measurement number, date and time
Measurement accuracy:	0,5% +0,5% measurement value		
Temperature range:	0,0 bis 50,0°C		
Measurement accuracy:	0,3°C		
Calibration:	automatic in the calibration vessel		

Cat. No. 6103 30001



Set WINLAB® Data Line Profi-Box-Set

Consisting of:
 WINLAB® DATA LINE DO-meter (dissolved Oxygen)
 oxygen sensor with 1,5 m of cable and calibration vessel
 1 spare membrane head and 6 ampoules of electrolyte solution in a storage box

All well arranged in WINLAB® Profi-Box with integrated electrode stand for more comfortable measurements and calibration. Incl. manual booklet.

Cat No. 6103 30020

ACCESSORIES AND SPARE PARTS:

1 WINLAB® oxygen sensor

with 1,5m long cable, complete with calibration vessel, 1 spare membrane head 1 pack of 6 ampoules with electrolyte solution for 6 electrolyte fillings

Cat. No. 6103 30030

WINLAB® oxygen sensor

same as above, except with 4 m long cable

Cat. No. 6103 30032

WINLAB® oxygen sensor

same as above, except with 7 m long cable

Cat. No. 6103 30034

WINLAB® oxygen sensor

same as above, except with 10 m long cable

Cat. No. 6103 30036

2 WINLAB® spare membrane heads

for oxygen sensor, packs of 3

Cat. No. 6103 30040

WINLAB® electrolyte solution

for oxygen sensor 100 ml

Cat. No. 6103 30042

WINLAB® electrolyte solution

in 6 ampoules for 6 electrode fillings

Cat. No. 6103 30044

Desk-Box

FOR A PERFECT USE IN THE LAB!

Even as mobile measuring instruments the WINLAB® Data Line system offers you all advantages of modern measuring technique. Why should you buy an additional instrument?

We have the better answer for you: Just take your WINLAB® measuring instrument and combine it with the WINLAB® Desk-Box.

Within seconds you have a lab station with

- electrode stand
- the integrated WINLAB® storage vessel and KCL-solution for your pH-electrodes (as a result, your electrodes will last longer!)
- storage space for temperature probes and further electrodes



WINLAB® Desk-Box is delivered with:

- Rod of stainless steel
- electrode clamp
- electrode storage vessel made of DURAN glass and 250 ml
- 3mol KCL-Solution.

Cat. No. 6103 00065

Electrode vessel made of DURAN glass

Cat. No. 6103 00066





BOD – OxiDirect Measurement System

This new BOD OxiDirect sensor system permits exact and convenient measurement of the Biochemical Oxygen Demand (BOD) based on the respirometric principle. All results are shown in a big display directly in mg/L BOD without the need for time-consuming conversion using factors! In addition the measuring period can be user-selected between 1 and 28 days. The unit measures BOD levels via the pressure drop in the closed system during a defined period of time. Following measurement, the results are stored and can be called up to the display at any time. The inductive stirrer system not only mixes the sample, but also ensures optimum gas exchange between sample and gas space in the sample flask.

THE MAIN FEATURES

- Accurate measurements
- Autostart function following temperature equalisation of the samples
- Environment friendly as mercury free
- Automatic stirrer rod centering by the inductive stirrer system

Technical data:

Electronic pressure sensor, respirometric, mercury-free	
Measuring range:	0 to 40/0 to 80/0 to 200/0 to 400 / 0 to 800 / 0 to 2000 / 0 to 4000
Result display:	mg/l 4 digits 7-segment
Measuring parameter Display:	BOD / volume / duration / measuring time
Measuring duration:	selectable between 1 and 28 days
Automatic result Memory:	up to 28 results, depending on measuring duration
Current result:	can be read out at any time
Power supply:	3 alkaline manganese „C“ batteries (Baby)
Battery life:	1 year based on normal use as BOD5 meas. unit
Protection class:	IP 54

- Result memory for up to 28 days (BOD5 / BOD7 / OECD)

THE MEASURING SYSTEM WILL BE DELIVERED AS KIT AS FOLLOWS:

BOD measuring unit / batteries / 6x sample flasks / Potassium hydroxide / Nitrification inhibitors / Overflow measuring flask / Inductive stirring platform with automatic stirrer

Cat. No. 8003 44406



Karlsruhe bottles for BOD measurements

For a direct measurement of the oxygen content with oxygen electrode in the bottle! Minimal diameter at the ground joint is 19 mm and fits with most oxygen electrodes. The integrated funnel on top of the bottle neck keeps the water that is displaced during inserting the electrode into the bottle. Therefore, no air bubbles can get into the bottle, while removing the electrode. By means of a special stopper, no oxygen can get into the bottle during closing the bottle and before the incubation begins. This way the results are exact. With the 30mm long handle the bottle can easily be opened, even if there is a low atmospheric pressure in the bottle.

The stopper is higher than the funnel.

Cat. No.

- 8048 02130 bottle with 100 ml content
- 8048 02030 bottle with 250 ml content

Thermostat cabinets for BOD measuring system

The thermostat cabinets are fluorocarbon-free and fully isolated! They guarantee a continuing temperature with different applications, e.g.: 20° C required for BOD determination, 4° C storage temperature of wastewater samples / 37° C for determination of germs. The cabinets are adjustable from 4 to 40° C / temperature constant at +- 0,5° C

Modell ET 618

Content 180 l for 2 BOD-measuring systems with 6 or 12 sample bottles, Inside dimensions : 513 x 433 x 702 mm (LxWxH), net capacity 135 l

Cat. No. 8003 18200

Modell ET 619

Similar to modell ET 618, door is made of double-isolated glass with alu-frame, net capacity 135 l

Cat. No. 8003 18210

Modell ET 626

Content 260 l for 3 BOD-measuring systems with 6 or 12 sample bottles, Inside dimensions: 513 x 415 x 1047 mm (LxWxH), net capacity 195 l

Cat. No. 8003 18220





Flowmeter

This very efficient and handy measuring instrument is used for measuring stream velocities of waters.

The measuring equipment consists of a display instrument and one measuring rod, which has 5 removable small rods with 30 cm each (altogether 153 cm) and an impeller probe.

The Standard LCD-display instrument 8003 24060 displays the number of rounds per minute. By means of a formula you convert the result into m/sec.

The Comfort version 8003 24061 directly displays the stream flow velocity in m/sec for water flow velocities.

Measuring range for stream velocity 0,05 to 1,8 m/sec.

With comprehensive operating instructions and well prepared working materials for fieldwork and for developing channel cross sections of current waters.



Luxmeter with rotatable sensor

Luxmeter with long life Silicon photo diode and 5½ digit LCD-display, height 12 mm.

The unit key switches the measurement, on/off and the backlight.

More features are:

Data-Hold function / min. and max. measurement function
Backlight and lux measurements up to 100.000 Lux.

Technical data

Measuring range: 0 to 100.000 Lux
Or 0 to 9290 ftc
Accuracy: +-4% to reference+ 50 digits
Power supply: 3 x 1,5 V (AAA batteries)
Dimensions: 30 x 121 x 80 (W x H x D)

Cat. No. 6103 05065

Stream flow meter, type standard (without image)

with LCD display in rpm (converted into m/sec)

Complete with impeller probe
(5 rods – altogether 153 cm long)

Cat. No. 8003 24060

Stream flow meter, type comfort

new instrument version incl. display, showing simultaneously result of velocity and date of measured value.

The built-in datalogger does not only store results, but also enables to start automatic measurements at set time.

Incl. USB-output and cable. Complete with impeller probe (5 rods – altogether 153 cm long)

All packed and arranged in a plastic carrying case.

Cat. No. 8003 24061



Multi-functional measuring instrument for ecology

4 important measuring units in one instrument: sound, light, humidity and temperature. For easy dB-measurements in factories, schools, offices airports or on train routes. This luxmeter is also very suitable for outside measurements (e.g. light conditions in woods). Humidity and temperature measurements work with a semi-conductor element as well as with a type K-probe for humidity and temperature. With HOLD function as well as MAX.-HOLD function. With probes and practical bag

Technical data:	
Measuring ranges:	Luxmeter: 20/200/2000/20000 / lux +/- 5 lux + 10 digit
Sound:	35 to 100 dB / 65 to 130 dB +/- 3.5 dB-0.1dB
Relative humidity:	25 to 95 % +/- 5 % - 0.1 %
Temperature:	-20 to 200 °C
With 9 V battery	
Measures:	64 x 251 x 40 mm

Cat. No. 6103 05035

Luxmeter for air and water measurements

These very well approved and reliable measuring instruments, which are also contained in the Environmental Measuring Box UW, are very suitable for under water light intensity measurements. Therefore, turbidity in standing waters can quite exactly be reproduced and measured.

The measuring head is waterproof and mounted to a 5 or 10 m cable. Also, with its wide measuring range the luxmeter can very well be used for outside measurements, e.g. in woods at a clearing, etc. With socket for UW analogue output. Now available as box set!

Technical data:	
Measuring range:	0 to 2000 lux, resolution: 1 lux
Measuring range:	0.1 to 199.9 klux, resolution 0.1 klux
Accuracy in the spectral range ca. 5 %	

With 5 m cable and meter marking

Cat. No. 6199 99004



Wind gauge (bowl anemometer)

Professional version for measurements of the velocity of wind on the spot, complete with handle and locking device for fixing of the measured value.

Measuring ranges: 0 to 120 km/h 0 to 35 m / sec
 1 to 12 Beaufort 0 to 70 Knoten

Cat. No. 8135 14100



ALPHAix radioactivity-meter

Base device ALPHAix is an extremely light and handy instrument for contamination measurement- conceived as well for mobile as stationary purposes. ALPHAix allows measurements of ALPHA / BETA and GAMMA rays at a real reasonable price level.

ALPHAix is equipped with a microprocessor controlled analyzing – system, which can be implemented with different probes (counter – tubes) for many purposes. The compatibility to all of the counter – tubes makes the ALPHAix device a mobile allrounder on every field of professional radiation measurement. It is sturdy and have a clearly arranged design moreover it guarantees maximum functionality.

The ALPHAix is equipped with 3 measurement programs, which can be selected:

- Impulses per measurement sequence
- Impulses per minute (arithmetic average)
- $\mu\text{Sv} / \text{h}$ (Microsievert per second)

Technical data:			
Memory	the device saves the last 40 measuring results automatically		
Alert	Alert barrier is adjustable at will		
Display	digital / 8 spots	Interface	digital output for PC
Power supply	9V block battery	Dimensions	120 x 60 x 30mm

Cat. No. 5903 03000



Following counter-tubes can be adapted to the ALPHAix

Counter-tube A 1

For measurements on the surface of objects. Counter-tube A in combination with the ALPHAix is preferably used as technical teaching material in the field of natural sciences at colleges and universities, but also for investigation on the spot at geological formations, in the mineralogy and general environment. The counter-tube has got a synthetic frame and the end-window is protected by a removable security cap.

Technical data:	
End window	9,14 mm diameter
End window mica	1,5 to 2,0 mg/qcm
Alpha-Ray	from 1,9 MeV
Beta-Ray	from 0,09 MeV
Gamma-Ray	from 0,01 MeV
Dose metering range	0,0001 to 100 mR/h
Zero-rate	ca 20 lpm
Detection limit	12 Bq Cs-137 at a distance of 3 cm and a measurement period of 10 minutes

Cat. No. 5903 03001

Counter-tube G 2

For measurements of high sensitivity and for laboratory use. ALPHA-, BETA- and GAMMA-Ray measurements can be made. This powerful edition delivers a measuring sensitivity which is about five times as high. The Counter-tube G will be supplied with a cable of 1 m length. The counter-tube G has got a synthetic frame with a removable security cap for the end-window.

Technical data:	
End window	19,83 mm diameter
End window mica	1,5 to 2,0 mg/qcm
Alpha-Ray	from 1,9 MeV
Beta-Ray	from 0,09 MeV
Gamma-Ray	from 0,01 MeV
Dose metering range	0,0001 to 100 mR/h
Zero-rate	ca 28 lpm
Detection limit	4 Bq Cs-137 at a distance of 3 cm and a measurement period of 10 minutes

Cat. No. 5903 03002



Counter-tube FSZ 3

For measurements of BETA- and GAMMA-rays. In comparison to counter-tube B this probe is larger and it allows – in addition to ordinary dry- and surface-measurements – the opportunity of high precise measurement deep inside objects and large liquid volumes.

For this purpose the probe is equipped with a waterproof lace of 1 m length, which permits underwater measurement. Especially designed for mobile usage, these diving probes are much easier to handle as end window counter-tubes. The diving probe can be placed on the object, which wherever will be measured. (this is normally not possible by using an end-window counter-tube)

Technical data:	
Counter type	diving double – tube out of high grade steel
BETA – ray	from 0,20 MeV
GAMMA – ray	from 0,02 MeV
Dose metering range	0,001 to 100 mR/h
Detection limit Inside bulk goods	0,75 Bq Cs-137 at 25g bulk good
Detection limit inside 100ml sol.	63 Bq / measuring duration of 10 min. 46 Bq / measuring duration of 20 min

Cat. No. 5903 03003

ACCESSORIES:

Test specimen, standard for check of counter tubes, 82 Bq

Carrying Case for meter and up to 3 counter tubes

Cat. No. 5903 03008

Cat. No. 5903 03005

SOLARTRAINER

PHOTOVOLTAICS – EXPERIMENTAL KIT FOR TEACHING IN HIGHSCHOOLS AND UNIVERSITIES

The available experimental materials allow the carrying out of all basic experiments in the field of photovoltaics.

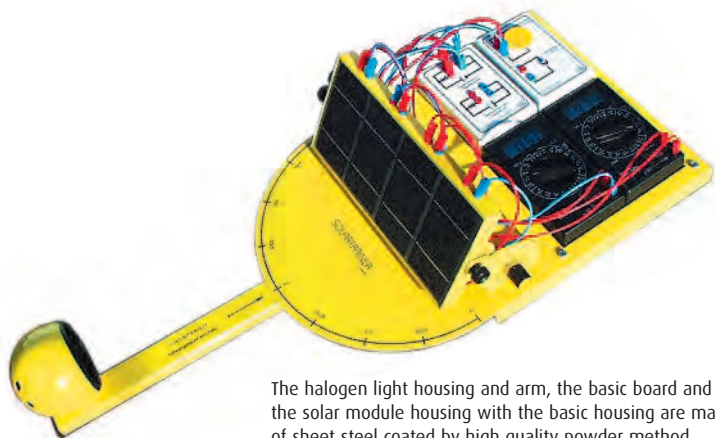
Because the experiments were built up modularly the adaption to the actual teaching is possible acc. to the requirement.

The materials are arranged clearly and optically attractive in a specific yellow carrying case.

Everything is always completely at hand, extra material is not necessary! The experiments can be fast built up and removed.

The students are able to carry out the experiments by themselves with the support of the easily understandable experimentation instruction and manual.

The teacher gets further information to solve the exercises and to understand the physics.



The halogen light housing and arm, the basic board and the solar module housing with the basic housing are made of sheet steel coated by high quality powder method.

Set solartrainer experimental kit

Consisting of:

- Specific yellow carrying case with shaped part made of foam plastic
- Basic board with space to put the experimental boxes and multimeters
- Low voltage (12 V) halogen lamp
- Power supply with dimmer switch (mains fed, input 230V AC 50 Hz, output 12 V AC)
- Solar module with 4 single cells and angle adjustment
- 2 multimeters with 2 mm connectors
- Sensor box for measuring irradiance
- Load box with electric motor and light bulb
- Storage box with NC accumulator and GoldCap and blocking diode
- Measuring box with variable resistor
- Connecting cords, high flexible, contacts brass / hard copper gold plated.
- Experimental instruction and manual / additional documentation and explanations for teacher

Cat.No. 8003 33000



FOLLOWING EXPERIMENTS ARE SUGGESTED

- Measuring of the irradiance of different light sources
- Solar cell as an energy converter
- Solar cell as an energy converter and diode function
- Open circuit voltage of a solar cell at different shadowing conditions
- Short circuit current of a solar cell at different shadowing conditions
- Open circuit voltage and short circuit current of a solar cell at different irradiance
- Short circuit current of a solar cell depending from angle of incidence of the light
- Parallel connection of solar cells / different shadowing conditions
- Characteristic curve of a solar cell (I/U) different irradiance
- Characteristic curve of a solar cell (U/P) MPP figure out of the efficiency
- Simulation : Short circuit current of a solar cell depending from position of the sun (sunrise to sunset)
- Charging a gold cap / accumulator with solar cells
- Discharging a GoldCap/ accumulator with electric motor and light bulb
- Build up of a stand alone operation net (with extra kit – measurement with PC)
- Characteristic curve of a solar cell (I/U) , different irradiance
- Demonstration of an inverter (sinwave / rectangular)
- Charging a GoldCap / accumulator with solar cells, discharging a GoldCap / accumulator with electric motor and light bulb



WINDTRAINER/JUNIOR

WIND-ENERGY – EXPERIMENTAL KIT FOR TEACHING

The available experimental materials allow the carrying out of all basic experiments in the field of windenergy.

Because the experiments were built up modularly the adaption to the actual teaching is possible according to the requirement.

The materials are arranged clearly and optically attractive in a specific suitcase.

Everything is always completely at hand, extra material is not necessary.

The experiments can be fast built up and removed.

The pupils are able to carry out the experiments by themselves with help of the easily understandable experimentation instruction.

The teacher gets further informations to solve the exercises and to understand the physics.



WITH THE SET OF EQUIPMENT SUPPLIED, THE FOLLOWING EXPERIMENTS ARE POSSIBLE:

- Measuring of the wind force in the vicinity of the school
- Measuring of the wind force of the wind machine depending from the adjustment of the control knob
- Power output of the generator depending from the shape of the wing (even/curvend)
- Power output of the generator depending from the number of wings (2, 3, 4)
- Power output of the generator depending from the position (angle) of the wing
- Characteristic curve of a generator (U/) at constant speed
- Characteristic curve of a generator (U/). Measuring the resistance- and buoyance rotor at constant wind force
- Power output of the generator depending from the wind force
- Charge of an akku/Gold Cap with different loads
- Build up of a stand alone operation net

With extension kit savonius rotor:

- Characteristic curve of a savonius rotor (U/) at constant speed
- Power output of the savonius rotor operating with and without aperture

OPTIONAL EXTENSION KIT:

- Savonius-Rotor

Set Windtrainer experimental kit

Consisting of:

- Specific white suitcase with shaped part made of foam plastic
- Basic board with place to put the experimantal boxes and multimeters
- Wind machine with controllable power supply
- Wind power plant with axial rotor, generator without gear, with tachogenerator, hub for mounting 2, 3, and 4 wings, angle of the wings adjustable
- 4 wings even, 4 wings curved
- Protection cover, wind shield, tool
- 2 multimeters with 2 mm connectors
- Anemometer
- Load box with electric motor and light bulb
- Storage box with NC accumulator and Gold Cap and blocking diode
- Measuring box with variable resistor
- Experimental instruction/documentation for teachert

Cat.No. 8003 34000

WINLAB[®] AT A GLANCE



Service department



Glass apparatus workshop



Chemical laboratory

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*Come and visit Clausthal-Zellerfeld,
not only to meet **WINLAB** people,
but furthermore the
lovely landscape around!*





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