Photometers

Heating blocks

Reflectometer

Luminometer

Devices


NANOCOLOR® VIS II
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NANOCOLOR® *VIS* II and $^{UV}/_{VIS}$ II

Spectrophotometers for high-precision analysis

The *NANOCOLOR*® *VIS* II and *NANOCOLOR*® $^{UV}/_{VIS}$ II are high-precision measurement instruments applicable in all areas of water and wastewater analysis. MACHEREY-NAGEL revolutionizes the daily laboratory work with these two new spectrophotometers, combining premium high-tech instruments with outstanding usability. With their intuitive, icon-based menu guidance, these innovative photometers can be used like a smartphone or tablet. The clearly arranged, high-resolution touch screen display makes your daily measurement routine a real pleasure.

Powerful technology

The new *NANOCOLOR*® spectrophotometers impress with high-class technology and optics. The spectral bandwidth of the *NANOCOLOR*® $^{UV}/_{VIS}$ II of < 2 nm allows high-precision measurements. The optical set-up and the clever technique of both devices enable measurements without protective cover; a big advantage for smooth lab processes. With a 2D barcode scanner and cuvette recognition, all steps from measuring over displaying to storing of the result are part of a fully automated sequence.

The allrounders for all requirements

As comprehensive spectrophotometers, the *NANOCOLOR*® *VIS* II and $^{UV}/_{VIS}$ II, meet all requirements of your daily laboratory work. They come with well-known barcode technology for a rapid measurement of *NANOCOLOR*® tube tests. In addition, they offer extensive color measurement possibilities and real-time scan recording. Next the nephelometric turbidity measurement and the turbidity measurement in transmitted light, the preprogrammed MEBAK methods allow a comprehensive brewery analysis. The simple menu navigation and the icon-based pictogram instructions for the performance of cuvette tests, reduce the complexity of the daily laboratory work. The clear result screen enables an easy assignment of additional sample information and measurement results. The systematic menu guidance for the calibration of special methods allows even inexperienced users to program methods for user specific applications.

Good to know

Turbidity – a source of error:
Turbidity is often underestimated since it is not always visually recognizable. During each measurement, the MACHEREY- NAGEL spectrophotometers automatically measure the turbidity and actively warn the user in case of an interfering turbidity.

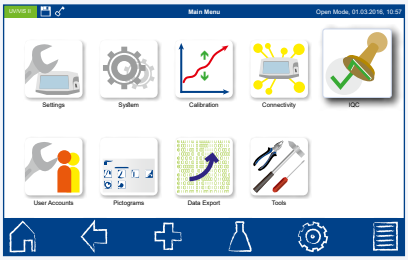
Good to know

An overview of all *NANOCOLOR*® test kits available on the *NANOCOLOR*® $^{UV}/_{VIS}$ II and *VIS* II is given from page 88.

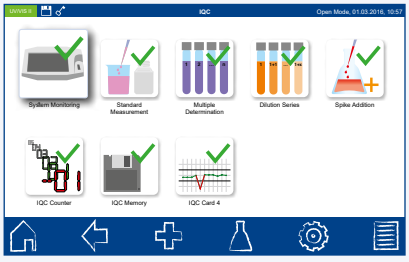
How it's done

In four steps to inspection equipment monitoring

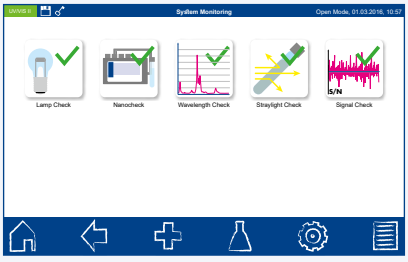
1. Call up main menu



2. Choose IQC-menu



3. Call up inspection equipment monitoring



4. Choose respective test

Good to know

The test equipment offers the monitoring of the entire analysis system and also extensive options for verifying the device functionality. The user can perform the test himself and save costs, an external device test is no longer needed.

Smart

- Outstanding usability due to touch screen
- 10.1″ HD display for a clear overview
- Unique user experience due to icon based menu guidance

Precise

- High quality optics with reference detector technology
- Safe results due to automatic turbidity control function (NTU-check)
- Safeguarding of results via integrated IQC menu

Impressively versatile

- Future-proof interfaces
- Color measurements, turbidity measurements and scans
- Applicable in all fields of water and waste water analysis

Smart photometry

NANOCOLOR® *VIS* II and $^{UV}/_{VIS}$ II

The next audit will be a breeze

Quality is of high importance for MACHEREY-NAGEL. Therefore, our new spectrophotometers are equipped with extensive quality control features. Besides the integrated, f.o.c. inspection equipment monitoring tools, the devices offer a variety of quality control functions for e.g. standard measurements, multiple determinations and dilution series. IQC cards are generated directly in the device and can be printed or exported for documentation purposes. Therefore, *NANOCOLOR*® *VIS* II and $^{UV}/_{VIS}$ II offer easy to use control options, allowing an efficient and accurate internal quality control perfectly integrated in your daily work.

Striking interface options for smart connectivity

The connection of measuring devices to laboratory information systems (LIMS) plays a more and more important role in many industries. Therefore, the *NANOCOLOR*® *VIS* II and *NANOCOLOR*® $^{UV}/_{VIS}$ II are equipped with all important interfaces (LAN, RS232, USB) for the connection to laboratory information systems. In addition, the integrated LIMS configurator allows a customized adaptation for many kinds of data for transfer. An easily accessible USB port increases the comfort of data exchange with mass storage media or the usage of a barcode reader, scanner or printer.

Ordering information

Description	REF
Spectrophotometer *NANOCOLOR*® *VIS* II incl. manual (quick start guide), touch pen, protective covering, power cable with country adapters, USB cable, USB stick, calibration cuvette, cleaning cloth and certificate in a cardboard box.	919650.1
Spectrophotometer *NANOCOLOR*® $^{UV}/_{VIS}$ II incl. manual (quick start guide), touch pen, protective covering, power cable, USB cable, USB stick, calibration cuvette, cleaning cloth and certificate in a cardboard box.	919600.1

Technical data

	NANOCOLOR® *VIS* II	*NANOCOLOR*® $^{UV}/_{VIS}$ II
Type	Spectrophotometer with reference detector technology (RDT)	
Light source	Halogen lamp	Halogen lamp (visible range) Deuterium lamp (UV range)
Optics	Monochromator Insensitive to external light for fast measurements without cuvette slot cover; Cuvette slot must be covered for color measurements and measurements in the UV-range	
Wavelength range	320 nm–1100 nm	190 nm–1100 nm
Wavelength accuracy	± 1 nm	
Wavelength resolution	0.1 nm	
Wavelength reproducibility	< 0.5 nm	
Wavelength calibration	Automatic	
Wavelength selection	Automatic, barcode, manual	
Scan speed	1 complete scan in less than 1 min	
Spectral bandwidth	< 4 nm	< 2 nm
Photometric range	± 3.0 A in wavelength range 340 nm–900 nm	± 3.0 A in wavelength range 200 nm–900 nm
Photometric accuracy	0.005 A at 0.0 A–0.5 A; 1 % at 0.5 A–2.0 A	
Photometric linearity	< 0.5 % at ≤ 2 A; ≤ 1 % at > 2 A	
Stray light	< 0.1 %	< 0.05 %
Measuring modes	More than 200 preprogrammed tests and special methods, 100 optionally programmable methods, absorbance, transmittance, factor, kinetics, 2-point calibration, scan, nephelometric turbidity measurement	
Compatible test kits	*NANOCOLOR*® tube tests (see page 88) and *NANOCOLOR*® standard tests (see page 98), *NANOCOLOR*® *ECO* tests (see page 102), *VISOCOLOR*® *Powder Pillow* tests (see page 82) *VIS* II: *NANOCOLOR*® robot tests (see page 96)	
Turbidity measurement	Nephelometric turbidity measurement at 860 nm, 0.1 NTU–1000 NTU Accuracy: < 1 NTU: +/- 0,1 NTU, 4 NTU: 3–5 NTU, 100 NTU: 90–110 NTU, 400 NTU: 360–440 NTU	
Internal quality control	With *NANOCONTROL* NANOCHECK 2.0 and integrated Holmium oxide filter	
Cuvette slot	Test tubes 16 mm OD Rectangular cuvettes 2 mm, 10 mm, 20 mm, 40 mm, 50 mm	
Data memory	16 GB Micro SDHC card, 5000 measured data sets, 100 scans or color measurements, GLP-conform	
Display	10.1″ LED backlit HD display, anti-reflective cover glass with projected capacitive touch screen (PCAP)	
Operation	Test selection via barcode technology, icon-based menu guidance, touch screen	
Languages	DE / EN / FR / ES / PT / PL / HU / NL / CZ / RO / IT	
Interfaces	LAN, 2 x USB (Host), 1 x USB (Function) and RS232	
Update	Free of charge via USB stick	
Operating range	10 °C–40 °C, up to 80 % relative humidity (non-condensing)	
Power supply	Input: 110 V–240 V, Output: 12 V 3A	110 V–240 V, ~50 / 60 Hz
Dimensions	360 mm x 400 mm x 110 mm	400 mm x 440 mm x 170 mm
Weight	4.0 kg	6.5 kg
Warranty	2 years	
CE	CE certified	

NANOCOLOR® Advance

Smart into the future

The spectrophotometer *NANOCOLOR*® Advance combines the most important features of our portable compact photometer PF-12*Plus* and our high-precision spectrophotometer *NANOCOLOR*® *VIS* II. It provides precise and reliable measurement results in the daily laboratory routine and can also be used mobile due to its rechargeable battery. With its wavelength spectrum of 340–800 nm it allows the measurement of all photometrically evaluable test kits from MACHEREY-NAGEL. The *NANOCOLOR*® Advance can therefore be used universally in the entire spectrum of water and wastewater analysis.

Leave nothing to chance

The *NANOCOLOR*® Advance offers the user an automatic detection of interfering turbidity (NTU-Check). With an additional 860 nm LED, the device determines the nephelometric turbidity during each measurement of a tube test and warns the user of incorrect results. This option helps to avoid measuring errors and sets the basis for reliable measuring results.

Experience flexibility

The *NANOCOLOR*® Advance is the first photometer from MACHEREY-NAGEL with a 24 mm cuvette slot and thus extends the options for all areas of water analysis. Besides the *NANOCOLOR*® tube tests and standard tests, the test kits from our *VISOCOLOR*® *ECO* and *VISOCOLOR*® *Powder Pillows* range can also be evaluated. The comprehensive and easy-to-understand menu for creating customer-specific methods makes the device an all-rounder in laboratory analysis and measurements on the road.

Good to know

The *NANOCOLOR*® Advance has passed the vibration test according to Military Standard 810H only 514.8 CAT 4 and fulfills the requirements of protection class IP 67. This underlines the robustness of the device and confirms its suitability for mobile analysis.

Good to know

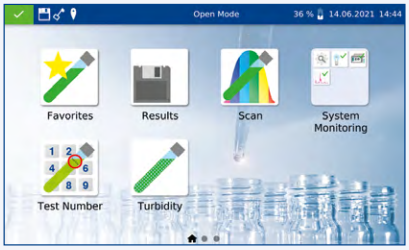
Universal cuvette slot

10, 20, 50 mm standard tests as well as 16 and 24 mm tube tests can be used with only two adapters.

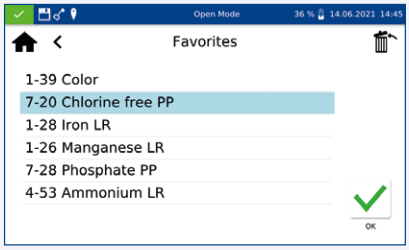
Stable and with a large opening, the new 24 mm tube tests are ideally suited for the evaluation of our *VISOCOLOR*® *Powder Pillows* (see page 82)

How it's done

For non-barcoded tubes your result is just four clicks away.

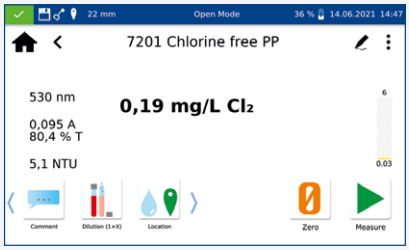


1. Call up Favorites



2. Choose method and press OK

3. Insert cuvette and press measure



4. Read result

Smart

- 2D barcode recognition for automatic method selection
- Touch screen and icon-based menu navigation for outstanding usability
- NTU check for detection of interfering turbidities

Mobile

- Water proof according to IP 67
- Robust design and built-in battery ensure a limitless flexibility
- Applicable in all fields of water and waste water analysis

Versatile

- High quality optics for perfect results in every environment
- Comprehensive options for a full internal quality control
- Compatible with all photometrically evaluable test kits from MACHEREY-NAGEL

Smart photometry

NANOCOLOR® Advance

Versatile in use

The *NANOCOLOR*® Advance allows a simple and reliable routine analysis by fully automatic cell recognition via the integrated 2D barcode scanner. The fast selection of the test method and the correct wavelength allows almost contactless operation.

The data export is done directly via the integrated interfaces. Be prepared for future requirements. You do not need any additional accessories for the data export. Connect USB stick - export data - open on computer.

Ordering information

Description	REF
Spectrophotometer *NANOCOLOR*® Advance incl. manual (quick start guide), protective cover, power supply unit with country specific adapters, USB stick, calibration cuvette, certificate and cleaning cloth in cardboard box	919750

Technical data

***NANOCOLOR*® Advance**	
Type	Spectrophotometer with Reference Detector Technology (RDT)
Light source	Halogen lamp
Optical system	Single beam photometer with grating monochromator
Wavelength range	340 nm–800 nm
Wavelength accuracy	± 2 nm
Wavelength resolution	1 nm
Wavelength reproducibility	± 0.1 nm
Wavelength calibration	Automatically
Wavelength selection	Automatically, Barcode, manually
Scan speed	1 complete Scan < 3 min
Spectral bandwidth:	< 4 nm
Photometric range	+/- 3.0 A in the range 340–800 nm
Photometric accuracy	0.003 A at 0.0–0.5 A; 1 % at 0.5–2.0 A
Photometric linearity	< 0.5 % at 0.5–2.0 A; ≤ 1 % at > 2 A with neutral glass filters at 546 nm
Scattered light:	< 0.5 %
Measurment modes	Over 200 preprogrammed tests and special methods; 100 fully programmable methods; absorbance; transmission; factor; kinetics; 2-point calibration; scan; nephelometric turbidity measurement
Compatible test kits	*NANOCOLOR*® tube tests (see page 88) *NANOCOLOR*® standard tests (see page 98) *NANOCOLOR*® *ECO* tests (see page 102) *VISOCOLOR*® *Powder Pillow* tests (see page 82) *VISOCOLOR*® *ECO* tests (see page 76)
Turbidity measurement	Nephelometric turbidity measurement (based on ISO 7027, 16 mm and 24 mm) 1–1000 NTU Accuracy: 1 NTU: 0–2 NTU 4 NTU: 3–5 NTU 100 NTU: 95–105 NTU 400 NTU: 380–420 NTU
Cuvette slot	Tube test 16 mm and 24 mm OD Standard test 10 mm, 20 mm, 40 mm and 50 mm
Data memory	1000 Measured values, 1000 IQC data, 100 scans; GLP-conform
Display	Backlit colored 5" display with touch screen
Operation	Barcode technology; icon-based display menu navigation; capacitive touch screen
Languages	DE / EN / FR / ES / NL / IT / HU / PL / CZ / PT-Br / TK / BG / RO / DK
External light	Insensitive; open cuvette slot
Interfaces	LAN (CAT 6; only use shielded cables with a maximum length of 20 m) 2 x USB (Host), 1 x USB (Function)
Internal quality control	With *NANOCONTROL* NANOCHECK 2.0 and integrated Holmium oxide filter
Protection class	IP 67
Update	Free of charge via USB stick
Operating range	10 °C–40 °C, up to 80 % relative humidity (non-condensing)
Power supply	100 V–240 V~, 50 / 60 Hz / 6 V, 3.2 Ah via built-in battery including mains power supply
Dimensions	325 x 280 x 130 mm (L x W x H)
Weight	3.8 kg
Warranty	2 years
CE	CE certified

PF-12^{Plus}

Compact photometer for mobile water analysis

The photometer PF-12^{Plus} is a device tailored for the mobile water analysis. The icon-based menu guidance and clear taskbar make the PF-12^{Plus} an easy to use photometer for all fields of water and wastewater analysis without the need for extensive training. The device comes in a rugged case equipped with useful accessories and is therefore particularly popular with users for the direct analysis at the point of sampling.

Easy implementation

Measurement results are obtained very quickly with the PF-12^{Plus}, thanks to its simple operation. Equipped with more than 100 preprogrammed methods, it is the ideal companion for analysis on the road. The PF-12^{Plus} comes with easy to understand pictogram instructions in a practical manual for the evaluation of *VISOCOLOR® ECO* test kits.

Free programming

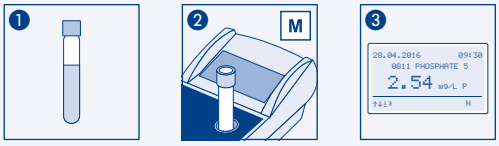
In addition to the preprogrammed methods, the PF-12^{Plus} offers the possibility to create up to 50 special methods for customized applications. Equations up to 4th degree and logarithmic functions can be programmed systematically.

Turbidity measurements

With its especially positioned 860 nm LED the PF-12^{Plus} enables nephelometric turbidity measurements (NTU) in the range of 1–1000 NTU. Therefore, disturbing turbidities will be detected reliably in parallel to a measurement of tube tests - a huge PLUS on measurement safety. Furthermore, the PF-12^{Plus} offers the possibility to accurately determine the turbidity in transmitted light from 4–350 FAU.

How it's done

Photometric determination with the PF-12^{Plus}



Prepare sample | Measure | Read result

Good to know

Manifold case solutions are available for the PF-12^{Plus}, which can be individually equipped with test kits. An overview of the available cases is given on page 164.

Good to know

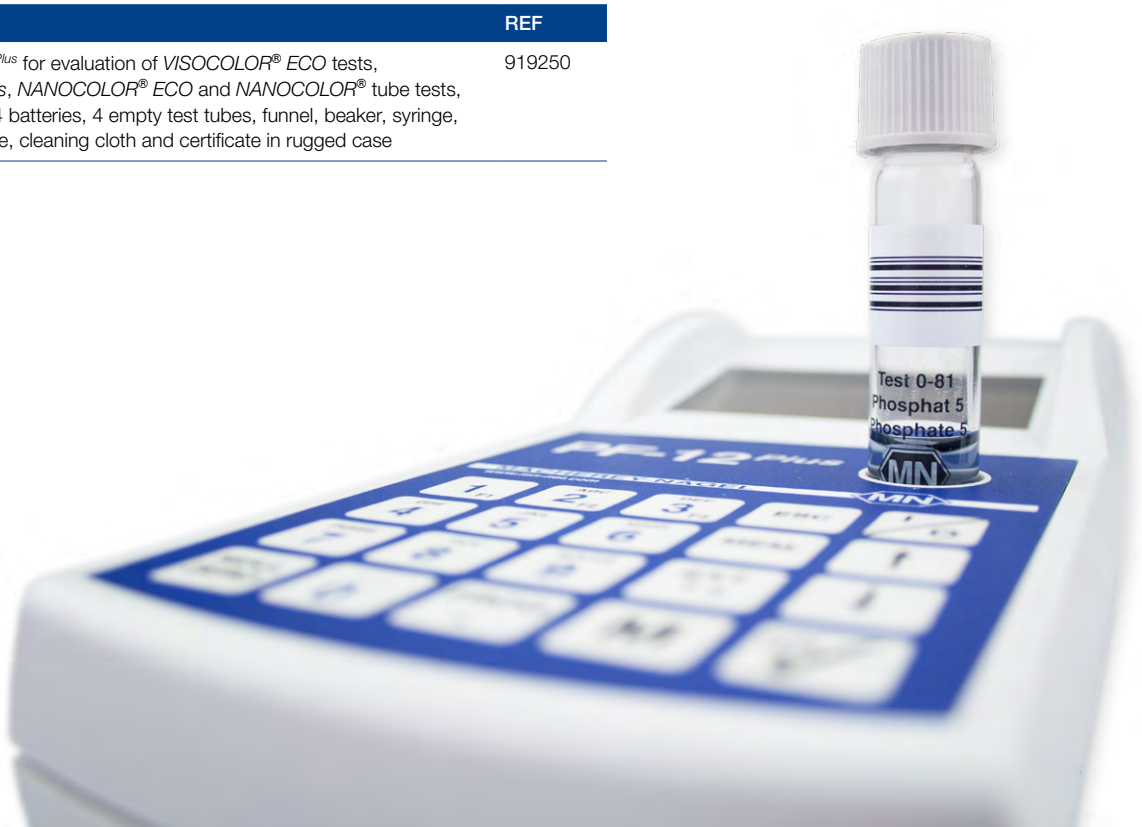
An overview of the *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows*, *NANOCOLOR® ECO* and *NANOCOLOR®* tubes compatible with the PF-12^{Plus} is given on page 76, page 82, page102 and page 88.

Good to know

Turbidity – a source of error:
Turbidity is often underestimated since it is not always visually recognizable. During each measurement, the PF-12^{Plus} automatically measures the turbidity in the tube and warns the user in case of an interfering turbidity.

Ordering information

Description	REF
Compact photometer PF-12^{Plus} for evaluation of *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows*, *NANOCOLOR® ECO* and *NANOCOLOR®* tube tests, incl. software DVD, manual, 4 batteries, 4 empty test tubes, funnel, beaker, syringe, USB cable, calibration cuvette, cleaning cloth and certificate in rugged case	919250



Safe

- Easy handling for precise results
- GLP-conform storage of all measurement results
- Comfortable data export and data backup options

Mobile

- Flexible power supply via batteries or accu-pack
- Backlit graphic display also for critical lighting conditions
- Robust and waterproof according to IP 68

Versatile

- Compatible with *NANOCOLOR*® and *VISOCOLOR*® test kits
- NTU-measurement and NTU-check for detection of interfering turbidities
- Applicable in all fields of water and waste water analysis

Technical data

PF-12Plus	
Type	Filter photometer with microprocessor control, self-test and auto-calibration
Optics	Automatic filter wheel with 7 interference filters; Insensitive to external light for fast measurements without cuvette slot cover
Wavelengths	345 nm / 436 nm / 470 nm / 540 nm / 585 nm / 620 nm / 690 nm plus 1 compartment for an additional filter; 860 nm LED for NTU measurement
Wavelength accuracy	± 2 nm, bandwidth at half transmission 10 nm–12 nm
Light source	Xenon lamp
Detector	Silicon-photodiode
Blank value	Automatic
Measuring modes	Over 100 preprogrammed tests and special methods, absorbance, transmission, factor, standard, nephelometric turbidity measurement, 50 freely programmable methods
Turbidity measurement	Nephelometric turbidity measurement (based on ISO 7027, 16 mm) 1–1000 NTU Accuracy: 1 NTU: 0–1 NTU, 4 NTU: 3–5 NTU, 100 NTU: 90–110 NTU, 400 NTU: 360–440 NT
Compatible test kits	*VISOCOLOR*® *ECO* tests (see page 76), *VISOCOLOR*® *Powder Pillow* tests (see page 82), *NANOCOLOR*® *ECO* tests (see page 102), *NANOCOLOR*® tube tests (see page 88)
Photometric range	± 3 A
Photometric accuracy	± 1 %
Stability	< 0.002 A/h
Cuvette slot	Tubes 16 mm OD
Data memory	1000 results, GLP conform
Display	Backlit graphic display, 128 x 64 pixels. All important data at a glance: Result with unit, date, time, sample number, sample location, dilution, measuring range control bar
Auto-off function	Inactive or automatic shutdown after 5 min, 10 min, 15 min, 20 min, 60 min
Quality control	With *NANOCONTROL* NANOCHECK 2.0
Operation	Self-explanatory menu guidance, foil keypad, test selection via parameter lists
Interface	USB 2.0
Languages	DE / EN / FR / ES / IT / NL / HU / PL / PT / CZ / ID / SL / TR / MY
Update	Free of charge via Internet / PC
Operating range	10 °C–40 °C, up to 80 % relative humidity (non-condensing)
Power supply	4 AA batteries, rechargeable batteries, USB interface; optional internal accu-pack
Housing	Shock-resistantaccording to MIL-STD 810C (test specification 514.2); Waterproof and dustproof according IP 68
Dimensions	215 mm x 100 mm x 65 mm
Weight	0.7 kg
Warranty	2 years
CE	CE certified

PF-3

Compact photometer for mobile water analysis

The compact photometer PF-3 is the smallest member of the MACHEREY-NAGEL photometer family. The device completes our product portfolio and perfectly fits our tradition of reliability, user friendliness and innovation. The instrument comes in multiple versions, equipped with three LEDs and interference filters, designed to meet the analysis requirements of specific applications. Together with the approved *VISOCOLOR® ECO* test kits, *VISOCOLOR® Powder Pillows* and high quality *NANOCOLOR®* tube tests from MACHEREY-NAGEL, the PF-3 is perfectly suited for mobile analysis directly at the place of sampling. Optionally, the device comes in a practical case with pre-equipped test kits, in a cardboard box or in an empty case for the individual combination with our *VISOCOLOR® ECO* test kits.

Small, strong, smart

The handy and compact design makes this lightweight the ideal companion for mobile analysis. Its simple operation allows measurements within seconds. Besides the measurement accuracy, simplicity and user friendliness are key features of all MACHEREY-NAGEL devices. The interaction of context-sensitive icons and only four buttons guarantees a smart, clear and language-independent operation.

Fast and reliable results

The centerpiece of the PF-3 is its high-quality optic with the specially selected LEDs and corresponding interference filters. The unique “open slot” technology allows measurements without cuvette slot cover, thus emphasizing the high technical standard of the instrument. This yields into a simple and quick operation for the user, together with highly reliable results. MACHEREY-NAGEL provides free PC software, for an even more comfortable operation. The software makes data management convenient, simple and efficient. Additionally it guarantees a forgery-proof data management.

Be prepared

The variable power supply is of particular convenience for the user and enables reliable measurements in all situations. Besides batteries and an accu-pack, the device can also be powered directly via an USB cable or a power adaptor.

Good to know

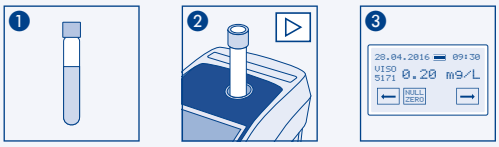
Manifold case solutions are available for the PF-3, which can be individually equipped with test kits. An overview of the available cases is given on page 164.

Good to know

An overview of *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows* and *NANOCOLOR®* tube tests compatible with the PF-3 is given on page 76, page 82 and page 88.

How it’s done

Photometric determination with the PF-3



Prepare sample | Measure | Read result

Simple

- Intuitive operation with only four keys
- Flat menu structure
- Bright display for safe readings

Robust

- Glass fiber reinforced housing for extreme durability
- Water- and dustproof according to IP 68
- Shock-resistant optics

Flexible

- Various case solutions including reagents
- Additional parameters available f.o.c.
- Compatible with *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows* and *NANOCOLOR®* tests

PF-3

Ordering information

Description	REF
Compact photometer PF-3 Pool (Cl_2, pH, Cya, TA), in a cardboard box for evaluation of *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows* and *NANOCOLOR®* tube tests incl. manual, batteries and certificate	919340
Compact photometer PF-3 Soil (NH_4, K, NO_3, PO_4), in a cardboard box for evaluation of *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows* and *NANOCOLOR®* tube tests incl. manual, batteries and certificate	919341
Compact photometer PF-3 COD (COD), in a cardboard box for evaluation of *NANOCOLOR®* tube tests incl. manual, batteries and certificate	919342
Compact photometer PF-3 Drinking Water (Cl_2, pH, F, Fe, ClO_2), in a cardboard box for evaluation of *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows* and *NANOCOLOR®* tube tests incl. manual, batteries and certificate	919343
Compact photometer PF-3 Fish (NH_4, Cl_2, pH, Fe, SiO_2, PO_4, NO_3, NO_2, O_2, Cu), in a cardboard box for evaluation of *VISOCOLOR® ECO* tests, *VISOCOLOR® Powder Pillows* and *NANOCOLOR®* tube tests incl. manual, batteries and certificate	919345

Additional versions and tests will follow successively. All current options can be found at *www.mn-net.com/PF-3*.

Technical data

PF-3	
Type	LED photometer with microprocessor control, self-test and auto-calibration
Optics	LED + interference filters Insensitive to external light for fast measurements without cuvette slot cover
Wavelengths	3 wavelengths; depending on version Pool / Drinking Water: 450 nm / 530 nm / 590 nm Soil: 365 nm / 450 nm / 660 nm COD: 365 nm / 450 nm / 595 nm Fish: 450 nm / 530 nm / 660 nm
Wavelength accuracy	± 2 nm, bandwidth at half transmission 10 nm–12 nm
Light source	LED
Detector	Silicon-photodiode
Compatible test kits	*VISOCOLOR® ECO* tests (see page 76) *VISOCOLOR® Powder Pillows* (see page 82) *NANOCOLOR®* tube tests (see page 88)
Cuvette slot	Tubes 16 mm OD
Memory	50 results
Display	Backlit graphic display, 128 x 64 pixels, all important data at a glance: result with unit, date, time
Auto-off function	Inactive or automatic shutdown after 5 min, 10 min, 15 min, 20 min
Quality control	With *NANOCONTROL* NANOCHECK 2.0
Operation	Self-explanatory menu guidance, foil keypad, test selection via parameter lists
Interface	Mini-USB
Update	Free of charge via Internet / PC
Operating range	10 °C–40 °C, up to 80 % relative humidity (non-condensing)
Power supply	3 AA batteries, rechargeable batteries, USB interface; optional internal accu-pack
Housing	Shock-resistant; waterproof and dustproof, according to IP 68
Dimensions	170 mm x 95 mm x 68 mm
Weight	0.5 kg
Warranty	2 years
CE	CE certified

NANOCOLOR® TIC-Ex

Removal of inorganic carbon in TOC analysis

The *NANOCOLOR*® TIC-Ex is required during the sample preparation of MACHEREY-NAGEL TOC tube tests. For evaluation of the total organic carbon (TOC) prior to determination, the inorganic carbon needs to be removed from the sample. The removal is accomplished by purging of air with the help of the *NANOCOLOR*® TIC-Ex through the prepared sample solution.

The acidified sample solutions are put into the cuvette holder and placed in the premarked positions of the *NANOCOLOR*® TIC-Ex. The preinstalled pipette tips are dipped into the sample solutions by pressing down the lowering mechanism of the *NANOCOLOR*® TIC-Ex. After switching on the device, air is automatically purged through the sample solutions in the cuvettes for five minutes. Hereby the inorganic carbon is removed as carbon dioxide quantitatively. After the elapsed time the process stops automatically. The pipette tips are removed from the solutions and can be disposed using the removing mechanism on top. Afterwards the sample solutions are treated following the next steps of the respective TOC test kit.

Good to know

The *NANOCOLOR*® TIC-Ex can be used even for very hard waters with up to 48° d and therefore is superior to other methods for TIC removal. To check the carbonate hardness of your samples, we recommend QUANTOFIX® carbonate hardness (REF 91323).

Ordering information

Description	REF
NANOCOLOR® TIC-Ex Device for removal of TIC, incl. cuvette holder, manual, mains adapter and certificate in a cardboard box	916993

Technical data

TIC-Ex	
Type	Device for removal of TIC
Operation	Via two buttons
Operating range	5–40 °C, 20–80 % relative humidity (non-condensing)
Power supply	9 V DC / 2.0 A
Dimensions	350 x 300 x 235 mm
Weight	4.95 kg
Warranty	2 years
CE	CE certified

NANOCOLOR® Sipper module

Dealing with large sample numbers in photometric analysis often requires a lot of time and resources due to the preparation of the samples in different cuvettes and the frequent changes of the cell in the photometer. The sipper module *NANOCOLOR*® FP-200 is an optional accessory for the spectrophotometers *NANOCOLOR*® *VIS* II and *UV/VIS* II, which can significantly reduce the analysis effort for high sample quantities. A constant amount of liquid is pumped through a flow cell (2 mm, 10 mm or 50 mm) in the photometer and the absorbance is measured automatically. As the same optical conditions apply to both the zero measurement and the measurement of the sample, the measuring accuracy can be improved by working with the *NANOCOLOR*® FP-200.

Good to know

Using the sipper module, the danger of direct contact with chemicals is drastically reduced. A recasting of samples into the cuvettes is no longer necessary.

Ordering information

Description	REF
Sipper module *NANOCOLOR*® FP-200 for *NANOCOLOR*® *UV/VIS* II and *NANOCOLOR*® *VIS* II incl. manual, USB cable, tygon-tubing set with adapters, intake needle and certificate	919180

Technical data

FP-200	
Type	Peristaltic pump
Operation	Fully automatic using the spectrophotometers *NANOCOLOR*® *VIS* II and *UV/VIS* II
Housing	Protection rating IP 30
Interfaces	USB B
Additional information	Wavelength range - 340 nm–900 nm (plastic), 190 nm–900 nm (quartz glass)
Pumping capacity	1 mL/s
Power supply	Via USB cable, 5 V, 500 mA
Operating range	10–40 °C max. 80 % relative humidity (non-condensing)
Dimensions	125 x 177 x 69 mm
Weight	365 g
Warranty	2 years
CE certified	Yes

NANOCONTROL

Analytical quality control for the entire analysis system

The *NANOCONTROL* equipment for quality control of the photometers is designed to support our IQC concept. It always allows the user to check the correct functionality of the devices and therefore represents a cornerstone for ensuring correct measurement results.

Checking the photometric accuracy

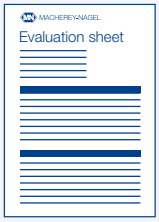
NANOCONTROL NANOCHECK 2.0 is used as secondary standard for the determination of photometric accuracy and linearity. It is a crucial tool for the inspection of spectrophotometers and filter photometers, besides the use of standards and spiking solutions. Two different colored solutions are included in three concentrations each. They are factory-checked against a reference spectrophotometer. The absorbances of these NIST-traceable control solutions are reported in a comprehensive certificate. The automated linearity check in our spectrophotometers *NANOCOLOR*® *VIS* II, *NANOCOLOR*® *UV/VIS* II and *NANOCOLOR*® Advance provides an additional, unique level of safety. A 2D-Barcode on each box is used to comfortably program our spectrophotometers with the LOT-specific data. Besides the check of the photometric accuracy *NANOCOLOR*® *VIS* II and *NANOCOLOR*® *UV/VIS* II also support an automatic photometric linearity check when using *NANOCONTROL* NANOCHECK 2.0.

All features of *NANOCONTROL* NANOCHECK combined make photometer inspection easy as never before.

Checking the turbidity calibration

NANOCONTROL NANOTURB is a turbidity standard for nephelometric turbidity measurements for our photometers. The solutions are used as a primary standard for calibrating and checking the nephelometric turbidity unit in accordance with ISO 7027. The test solutions are ready for immediate use and must only be placed into the photometer. Dilution steps or contact with chemicals are avoided effectively.

Good to know



With the *NANOCONTROL* NANOCHECK 2.0 evaluation sheet the requirements for quality assurance can be fulfilled and it serves as validation against authorities and supervisors.

Ordering information

Description	REF	Shelf life	GHS
NANOCONTROL NANOCHECK 2.0 Test solutions for the determination of photometric accuracy and linearity for *NANOCOLOR*® photometers, secondary standard for inspection equipment monitoring in accordance with ISO 9001	925703	2 years	■
***NANOCONTROL* NANOTURB**			
NANOCONTROL NANOTURB turbidity standard with 4 tubes (1, 4, 100, 400 NTU) for the nephelometric turbidity calibration for *NANOCOLOR*® spectrophotometers and PF-12*Plus*, secondary standard for inspection equipment monitoring in accordance with ISO 9001	925702	8 months	
***VISOCOLOR*® Inspection solutions**			
VISOCOLOR Color standards Chlorine for checking consistent instrument response of *NANOCOLOR*® *UV/VIS* II, *VIS* II, Advance, PF-12*Plus* and PF-3	914820		

GHS: Globally harmonized system: This product contains harmful substances, which must be labeled as hazardous. For detailed information, please see the SDS.

The complete analytics from a single source

MACHEREY-NAGEL photometers fulfill all requirements for daily laboratory analysis. In addition, many accessories are available to be equipped optimally for special applications. The sipper module *NANOCOLOR*® FP-200 for instance enables timesavings and increased accuracy for standard tests with high sample throughput. The user receives all accessories from a single source ensuring compatibility with the different photometers at all times.

Ordering information

Description	REF	Content
Transport cases for photometers		
Transport case for spectrophotometer *NANOCOLOR*® UV/VIS II	919624	1 piece
Transport case for spectrophotometer *NANOCOLOR*® *VIS* II	919652	1 piece
Transport case for spectrophotometer *NANOCOLOR*® Advance	919757	1 piece
Special filters for photometers *NANOCOLOR*® 500 D / 400 D / 350 D / PF-12*Plus* / PF-12		
Interference filter 412 ± 2 nm (incl. installation) for tube test *NANOCOLOR*® Formaldehyde 10	919841.2	1 piece
Special filter incl. ex-factory installation (wavelengths on request)	919850.2	1 piece
Handheld scanner		
Handheld scanner for *NANOCOLOR*® spectrophotometers	919134	1 piece
Sipper		
Sipper module *NANOCOLOR*® FP-200 for *NANOCOLOR*® UV/VIS II and *NANOCOLOR*® *VIS* II incl. manual, USB cable, tygon-tubing set with adapters, intake needle and certificate	919180	1 piece
Tubing set for sipper module *NANOCOLOR*® FP-200 consisting of tygon-tube set with adapters and pump tubing with pre-installed fittings	919181	1 piece
Support stand for *NANOCOLOR*® FP-200	919143	1 piece
Manuals		
Manual (quick start guide) for *NANOCOLOR*® *VIS* II and UV/VIS II	919601	1 piece
Manual (quick start guide) for *NANOCOLOR*® Advance	919754	1 piece
Manual for photometer PF-12*Plus*	919252	1 piece
Manual for photometer PF-3	919392	1 piece
VISOCOLOR® *ECO* test instructions for photometer PF-3	934001	1 piece
VISOCOLOR® *ECO* test instructions for photometer PF-12*Plus*	931503	1 piece
Manual for Sipper module *NANOCOLOR*® FP-200	919182	1 piece
Lamps		
Halogen lamp for *NANOCOLOR*® *VIS* II and UV/VIS II	919604	1 piece
Halogen lamp for *NANOCOLOR*® Advance	919759	1 piece
Deuterium lamp for *NANOCOLOR*® UV/VIS II	919603	1 piece
Tungsten lamp for *NANOCOLOR*® 500 D / 400 D / 350 D / 300 D / 250 D / PT-3	919787	1 piece
Cuvettes		
Calibration cuvette 16 mm for *NANOCOLOR*® photometers	916908	1 piece
Calibration cuvette 24 mm for *NANOCOLOR*® Advance	916930	1 piece
Flow cuvette, quartz glass, 2 mm optical path, for *NANOCOLOR*® UV/VIS and UV/VIS II	919127	1 piece
Flow cuvette, quartz glass, 10 mm optical path, for *NANOCOLOR*® UV/VIS II	919626	1 piece
Flow cuvette, optical glass, 10 mm optical path, for *NANOCOLOR*® *VIS*, *VIS* II and UV/VIS II	919158	1 piece
Flow cuvette, quartz glass, 50 mm optical path, for *NANOCOLOR*® *VIS*, *VIS* II and UV/VIS II	919149	1 piece

[1] Required additionally: Cable set, REF 919133 ;
[2] Required additionally: Mains adaptor, REF 91906
[3] Required additionally for PF-3: Mini USB-cable, REF 919390

Accessories for photometers

Description	REF	Content
Quartz glass cuvette, 2 mm optical path, for *NANOCOLOR*® UV/VIS and UV/VIS II	919122	1 piece
Quartz glass cuvette, 10 mm optical path, for *NANOCOLOR*® UV/VIS and UV/VIS II	919120	1 piece
Quartz glass cuvette, 50 mm optical path, for *NANOCOLOR*® UV/VIS and UV/VIS II	919121	1 piece
Glass cuvettes, 5 mm optical path	91932	2 pieces
Glass cuvettes, 10 mm optical path	91933	2 pieces
Glass cuvettes, 20 mm optical path	91934	2 pieces
Glass cuvette, 50 mm optical path	91935	1 piece
Semi-micro cuvette, 50 mm optical path	91950	1 piece
Lids for glass cuvettes, 10 mm	91941	2 pieces
Lids for glass cuvettes, 50 mm	91940	2 pieces
Disposable plastic cuvettes, 10 mm optical path	91937	100 pieces
Fixing for 10 mm cuvette for *NANOCOLOR*® Advance, *VIS* II, UV/VIS and UV/VIS II	919136	1 piece
Test tubes, 16 mm OD	91680	20 pieces
Test tubes, 24 mm OD	936101	6 pieces
Cuvette adapter A and B for 10, 16, 20, 50 mm and 24 mm cuvettes for *NANOCOLOR*® Advance	919752	1 piece
Cover		
Cover for cuvette slot for *NANOCOLOR*® UV/VIS II	919606	1 piece
Cover for cuvette slot for *NANOCOLOR*® *VIS* II	919654	1 piece
Cover for cuvette slot for *NANOCOLOR*® Advance	919753	1 piece
Protective coverings		
Protective covering for *NANOCOLOR*® UV/VIS II	919605	1 piece
Protective covering for *NANOCOLOR*® *VIS* II	919651	1 piece
Protective covering for *NANOCOLOR*® Advance	919751	1 piece
Protective covering for *NANOCOLOR*® 500 D / 400 D / 350 D	91918	1 piece
Printer		
NANOCOLOR® thermal printer for photometer *NANOCOLOR*® *VIS* II and UV/VIS II (incl. mains adapter and manual)	919655	1 piece
NANOCOLOR® thermal printer for *NANOCOLOR*® UV/VIS [1) 2)] / VIS [1) 2)] / 500 D / 400 D / 350 D / 300 D / 250 D and photometer PF-11 [2)] (incl. printer cable, without mains adapter)	91916	1 piece
Printer paper rolls for *NANOCOLOR*® thermal printer for *NANOCOLOR*® *VIS* II / UV/VIS II, 79 mm width, core 12 mm, OD 80 mm	919656	3 pieces
Software		
NANOCOLOR® software for Linus / 500 D / 400 D / 350 D / 300 D / 250 D / PF-12*Plus* / PF-12 / BioFix® Lumi-10	91902	1 piece
Accessories for data transfer		
USB cable AA for *NANOCOLOR*® 500 D	919686	1 piece
USB cable AB for *NANOCOLOR*® *VIS* / *VIS* II / UV/VIS / UV/VIS II / *VARIO 4* / *VARIO C2* / PF-12*Plus* / PF-12 / FP-200	919687	1 piece
LAN cable (1.5 m) for *NANOCOLOR*® Advance, *VIS* II and UV/VIS II	919682	1 piece
Mini USB cable for photometer PF-3 and *VARIO Mini*	919390	1 piece
Zero modem cable, serial, 2x9 pin SUB-D socket, for *NANOCOLOR*® 500 D / 400 D / 350 D / 300 D / 250 D / PT-3 / PF-10 / PF-11 and BioFix® Lumi-10	919773	1 piece
Adaptor, 9 pin SUB-D-plug to 25 pin SUB-D socket	919681	1 piece
NANOCOLOR® USB stick for *NANOCOLOR*® Advance, *VIS* II / UV/VIS II / *VARIO Mini*	919123	1 piece
NANOCOLOR® USB stick for *NANOCOLOR*® *VIS* / UV/VIS / *VARIO 4* / *VARIO C2* / *VARIO C2 M* / *VARIO HC*	919119	1 piece
Power supply		
Mains adaptor for *NANOCOLOR*® Advance, VIS, *VIS* II and *VARIO Mini*	919156	1 piece

[1)] Required additionally: Cable set, REF 919133 ;
[2)] Required additionally: Mains adaptor, REF 91906
[3)] Required additionally for PF-3: Mini USB-cable, REF 919390

Accessories for photometers

Description	REF	Content
USB mains adaptor for photometer PF-12*Plus* / PF-12 / PF-3 [3]	919220	1 piece
Mains adaptor for *NANOCOLOR*® 500 D / 400 D / 350 D / 300 D / 250 D / PT-3 / PF-11 / FP-100; prim. 100 V–240 V ~; sec. 9 V⎓ / 1500 mA	91906	1 piece
Rechargeable battery pack for photometer PF-12*Plus* / PF-12	919201	1 piece
Rechargeable battery pack for photometer PF-3	919391	1 piece
Battery charger for photometer PF-3 / PF-12*Plus* / PF-12 / PF-11 / PF-10, incl. 4 rechargeable batteries	919221	1 piece

[1] Required additionally: Cable set, REF 919133 ;
[2] Required additionally: Mains adaptor, REF 91906
[3] Required additionally for PF-3: Mini USB-cable, REF 919390

NANOCOLOR® *VARIO 4*, *VARIO C2* and *VARIO C2 M*

Heating blocks for reliable digestions

The *NANOCOLOR*® heating blocks enable a fast and safe performance of all kinds of sample digestions required in water and waste water analysis. Standard parameters for routine digestions such as COD, TOC, total nitrogen, total phosphorus and metals are pre-programmed in the heating blocks and help the user to avoid mistakes.

The small one and the big one

The heating block *NANOCOLOR*® *VARIO C2* enables the simultaneous digestion of up to 12 samples. For a higher sample throughput the *NANOCOLOR*® *VARIO 4* is perfectly suited, as it allows up to 24 simultaneous digestions in two separately controllable heating units. Therefore, MACHEREY-NAGEL offers the appropriate heating block to each user for routine analysis in the laboratory. The *NANOCOLOR*® heating blocks are equipped with lockable protective lids and a touch protection for increased work safety. The *NANOCOLOR*® *VARIO C2 M* heating block with two 22 mm and eight 16 mm holes is available for the digestion of large sample volumes as part of metal analysis.

Extremely versatile and maximally secure

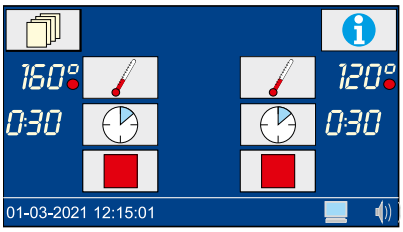
In addition to the preprogrammed temperatures and heating times, a large number of user-specific digestion methods can be stored. The USB and RS232 interfaces allow an easy connection to a PC and enable the convenient linkage to the *NANOCONTROL* inspection equipment monitoring tools. The graphical representation of the heating curves enhances transparency about the temperature stability. The electronic overtemperature sensor protects the heating block from overheating.

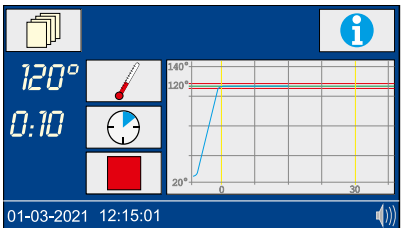
Temperature testing and calibration

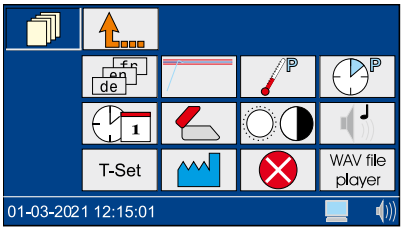
A temperature test can be performed using the *NANOCOLOR*® T-Sets to safeguard results against authorities and supervisors. The free PC software of the heating blocks facilitates checking of temperatures and the creation of the respective reports. After measurement data transfer via the interfaces using the PC software, the testing certificate is created directly, which ensures a GLP-compliant documentation of all equipment testing.

Good to know

The *NANOCOLOR*® USB T-Set is a simple and unique tool for inspection equipment monitoring of MACHEREY-NAGEL heating blocks by the user himself. For further information about the *NANOCOLOR*® USB T-Set see page 150.







Suitable for all *NANOCOLOR*® digestion methods

Application	Temperature	Time
COD according to DIN ISO 15705	148 °C	120 min
High-speed COD	160 °C	30 min
TOC	100 °C	60 min
Total nitrogen	120 °C	30 min
Total kjeldahl nitrogen	120 °C	30 min
Total phosphorus	120 °C	30 min
Organic acids	100 °C	10 min
Total metals	120 °C	30 min
AOX	120 °C	30 min
Hydrocarbons	148 °C	120 min
Programmable, user-defined programs	40 °C–160 °C	0 h:01 min–9 h:59 min

NANOCOLOR® *VARIO 4*, *VARIO C2* and *VARIO C2 M*

Easy

- User-friendly touch screen
- Intuitive usage via icons
- Operation without the need for intensive training

Fast

- All important parameters within 30 minutes
- Extremely short heating-up times
- Call up of heating programs in a matter of seconds

Secure

- High temperature stability
- Graphically visualized heating curves
- Internal quality control via *NANOCOLOR*® T-Set

Ordering information

Description	REF
Heating block *NANOCOLOR*® *VARIO 4* with two blocks with separate control, 2 x 12 bores for test tubes of 16 mm OD, incl. power cable, two separate protective coverings, manual, data cable, software DVD and certificate	919300
Heating block *NANOCOLOR*® *VARIO C2* 12 bores for test tubes of 16 mm OD, incl. power cable, protective covering, manual, data cable, software DVD and certificate	919350
Heating block *NANOCOLOR*® *VARIO C2 M* – version for metal analysis, with large bores – 8 bores for test tubes of 16 mm OD, 2 bores for reaction vessels of 22 mm OD, incl. power cable, protective covering, manual, data cable, software DVD and certificate	919350.1

NANOCOLOR® *VARIO 4*, *VARIO C2* and *VARIO C2 M*

Technical data

NANOCOLOR*® *VARIO 4*, *VARIO C2* and *VARIO C2 M	
Type	Heating blocks for chemical-analytical digestions
Number of bores	2 x 12 of 16 mm OD (*VARIO 4*) 12 of 16 mm OD (*VARIO C2*) 8 of 16 mm OD + 2 of 22 mm OD (*VARIO C2 M*)
Display	Colored, backlit LCD touch screen
Operation	Icon-based menu guidance via touch screen
Temperatures	6 preprogrammed temperatures 70 °C / 100 °C / 120 °C / 148 °C / 150 °C / 160 °C 6 free memory locations for individual temperature settings
Temperature range	40 °C–160 °C (1 °C increments)
Temperature stability	± 1 °C (according to DIN, EN, ISO and EPA methods)
Warm-up time	From 20 °C to 160 °C within 10 minutes
Heating times	5 preprogrammed heating times 10 min / 30 min / 60 min / 120 min / cont. 7 free memory locations for individual heating times
Time range	0 h:01 min–9 h:59 min (1 °C increments)
Safety	Replaceable safety covers as contact protection Lockable protective lids Overheating protection
Interfaces	Bidirectional serial RS232, USB A (function) and USB B (Host)
Internal quality control (IQC)	With *NANOCOLOR*® T-Set (REF 919917) and *NANOCOLOR*® USB T-Set (REF 919921) Optional fully automatic calibration and generation of a test certificate for instrument control and monitoring
Languages	DE / EN / FR / ES / HU / PL / CZ / TR / DK
Update	Free via Internet / PC and USB stick
Operating range	10 °C–40 °C; max. 80 % relative humidity (non-condensing)
Power supply	110 V–230 V~, 50 / 60 Hz
Power consumption	300 / 550 W (*VARIO 4*) 150 / 300 W (*VARIO C2* and *VARIO C2 M*)
Dimensions	290 mm x 287 mm x 146 mm (*VARIO 4*) 169 mm x 282 mm x 146 mm (*VARIO C2* and *VARIO C2 M*)
Weight	approx. 3.2 kg (*VARIO 4*) approx. 2.0 kg (*VARIO C2* and *VARIO C2 M*)
Warranty	2 years
CE	CE certified

Compact heating block for mobile analysis

Sample digestion is an essential step in the determination of a couple of important parameters in photometric water analysis, but is usually only carried out in a laboratory. The new *NANOCOLOR® VARIO Mini* now gives the ability to perform sample digestions on-site or on the road. This guarantees a mobile and safe performance of all sample digestions required in the water and waste water analysis. The compact size and the flexible power supply, e.g. through the power port of a car, ease the use and offer a maximum flexibility for the everyday analysis.

Simply clever

The *NANOCOLOR® VARIO Mini* has six positions for test tubes with an outer diameter of 16 mm and therefore offers the opportunity to examine small numbers of samples directly on the spot. Furthermore, the device impresses with a temperature stability of ± 1 °C. All digestions of the MACHEREY-NAGEL test kits can easily be conducted using the pre-programmed temperatures and heating times. With the *NANOCOLOR®* USB T-Set MACHEREY-NAGEL offers a reliable inspection equipment monitoring tool to ensure the temperature stability and the accuracy of the temperature calibration of the *NANOCOLOR® VARIO Mini*. It allows the easy temperature checking and calibration of the heating block and thereby results in an always accurate and reliable digestion of the sample.

Good to know

No power supply available? The *NANOCOLOR® VARIO Mini* can be operated with an external battery or the power port of a car as the only heating block device of its class. For the comfortable transport MACHEREY-NAGEL provides compact and complete mini laboratories as case solutions for direct analysis at the place of sampling.

Ordering information

Description	REF
Heating block *NANOCOLOR® VARIO Mini*, 6 bores for test tubes of 16 mm OD, incl. power cable, protective covering, manual and certificate	919380

Technical data

NANOCOLOR® VARIO Mini	
Type	Heating block for chemical and analytical digestion
Number of bores	6 of 16 mm OD
Display	Graphic display 128 x 64 pixel
Operation	Icon-based menu guidance with four buttons
Temperatures	70 °C, 100 °C, 120 °C, 148 °C, 150 °C, 160 °C
Temperature stability	± 1 °C (according DIN, EN, ISO and EPA methods)
Warm-up time	From 20 °C to 160 °C within 25 minutes (at 20 °C ambient temperature)
Heating times	30 min, 60 min, 120 min
Safety	Safety cover with lockable protective lid and overheating protection
Interfaces	Mini-USB-OTG (On-The-Go)
Internal quality control (IQC)	With *NANOCOLOR®* USB T-Set (REF 919921) Optional fully automatic calibration and test certificate generation
Update	Free via Internet / PC and USB stick
Operating range	10 °C–40 °C; max. 80 % relative humidity (non-condensing)
Power supply	12 V, 5 A
Power consumption	60 W
Dimensions	105 mm x 125 mm x 170 mm
Weight	670 g
Warranty	2 years
CE	CE certified

NANOCOLOR® VARIO HC

Heating block for fast digestions

The factor time plays a crucial role in many laboratories when conducting sample digestions. The *NANOCOLOR® VARIO HC* enables the user to digest all important parameters in just 30 minutes. The usually very slow cooling down of the cuvettes after digestion is greatly accelerated in the *NANOCOLOR® VARIO HC* by the active cooling unit. Hereby the test tubes are ready for the measurement or further analysis steps shortly after the digestion has ended.

Simply fast

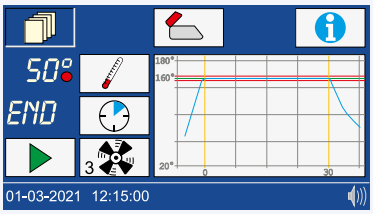
Thanks to the intelligent linkage of heating-up, digestion and cooling-down the *NANOCOLOR® VARIO HC* allows the performance of a COD test in less than 45 minutes. The readily prepared cuvettes are directly inserted into the cold heating block, which means an additional time saving for the user as the waiting of the heating process is omitted.

Approved and versatile

In addition to the cooling function, the *NANOCOLOR® VARIO HC* comes with all features provided by our proven heating blocks *NANOCOLOR® VARIO 4* and *VARIO C2*. Naturally, this includes the possibility of checking and calibrating the temperature with the *NANOCOLOR®* T-Sets, thus fulfilling the requirements of analytical quality control. The safety of the user is as important as accurate results. The protection lid of the *NANOCOLOR® VARIO HC* locks electronically during digestion. The operation of the heating block and the input of digestion programs are carried out via a user-friendly touch screen.

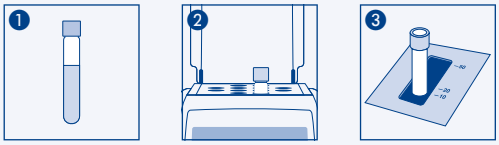
Good to know

Both, the temperature of the cooling process as well as the ventilation speed can be individually adjusted by the user.



How it's done

Heating and cooling



1 Prepare sample

2 Digestions and cooling in *VARIO HC*

3 Direct measurement after withdrawel

Ordering information

Description	REF
Heating block *NANOCOLOR® VARIO HC* – with cooling function – 12 bores for test tubes of 16 mm OD and fan, incl. power cable, protective covering, manual, data cable, software DVD and certificate	919330

Technical data

NANOCOLOR® VARIO HC	
Type	Heating block for chemical-analytical digestion
Number of bores	12 of 16 mm OD
Display	Colored, backlit LCD touch screen
Operation	Icon-based menu guidance via touch screen
Temperatures	6 preprogrammed temperatures 70 °C / 100 °C / 120 °C / 148 °C / 150 °C / 160 °C 6 free memory locations for individual temperature settings
Temperature range	40 °C–160 °C (1 °C increments)
Temperature stability	± 1 °C (according to DIN-, EN-, ISO- and EPA-methods)
Warm-up time	from 20 °C to 160 °C within 10 minutes
Heating times	5 preprogrammed heating times 10 min / 30 min / 60 min / 120 min / cont. 7 free memory locations for individual heating times
Time range	0 h:01 min–9 h:59 min (increments 0 h:01 min)
Safety	Replaceable safety covers for contact protection Lockable protective lids Overheating protection
Interfaces	Bidirectional serial RS232, USB A (function) and USB B (Host)
Internal quality control (IQC)	With *NANOCOLOR®* T-Set (REF 919917) and *NANOCOLOR®* USB T-Set (REF 919921) Optional fully automatic calibration and test certificate generation
Languages	DE / EN / FR / ES / HU / PL / CZ / TR / DK
Update	Free via Internet and USB-stick
Operating range	10 °C–40 °C; max. 80 % relative humidity (non-condensing)
Power supply	110 V–230 V~, 50 / 60 Hz
Power consumption	150 / 550 W
Dimension	290 mm x 287 mm x 146 mm
Weight	approx. 3.2 kg
Warranty	2 years
CE	CE certified

NANOCOLOR® T-Set and USB T-Set

Analytical quality control for the entire analysis system

The unique inspection equipment *NANOCOLOR*® T-Set is an electronic temperature sensor, which is suitable for the temperature control and automatic calibration of all *NANOCOLOR*® heating blocks. The user can check the heating blocks independently with the *NANOCOLOR*® T-Set for internal quality control purposes. For this reason the *NANOCOLOR*® T-Set is an important building block for a comprehensive analytical quality assurance.

Independent self-control

By a target-actual comparison, the temperatures in the heating blocks can be tested quickly and easily. All programmed temperatures are measured, registered and stored in the heating block by the *NANOCOLOR*® T-Set. This tool also enables an automatic calibration of the heating blocks. Our customers appreciate the *NANOCOLOR*® T-Set, as it allows a cost-effective and independent monitoring of their own heating block.

Data transfer and documentation

After completion of the temperature control or calibration, the collected data can be transferred to a computer easily via the RS232 or USB port. The free of charge *NANOCOLOR*® T-Set PC software enables a GLP-compliant documentation and the creation of direct test certificates.

Now with temperature display

The new *NANOCOLOR*® USB T-Set is a advancement of the established *NANOCOLOR*® T-Set, extended by a LED display to control the measured temperature. Therefore, temperature measurements can now be carried out independent of the heating block.

Good to know

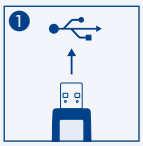
The *NANOCOLOR*® T-Sets can be used also for external temperature measurements, e.g. for the determination of the sample temperature.

Good to know

The temperature display of the *NANOCOLOR*® USB T-Set can be flipped by tapping on the edge of the device. Therefore, an optimal reading is always guaranteed.

How it's done

Automatic temperature control and calibration with the *NANOCOLOR*® USB T-Set



Connect T-Set

Choose and start program

Create test protocol

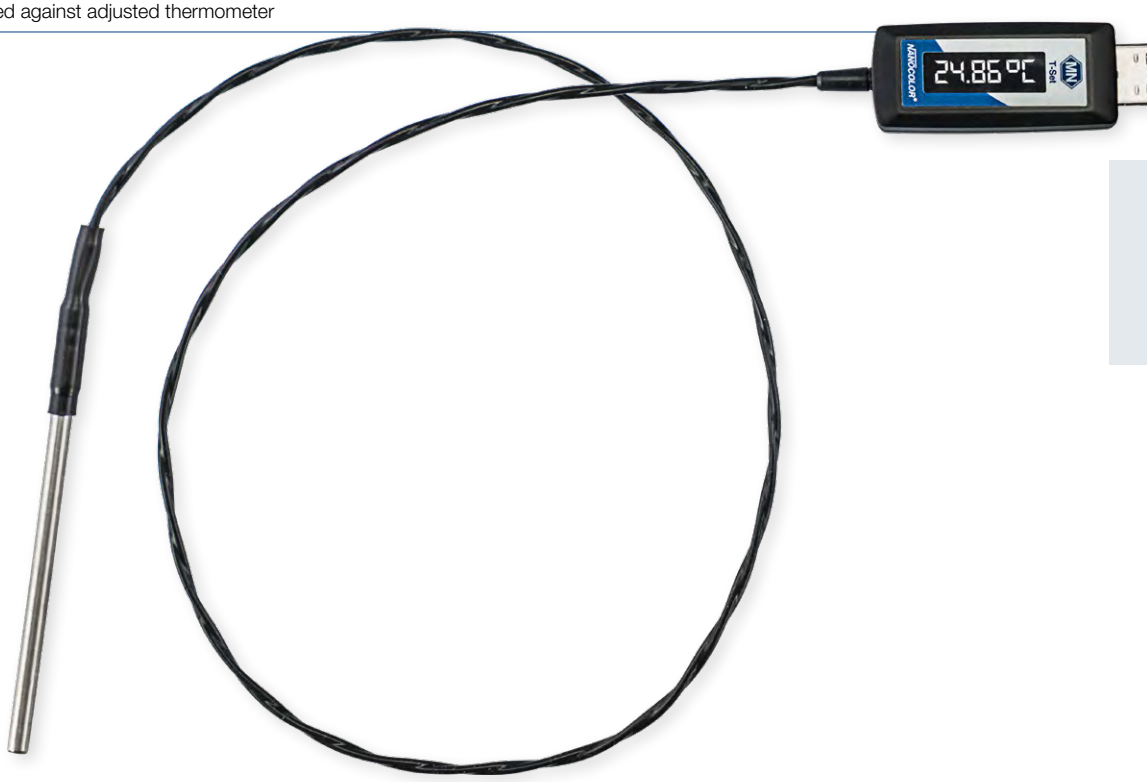
Ordering information

Description	REF
NANOCOLOR® T-Set for electronic temperature control and calibration of the heating blocks *NANOCOLOR*® *VARIO 4* / *VARIO C2* / *VARIO C2 M* / *VARIO HC* / *VARIO 3* / *VARIO compact*	919917
NANOCOLOR® USB T-Set for electronic temperature control and calibration of the heating blocks *NANOCOLOR*® *VARIO 4* / *VARIO C2* / *VARIO C2 M* / *VARIO HC* / *VARIO Mini* [1)]	919921

[1)] Additional adapter for USB-T-Set (REF 919937) is required.

Technical data

	T-Set	USB T-Set
Type	Electronic thermal sensor for temperature control, calibration and generation of a test certificate for inspection equipment monitoring	
Detector	PT 1000 (95 mm length x 4 mm Ø)	
Display	–	LED display
Operation	Via touch screen of the heating blocks and the T-Set software	
Temperature range	0 °C–200 °C	
Precision	± 1 °C	
Accuracy	± 0.2 °C	
Long term stability	± 0.1 °C	
Interface	RS232	USB A
Operating range	10 °C–40 °C max. 80 % relative humidity (non-condensing)	
Power supply	Via RS232	Via USB A
Power consumption	Max. 20 mW	
Dimensions	75 cm (length)	73 cm (length)
Weight	Approx. 60 g	
Warranty	2 years	
CE	CE certified	
Certificate	Calibrated against adjusted thermometer	



Accessories for heating blocks

The complete analytics from a single source

MACHEREY-NAGEL heating blocks represent an important corner stone of the *NANOCOLOR*® analytical system. By the perfect combination of test kits, heating blocks and photometers, the user is well equipped for daily laboratory analysis. In addition to the digestion for the classical parameters such as COD and phosphate, some customers require special solutions, e.g. for the digestion of metals using *NanOx* Metal. The accessories required for this purpose are available as a complete package from MACHEREY-NAGEL. For an overview of available digestion reagents see page 110. All this ensures the compatibility of the equipment and a reliable analysis.

Good to know

The *NANOCOLOR*® *VARIO Mini* can be operated independent of the grid with a car adapter cable (REF 919938) from our heating block accessories.

Accessories

Description	REF	Content
Acessories for temperature control of heating blocks		
T-Set adaptor 16 mm	919924	1 piece
T-Set adaptor 13 mm	919925	1 piece
USB-serial-Adaptor for heating blocks *NANOCOLOR*® *VARIO 4* / *VARIO C2* / *VARIO C2 M* / *VARIO HC* / *VARIO 3* / *VARIO compact* and *NANOCOLOR*® T-Set	919926	1 piece
USB-T-Set adaptor for *NANOCOLOR*® *VARIO Mini*	919937	1 piece
Accessories for digestions in heating blocks		
Protective covering for *NANOCOLOR*® *VARIO 4* / *VARIO C2* / *VARIO C2 M* / *VARIO HC*, transparent	919310	1 piece
Protective covering with bores for TOC-tests for *NANOCOLOR*® *VARIO 4* / *VARIO C2* / *VARIO C2 M* / *VARIO HC*, transparent	919309	1 piece
Protective covering for *NANOCOLOR*® *VARIO Mini*, transparent	919381	1 piece
Safety cover for *NANOCOLOR*® *VARIO 4* / *VARIO C2* / *VARIO HC* / *VARIO 3* / *VARIO compact*	916598	1 piece
Reducing adaptors 16 → 13 mm for *NANOCOLOR*® heating blocks	916910	8 pieces
Reducing adaptors 22 → 16 mm for *NANOCOLOR*® heating blocks	919916	2 pieces
Decomposition apparatus including tube for sample decomposition, reducing adaptor and condensor	91629	1 piece
Tubes for sample decomposition 22 mm OD, NS 19/26 with glass stopper	91666	2 pieces
Condenser 200 mm, type KS with 3 m PE tubing, NS 19/26 bottom, NS 29/32 top	91667	1 piece
Absorption attachment for condenser NS 29/32	91668	1 piece
Reaction tubes 16 mm OD	91680	20 pieces
Reaction tubes 22 mm OD	91622	2 pieces
Power supply [1)]		
Car adapter cable for *NANOCOLOR*® *VARIO Mini*	919938	1 piece
Mains adaptor for *NANOCOLOR*® *VIS*, *NANOCOLOR*® *VIS* II and *VARIO Mini*	919156	1 piece
Accessories for data transfer		
USB cable AB for *NANOCOLOR*® *UV/VIS* / *UV/VIS* II / VIS / *VIS* II / *VARIO 4* / *VARIO C2* / *VARIO C2 M* and PF-12 / PF-12*Plus*	919687	1 piece
Mini USB cable for compact photometer PF-3 and *NANOCOLOR*® *VARIO Mini*	919390	1 piece
Manuals		
Manual for *NANOCOLOR*® *VARIO C2* and *NANOCOLOR*® *VARIO 4*	919311	1 piece
Manual for *NANOCOLOR*® *VARIO HC*	919312	1 piece
Manual for *NANOCOLOR*® *VARIO Mini*	919383	1 piece

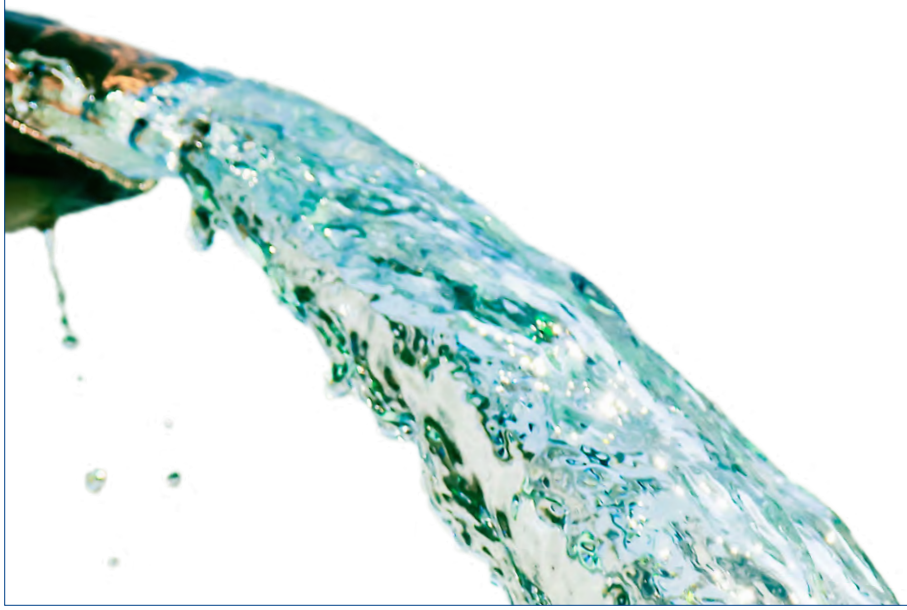
[1)] For information about an external battery for *NANOCOLOR*® *VARIO Mini*, please contact MACHEREY-NAGEL.

NANOCOLOR® COD test kits

Safe, safer, the safest

Reliable COD analysis

- No risk of leaking gases
- Minimum quantity of hazardous chemicals
- Hg-free version available
- 13 measurement ranges available for all requirements and demands



QUANTOFIX® Relax

Reflectometer for evaluation of test strips

The QUANTOFIX® Relax is the ideal device for the objective evaluation of our QUANTOFIX® test strips. It combines the simplicity of test strips with the safety of instrumental analysis and thus the best out of these two worlds. The QUANTOFIX® Relax does not require any special strips, but evaluates the normal pH-Fix and QUANTOFIX® test strips. Therefore entrance into instrumental analysis is very simple; the same strip can be used for visual and instrumental evaluation.

Excellent usability

All functions of the device can be selected with the touch screen display. Therefore, the operation is simple and intuitive, without the need for extensive training. The auto-start function initiates the measurement as soon as the test strip is placed on the strip holder. Therefore, it is not necessary to touch the device for performing a measurement. Contaminations are reliably avoided. Frequently used parameters can be stored as favorites. Simple tapping can quickly access these favorites during operation.

Quantitative results

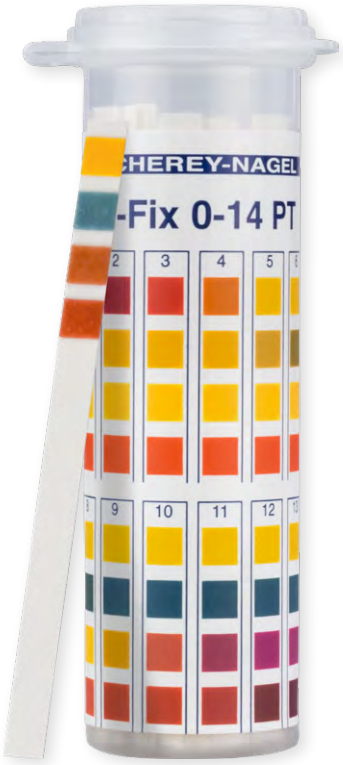
The optics of the QUANTOFIX® Relax has been proven for years in medical technology and supplies secure and standardized values. Thereby an accuracy of ≤ 10 % is achieved for many parameters; a hardly achieved level in the analysis of test strips, yet. The evaluation with the QUANTOFIX® Relax is not interfered by external factors and is therefore absolutely objective and precise. The estimation of measured values between the gradations of the scale is omitted.

Documentation and data transfer

The QUANTOFIX® Relax allows the assured documentation of analytics with test strips. Results are printed immediately after the measurement. The printout can be e.g. appended to a production protocol or kept for later quality controls. The transmission to an information system can be realized easily. In addition, the data are stored in the device and can be simply read out or printed again later on.

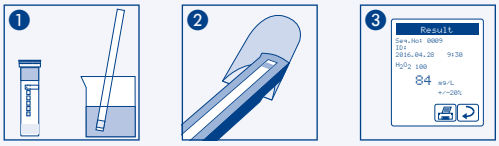
Good to know

For an overview of all the parameters and pH-Fix test strips available on the QUANTOFIX® Relax, please refer to page 52 and 60.



How it's done

Objective evaluation with the QUANTOFIX® Relax



Dip | Place immediately | Read off result

Ordering information

Description	REF
Reflectometer QUANTOFIX® Relax for evaluation of QUANTOFIX® test strips incl. power supply, adapter, manual, 1 roll of printer paper and certificate	91346

Accessories

Description	REF	Content
Transport case for reflectometer QUANTOFIX® Relax for individual combination with 1 QUANTOFIX® Relax, 3 rolls of printer paper, 6 QUANTOFIX® tubes, 6 batteries, power supply, manual and accessories	930889	1 piece
Printer paper for QUANTOFIX® Relax	93065	5 pieces
Barcode scanner for QUANTOFIX® Relax	93074	1 piece
Power supply for QUANTOFIX® Relax	930995	1 piece

Objective

- High-quality optics
- Independent from external light and subjective color perception
- Standardized reaction times

Easy

- Intuitive use via touch screen
- Contactless measurement due to auto-start function
- Favorites list for the most important parameters

Safe

- Reproducible results independent of the user
- Printout of results for optimized documentation
- Accuracy for many parameters ≤ 10 %

Technical data

QUANTOFIX® Relax	
Type	Reflectometer with microprocessor control, self-test and auto-calibration
Calibration	Automatic, self calibrating
Capacity	50 strips per hour
Data storage	200 results
Display	LCD display with touch screen
Operation	alphanumeric input via touch screen
Interface	RS232, USB B (Host), PS/2 for connection of a keyboard or barcode scanner
Languages	DE / EN / FR / ES / IT / PT / PL / TR / HU
Update	Free via Internet / PC
Operating range	10 °C–40 °C, max. 80 % relative humidity (non-condensing)
Power supply	100 V–240 V~, optional with 6 AA batteries
Dimensions	200 mm x 160 mm x 75 mm
Weight	710 g (without batteries and power supply)
Warranty	2 years
CE	CE certified

BioFix® Lumi-10

Compact luminometer for mobile use

The BioFix® Lumi-10 is a compact luminometer for the measurement of bio and chemical luminescence reactions with constant light emission. Due to its size it is ideally suited for the use in the laboratory or on the road and can be operated with a power supply as well as rechargeable batteries.

Incredibly versatile

Thanks to its highly sensitive detector (Ultra-Fast Single Photon Counter) the BioFix® Lumi-10 can be used for a variety of applications. This includes amongst others bio toxicity tests, ATP- and biomass determinations, reporter-gene assays, luminescence immunoassays as well as NAD(P)H measurements.

Individually programmable

The BioFix® Lumi-10 has six individually adjustable measurement protocols and a data memory for up to 2000 results. It provides the opportunity for single, multiple and extensive screening measurements. The results are optionally displayed in % inhibition, % stimulation or RLU (relative light units). The user can set the particular measurement parameters such as incubation time or measurement time individually. By a previous definition of detection limits, the results can be automatically classified by the device. There are already pre-programmed test methods available for the determination of luminescent bacteria toxicity tests and ATP tests.

Good to know

Thanks to six individually adjustable measurement protocols, the BioFix® Lumi-10 is extremely versatile and suitable for many applications.

Ordering information

Description	REF
BioFix® Lumi-10 incl. manual, rack, cuvettes and spare adaptor	940008

Accessories

Description	REF	Content
Absorbance color correction cuvettes with 100 aspirators	940006	4 pieces
Glass cuvettes 12 mm OD	916912	690 pieces
Rack for glass cuvettes 12 mm OD, 5 x 10 positions	945013	1 piece
Manual BioFix® Lumi-10, German	940014	1 piece
Manual BioFix® Lumi-10, English	940014.en	1 piece
Mains adaptor	940009	1 piece

Technical data

BioFix® Lumi-10	
Type	Luminometer
Optics	Ultra-Fast Single Photon Counter
Wavelengths range	380 nm–630 nm
Software	Microprocessor software
Measuring modes	3 preprogrammed tests, 6 free programmable methods, % inhibition, % stimulation, RLU
Cuvette holder	Cuvettes 12 mm OD
Data storage	2000 results
Display	Backlit graphic display (128 x 64 pixel)
Operation	Foil covered push buttons
Languages	DE / EN
Interface	USB interface for data transfer to the PC or printer
Operating range	15 °C–30 °C
Power supply	Mains adaptor: 230 V / 50 Hz, 115 V / 60 Hz, batteries
Rechargeable batteries	3 Rechargeable batteries: NiCd R14 / C / Baby / UM2 batteries; 1600 mAh
Dimensions	170 mm x 150 mm x 280 mm
Weight	2 kg (incl. batteries)
Warranty	2 years
CE	CE certified

Mobile mini-labs

Reagent cases


PF-12 Plus

Reagent cases for special applications

Compact laboratories for mobile analysis

MACHEREY-NAGEL reagent cases are flexible tools for all areas of water and soil analysis. Catering to our customer needs, we offer a large number of prepacked reagent cases with and without photometer which can be used for a wide area of applications.

The rugged cases with premium foam inlays allow a fast and direct analysis at the point of interest. All needed test instructions as well as analytical accessories are already included for especially easy and convenient handling. Particular chemical knowledge or experience is not required to run any of the tests or to use the cases effectively. The color-coded bottles prevent a mixing-up of the reagents.

Consumed reagents can be replaced simple and cost-effective with refill packs.

Reagent cases for water analysis

The reagent cases together with the *VISOCOLOR*® tests give water attendants, fish farmers and other persons that are interested in water analysis the possibility to determine important analytical values for evaluation of water quality within a short time.

The prepacked reagent cases can be used for a wide area of applications like swimming pools, drinking water analysis, schools, monitoring of fishing waters and of course for general water analysis.

Good to know

The *VISOCOLOR*® School reagent case is especially designed for schools. All reagents are approved to be used in schools in Germany (GUV-SR 2004 directive).

Ordering information

Reagent case	REF	Dimensions	Application	GHS	PF-3	PF-12^{Plus}	Test
VISOCOLOR® *ECO* Reagent case	931301	340 x 275 x 83 mm	General	■			*VISOCOLOR*® *ECO* Ammonium 3 *VISOCOLOR*® *ECO* Carbonate hardness *VISOCOLOR*® *ECO* Total hardness *VISOCOLOR*® *ECO* Nitrate *VISOCOLOR*® *ECO* Nitrite *VISOCOLOR*® *ECO* pH 4.0–9.0 *VISOCOLOR*® *ECO* Phosphate
VISOCOLOR® Reagent case	931304	450 x 360 x 140 mm	General	■			*VISOCOLOR*® *ECO* Ammonium 3 *VISOCOLOR*® *ECO* Nitrite *VISOCOLOR*® *ECO* pH 4.0–9.0 *VISOCOLOR*® *ECO* Phosphate *VISOCOLOR*® *HE* Alkalinity AL 7 *VISOCOLOR*® *HE* Total hardness H 20 F *VISOCOLOR*® *HE* Oxygen SA 10
VISOCOLOR® Reagent case for environmental analysis	914353	450 x 360 x 140 mm	General	■		■	*VISOCOLOR*® *ECO* Ammonium 15 *VISOCOLOR*® *ECO* Iron 2 *VISOCOLOR*® *ECO* Nitrate *VISOCOLOR*® *ECO* Nitrite *VISOCOLOR*® *ECO* pH 4.0–9.0 *VISOCOLOR*® *ECO* Phosphate *VISOCOLOR*® *HE* Carbonate hardness C 20 *VISOCOLOR*® *HE* Total hardness H 20 F
VISOCOLOR® Reagent case with PF-3 Pool (Cl_2 liquid)	934118	340 x 275 x 83 mm	Swimming pool	■	■		*VISOCOLOR*® *ECO* Alkalinity TA *VISOCOLOR*® *ECO* Chlorine 2, free + total *VISOCOLOR*® *ECO* Cyanuric acid *VISOCOLOR*® *ECO* pH 6.0–8.2
VISOCOLOR® Reagent case with PF-3 Pool (Cl_2 solid)	934119	340 x 275 x 83 mm	Swimming pool	■	■		*VISOCOLOR*® *ECO* Alkalinity TA *VISOCOLOR*® *ECO* Chlorine 6, free + total *VISOCOLOR*® *ECO* Cyanuric acid *VISOCOLOR*® *ECO* pH 6.0–8.2

GHS: Global harmonized system: This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see the SDS.

Reagent cases for special applications

Reagent cases for soil analysis

Thorough analysis is the basis to support and maintain healthy, productive and biologically active soil. To effectively and efficiently plan all measures that affect the soil (fertilization, liming, etc.) it is crucial to determine the important soil parameters first.

The *VISOCOLOR*® reagent cases for soil analysis are the perfect companions for economical, fast and convenient soil analysis, both in the field or in the laboratory. The user can choose between a reagent case version with or without compact photometer PF-3 Soil, which was especially developed for soil analysis.

Both case versions contain additional analytical tools, such as scale, sieve, etc. as well as predosed solutions for the production of necessary soil extracts.

Good to know

The reagent cases *VISOCOLOR*® School, *VISOCOLOR*® Fish and the *VISOCOLOR*® reagent case for soil analysis contain detailed manuals. Besides further background information about the most important parameters also information about reaction equations and of the reaction basis are included.

Measuring range (visual)	Measuring range (photometric)	Number of tests	Reagent cases
0 · 0.2 · 0.3 · 0.5 · 0.7 · 1 · 2 · 3 mg/L NH_4^+	–	50	*VISOCOLOR*® *ECO*
1 drop equals 1.25 °e	–	100	Reagent case
1 drop equals 1.25 °e	–	110	
0 · 1 · 3 · 5 · 10 · 20 · 30 · 50 · 70 · 90 · 120 mg/L NO_3^-	–	110	
0 · 0.02 · 0.03 · 0.05 · 0.07 · 0.1 · 0.2 · 0.3 · 0.5 mg/L NO_2^-	–	120	
pH: 4.0 · 5.0 · 6.0 · 6.5 · 7.0 · 7.5 · 8.0 · 8.5 · 9.0	–	450	
0 · 0.2 · 0.3 · 0.5 · 0.7 · 1 · 2 · 3 · 5 mg/L PO_4-P	–	80	
0 · 0.2 · 0.3 · 0.5 · 0.7 · 1 · 2 · 3 mg/L NH_4^+	–	50	*VISOCOLOR*®
0 · 0.02 · 0.03 · 0.05 · 0.07 · 0.1 · 0.2 · 0.3 · 0.5 mg/L NO_2^-	–	120	Reagent case
pH: 4.0 · 5.0 · 6.0 · 6.5 · 7.0 · 7.5 · 8.0 · 8.5 · 9.0	–	450	
0 · 0.2 · 0.3 · 0.5 · 0.7 · 1 · 2 · 3 · 5 mg/L PO_4-P	–	80	
0.2–7.2 mmol/L OH^- (1 syringe filling)	–	200	
0.6–25.0 °e / 0–3.6 mmol/L Ca^{2+} (1 syringe filling)	–	200	
0–10.0 mg/L O_2 (1 syringe filling)	–	100	
–	0.5–8.0 mg/L NH_4^+	50	*VISOCOLOR*®
–	0.04–2.00 mg/L Fe	100	Reagent case for environmental analysis
–	4–60 mg/L NO_3^-	110	
–	0.02–0.50 mg/L NO_2^-	120	
pH: 4.0 · 5.0 · 6.0 · 6.5 · 7.0 · 7.5 · 8.0 · 8.5 · 9.0	–	450	
–	0.2–5.0 mg/L PO_4-P	80	
0.6–25.0 °e / 0–7.2 mmol/L H^+ (1 syringe filling)	–	200	
0.6–25.0 °e / 0–3.6 mmol/L Ca^{2+} (1 syringe filling)	–	200	
–	0.4–17.5 °e / 5–250 mg/L $CaCO_3$	100	*VISOCOLOR*®
–	0.10–2.00 mg/L Cl_2	150	Reagent case with PF-3
–	10–100 mg/L Cya	100	Pool (Cl_2 liquid)
–	pH 6.1–8.4	150	
–	0.4–17.5 °e / 5–250 mg/L $CaCO_3$	100	*VISOCOLOR*®
–	0.05–6.00 mg/L Cl_2	200	Reagent case with PF-3
–	10–100 mg/L Cya	100	Pool (Cl_2 solid)
–	pH 6.1–8.4	150	

Reagent cases for special applications

Reagent case	REF	Dimensions	Application	GHS	PF-3	PF-12^{Plus}	Test
■ *VISOCOLOR*® Reagent case with PF-3 Drinking Water (Cl_2 liquid)	934124	340 x 275 x 83 mm	Drinking water	■	■		*VISOCOLOR*® *ECO* Chlorine 2, free + total *VISOCOLOR*® *ECO* Chlorine dioxide *VISOCOLOR*® *ECO* Iron 2 *VISOCOLOR*® *ECO* Fluoride *VISOCOLOR*® *ECO* pH 6.0–8.2
■ *VISOCOLOR*® Reagent case with PF-3 Drinking Water (Cl_2 solid)	934125	340 x 275 x 83 mm	Drinking water	■	■		*VISOCOLOR*® *ECO* Chlorine 6, free + total *VISOCOLOR*® *ECO* Chlorine dioxide *VISOCOLOR*® *ECO* Iron 2 *VISOCOLOR*® *ECO* Fluoride *VISOCOLOR*® *ECO* pH 6.0–8.2
■ Reagent case *VISOCOLOR*® School	933100	275 x 230 x 83 mm	Schools	■			*VISOCOLOR*® School Ammonium *VISOCOLOR*® School Total hardness *VISOCOLOR*® School Nitrate *VISOCOLOR*® School Nitrite *VISOCOLOR*® School pH 4.0–9.0 *VISOCOLOR*® School Phosphate
■ Reagent case *VISOCOLOR*® Fish	933101	275 x 230 x 83 mm	Fishing waters	■			*VISOCOLOR*® Fish Ammonium *VISOCOLOR*® Fish Total hardness *VISOCOLOR*® Fish Nitrate *VISOCOLOR*® Fish Nitrite *VISOCOLOR*® Fish pH 4.0–9.0 *VISOCOLOR*® Fish Phosphate
■ Reagent case *VISOCOLOR*® Fish with PF-3 Fish	934127	395 x 295 x 106 mm	Fishing waters	■	■		QUANTOFIX® Chloride QUANTOFIX® Multi-stick for aquarium owners *VISOCOLOR*® *ECO* Ammonium 3 *VISOCOLOR*® *ECO* Chlorine 6, free + total *VISOCOLOR*® *ECO* Iron 2 *VISOCOLOR*® *ECO* Silica *VISOCOLOR*® *ECO* Copper *VISOCOLOR*® *ECO* Nitrate *VISOCOLOR*® *ECO* Nitrite *VISOCOLOR*® *ECO* pH 6.0–8.2 *VISOCOLOR*® *ECO* Phosphate *VISOCOLOR*® *ECO* Oxygen *VISOCOLOR*® *HE* Alkalinity AL 7 *VISOCOLOR*® *HE* Phosphate
■ *VISOCOLOR*® Reagent case for soil analysis, with accessories	931601	500 x 420 x 175 mm	Soil	■			pH-Fix 2.0–9.0 QUANTOFIX® Ammonium QUANTOFIX® Nitrate/Nitrite *VISOCOLOR*® *ECO* Potassium *VISOCOLOR*® *HE* pH 4.0–10.0 *VISOCOLOR*® *HE* Phosphate
■ *VISOCOLOR*® Reagent case for soil analysis with PF-3 Soil, with accessories	934220	500 x 420 x 175 mm	Soil	■	■		pH-Fix 2.0–9.0 QUANTOFIX® Nitrate/Nitrite *VISOCOLOR*® *ECO* Ammonium 3 *VISOCOLOR*® *ECO* Potassium *VISOCOLOR*® *ECO* Nitrate *VISOCOLOR*® *ECO* Phosphate
■ *VISOCOLOR*® Reagent case for soil analysis with PF-3 Soil	934210	340 x 275 x 83 mm	Soil	■	■		*VISOCOLOR*® *ECO* Ammonium 3 *VISOCOLOR*® *ECO* Potassium *VISOCOLOR*® *ECO* Nitrate *VISOCOLOR*® *ECO* Phosphate

GHS: Global harmonized system: This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see the SDS.

Reagent cases for special applications

Measuring range (visual)	Measuring range (photometric)	Number of tests	Reagent cases
–	0.10–2.00 mg/L Cl_2	150	*VISOCOLOR*®
–	0.20–3.80 mg/L ClO_2	150	Reagent case with PF-3
–	0.04–2.00 mg/L Fe	100	Drinking Water (Cl_2 liquid)
–	0.1–2.0 mg/L F^-	150	
–	pH 6.1–8.4	150	
–	0.05–6.00 mg/L Cl_2	200	*VISOCOLOR*®
–	0.20–3.80 mg/L ClO_2	150	Reagent case with PF-3
–	0.04–2.00 mg/L Fe	100	Drinking Water (Cl_2 solid)
–	0.1–2.0 mg/L F^-	150	
–	pH 6.1–8.4	150	
0 · 0.2 · 0.5 · 1 · 3 mg/L NH_4^+	–	50	Reagent case
1 drop equals 1.25 °e	–	50	*VISOCOLOR*® School
0 · 1 · 5 · 10 · 20 · 50 · 90 mg/L NO_3^-	–	50	
0 · 0.02 · 0.05 · 0.1 · 0.2 · 0.5 mg/L NO_2^-	–	50	
pH: 4.0 · 5.0 · 6.0 · 7.0 · 8.0 · 9.0	–	50	
0 · 0.5 · 1.5 · 3 · 6 · 15 mg/L PO_4^{3-}	–	50	
0 · 0.2 · 0.5 · 1 · 3 mg/L NH_4^+	–	50	Reagent case
1 drop equals 1.25 °e	–	50	*VISOCOLOR*® Fish
0 · 1 · 5 · 10 · 20 · 50 · 90 mg/L NO_3^-	–	50	
0 · 0.02 · 0.05 · 0.1 · 0.2 · 0.5 mg/L NO_2^-	–	50	
pH: 4.0 · 5.0 · 6.0 · 7.0 · 8.0 · 9.0	–	50	
0 · 0.5 · 1.5 · 3 · 6 · 15 mg/L PO_4^{3-}	–	50	
0 · 500 · 1000 · 1500 · 2000 · ≥ 3000 mg/L Cl^-	–	100	Reagent case
Total hardness: 0 · 6.3 · 12.5 · 18.8 · 25.0 · 31.3 °e	–	100	*VISOCOLOR*® Fish with
Carbonate hardness: 0 · 3.8 · 7.5 · 12.5 · 18.8 · 25.0 °e	–	100	PF-3 Fish
pH: 6.4 · 6.8 · 7.2 · 7.6 · 8.0 · 8.4	–	100	
–	0.1–2.5 mg/L NH_4^+	50	
–	0.05–6.00 mg/L Cl_2	200	
–	0.04–2.00 mg/L Fe	100	
–	0.2–3.0 mg/L SiO_2	80	
–	0.1–5.0 mg/L Cu^{2+}	100	
–	4–60 mg/L NO_3^-	110	
–	0.02–0.50 mg/L NO_2^-	120	
–	pH 6.1–8.4	100	
–	0.2–5.0 mg/L PO_4-P	80	
–	1–8 mg/L O_2	50	
0.2–7.2 mmol/L OH^- (1 syringe filling)	–	200	
0.0 · 0.05 · 0.10 · 0.15 · 0.20 · 0.3 · 0.4 · 0.6 · 0.8 · 1.0 mg/L PO_4-P	–	300	
pH: 2.0 · 2.5 · 3.0 · 3.5 · 4.0 · 4.5 · 5.0 · 5.5 · 6.0 · 6.5 · 7.0 · 7.5 · 8.0 · 8.5 · 9.0	–	100	*VISOCOLOR*®
0 · 10 · 25 · 50 · 100 · 200 · 400 mg/L NH_4^+	–	100	Reagent case for soil
Nitrate: 0 · 10 · 25 · 50 · 100 · 250 · 500 mg/L NO_3^-	–	100	analysis, with accessories
Nitrite: 0 · 1 · 5 · 10 · 20 · 40 · 80 mg/L NO_2^-	–	100	
2 · 3 · 4 · 6 · 8 · 10 · 15 mg/L K^+	–	60	
pH: 4.0 · 5.0 · 5.5 · 6.0 · 6.5 · 7.0 · 7.5 · 8.0 · 8.5 · 9.0 · 10.0	–	500	
0.0 · 0.05 · 0.10 · 0.15 · 0.20 · 0.3 · 0.4 · 0.6 · 0.8 · 1.0 mg/L PO_4-P	–	100	
pH: 2.0 · 2.5 · 3.0 · 3.5 · 4.0 · 4.5 · 5.0 · 5.5 · 6.0 · 6.5 · 7.0 · 7.5 · 8.0 · 8.5 · 9.0	–	100	*VISOCOLOR*®
Nitrate: 0 · 10 · 25 · 50 · 100 · 250 · 500 mg/L NO_3^-	–	100	Reagent case for soil
Nitrite: 0 · 1 · 5 · 10 · 20 · 40 · 80 mg/L NO_2^-	–	100	analysis with PF-3 Soil,
–	0.1–2.5 mg/L NH_4^+	50	with accessories
–	2–25 mg/L K^+	60	
–	4–60 mg/L NO_3^-	110	
–	0.2–5.0 mg/L PO_4-P	80	
–	0.1–2.5 mg/L NH_4^+	50	*VISOCOLOR*®
–	2–25 mg/L K^+	60	Reagent case for soil
–	4–60 mg/L NO_3^-	110	analysis with PF-3 Soil
–	0.2–5.0 mg/L PO_4–P	80	

Reagent cases for individual solutions

Compact laboratories for mobile analysis

With our reagent case program we also fulfill individual customer requests. The user can choose between reagent case versions with tests for visual evaluation and possible combinations with the compact photometers PF-3 and PF-12^{Plus}.

The reagent cases for individual solutions offer a flexible combination of all *VISOCOLOR*® tests, pH-indicator papers, pH-Fix indicator strips, qualitative test papers and semi-quantitative QUANTOFIX® test strips as well as useful accessories.

The *NANOCOLOR*® reagent cases can also be equipped with *NANOCOLOR*® tube tests and the heating blocks *NANOCOLOR*® *VARIO C2*, *NANOCOLOR*® *VARIO C2 M* and *NANOCOLOR*® *VARIO Mini*.

Therefore, the reagent cases for individual solutions are versatilely applicable in a variety of areas in water and waste water analysis.

Good to know

Starting at a minimum quantity of 50 cases, we offer entirely individual solutions in different sizes with a foam inlay designed exactly to the customers specifications and needs.

Good to know

For questions about individual solution of the reagent cases, we are pleased to be of service.

Ordering information

Reagent case	REF	Dimensions	NANOCOLOR® VARIO C2	NANOCOLOR® VARIO C2 M	NANOCOLOR® VARIO Mini	NANOCOLOR® tube tests	VISOCOLOR® alpha
Test paper analysis case	913990	280 x 220 x 80 mm					
VISOCOLOR® *ECO* Reagent case	931303	340 x 275 x 83 mm					
VISOCOLOR® Reagent case	931305	450 x 360 x 140 mm					■
VISOCOLOR® Reagent case with PF-3 Pool	934102	340 x 275 x 83 mm					
VISOCOLOR® Reagent case with PF-3 Drinking Water	934402	340 x 275 x 83 mm					
VISOCOLOR® Reagent case with PF-3 Soil	934202	340 x 275 x 83 mm					
VISOCOLOR® Reagent case with PF-3 Fish	934602	340 x 275 x 83 mm					
VISOCOLOR® Reagent case with PF-12^{Plus}	914351	450 x 360 x 140 mm					■
NANOCOLOR® Reagent case with PF-3 COD	919212	534 x 427 x 207 mm	■	■	■	■	
NANOCOLOR® Reagent case with PF-12^{Plus}	919214	534 x 427 x 207 mm	■	■	■	■	

Reagent cases for individual solutions

VISOCOLOR® ECO	VISOCOLOR® HE	pH-Fix	PEHANON®	Indicator papers	Duotest and Tritest	QUANTOFIX®	AQUADUR®	Qualitative test papers	Thermometer	Oxygen bottle	Pipettes	Reagent case
		■		■	■	■	■	■				Test paper analysis case
■									■	■		*VISOCOLOR® ECO* Reagent case
■	■	■	■	■	■	■	■	■	■	■		*VISOCOLOR®* Reagent case
■												*VISOCOLOR®* Reagent case with PF-3 Pool
■												*VISOCOLOR®* Reagent case with PF-3 Drinking Water
■												*VISOCOLOR®* Reagent case with PF-3 Soil
■												*VISOCOLOR®* Reagent case with PF-3 Fish
■	■	■	■	■	■	■	■	■	■	■		*VISOCOLOR®* Reagent case with PF-12^{Plus}
											■	*NANOCOLOR®* Reagent case with PF-3 COD
											■	*NANOCOLOR®* Reagent case with PF-12^{Plus}

Accessories for reagent cases

The complete analysis from one source

The MACHEREY-NAGEL reagent cases are perfectly suited for mobile analysis. With our wide range of accessories they can be refilled quickly and easily.

Good to know

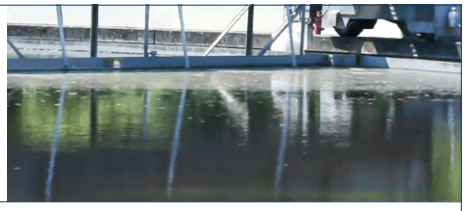
For general accessories for the *VISOCOLOR*® reagent cases see page 84

Ordering information

Description	REF	Content	GHS
Accessories for Reagent case *VISOCOLOR*® School			
VISOCOLOR® School refill pack	933200	1 piece	
VISOCOLOR® School color scale	933300	1 piece	
VISOCOLOR® School manual	933150	1 piece	
Accessories for Reagent case *VISOCOLOR*® Fish			
VISOCOLOR® Fish refill pack	933201	1 piece	
VISOCOLOR® Fish color scale	933301	1 piece	
VISOCOLOR® Fish manual for reagent case *VISOCOLOR*® Fish	933151	1 piece	
VISOCOLOR® Fish manual for reagent case *VISOCOLOR*® Fish with PF-3 Fish	933161	1 piece	
Accessories for *VISOCOLOR*® Reagent cases for soil analysis			
100 mL $CaCl_2$ stock solution	914612	3 pieces	■
100 mL CAL stock solution	914614	4 pieces	
Reagent set *VISOCOLOR*® *HE* Phosphorus in soil	920183	1 piece	■
Color chart *VISOCOLOR*® *HE* Phosphorus in soil	920383	1 piece	
30 mL pyrophosphate solution	914611	3 pieces	
Folded filters MN 616 1/4, 18.5 cm Ø	532018	100 pieces	
Soil sieve (2 mm mesh size)	914650	1 piece	
Plastic bottle 500 mL with spraying attachment	91689	1 piece	
Balance 250 g	914651	1 piece	
Sample beaker 250 mL	914652	5 pieces	
Wide neck bottles 500 mL for soil samples	914653	5 pieces	
Shaking bottle 300 mL	914654	5 pieces	
Measuring cylinder 100 mL with base	914655	2 pieces	
Plastic scoop	914656	1 piece	
Funnel 80 mm Ø, plastic	914657	3 pieces	
Sedimentation tubes with screw caps	914659	2 pieces	
Syringe 10 mL with tube	914660	1 piece	
Manual for *VISOCOLOR*® Reagent cases for soils analysis	914602	1 piece	
Thermometer -10 °C to +60 °C	914497	1 piece	

GHS: Global harmonized system: This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see the SDS.

NANOCOLOR® Reagent case
Mobile analysis for sewage plants



Mobile photometric analysis

- Compact photometer PF-12*Plus* for flexible analysis
- Heating block *NANOCOLOR*® *VARIO C2* for fast sample digestions
- Highest transport safety due to robust case
- Tube tests for precise results

Water Analysis

KATEN100003 Rapid Tests en16/3/0/06.2021 PD · Printed in Germany

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MACHEREY-NAGEL

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