

MACHEREY-NAGEL

Compact photometer PF-3

Water Analysis



The smart solution for special applications

- Intuitive menu guidance
- USB connection and free software
- Add new tests anytime for free
- Lightweight and robust



MACHEREY-NAGEL

www.mn-net.com



Compact photometer PF-3

Addition to the MN family

The compact photometer PF-3 is the smallest member of the MACHEREY-NAGEL photometer family and perfectly fits our tradition of reliability, user friendliness and innovation.

The following diagram highlights the available versions and respective parameters.



The PF-3 is equipped with three LEDs emitting three different wavelengths, which are independent for each version. These versions are designed to meet the analysis requirements of specific applications. Currently, we can provide five distinct PF-3 versions for pool, drinking water, soil, COD analysis and fishing waters. Each version can analyze a particular set of parameters, which are vital to analyze in the respective area of application. All versions come in three different options including a box with the photometer, a rugged case with photometer and accessories, or a case with pre-packed reagents.



Compact photometer PF-3

Test platforms for the PF-3

The PF-3 can handle both our convenient *NANOCOLOR*® tube tests, as well as the economical *VISOCOLOR*® test kits.

Combining both platforms within, the instrument provides maximum flexibility and allows customers to address their individual analysis needs.

NANOCOLOR® tube tests

Our barcoded tube tests are made of premium glass ware with an extra wide 16 mm tube opening. The accurately pre-dosed reagents cover the range of a wide variety of water and waste water parameters. The reaction methods are based on international standards (EPA, APHA, ISO, ...) and provide a large portfolio with multiple measuring ranges, that can be run on all our photometers.

- Quick and easy measurements
- Convenient handling
- Highest accuracy and safety
- Precise and reliable results
- Convenient work flow



VISOCOLOR® ECO test kits

Our *VISOCOLOR*® ECO test kits come as colorimetric or titrimetric tests and provide the basic range of water analysis tests in our portfolio. These high quality tests are packed with all necessary reagents as well as premium color charts in only one box for easy ordering. Fast dissolving reagents and the easy dosage save time and allow easy working procedures. Most colorimetric kits can be read photometrically on our compact photometers PF-12^{Plus} and PF-3.

- Outstanding cost-value ratio
- Time saving
- Effortless operations
- Quick measurements
- Accurate and reliable visual determination



Additional tests and versions will be launched successively.

You can see all your current options at www.mn-net.com/PF-3.



Compact photometer PF-3

Customer benefits at a glance

The PF-3 is designed with the customer in mind, providing a reliable and rugged solution for water analysis right at the point of interest. While being a tough compact photometer, the PF-3 is nevertheless packed to the brim with clever technical details, making it the most advanced instrument in its class.

At the core of the PF-3 are premium high precision optics with especially selected LEDs and first-rate interference filters. Additionally, the PF-3 impresses with intuitive handling, a fully developed menu structure, as well as various power supply options and free of charge software

Good to know

Versatile reagent case solutions for the PF-3 allow individual combination with test kits.



Small and compact

- Handy and easy to carry
- Light and mobile
- Compact dimensions

Ideal for all your analysis needs in the lab and in the field



Easy and convenient

- Intuitive operation using just 4 buttons
- Fully developed menu structure
- Bright display
- Open cuvette slot

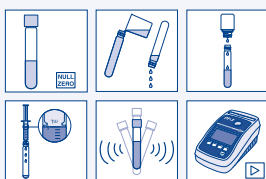
Convenient operation without the need for time consuming training



Strong and tough

- Glass-fiber reinforced housing
- Water proof according to IP 68
- Shock-resistant optics

Safe results even under the most difficult conditions



Comfortable and fast

- Intuitive instructions with pictograms
- Color-coded reagent bottles with clear dosing instructions
- Fast-dissolving reagents save time
- Maximum safety for the user and easy disposal

Convenient handling for quick analysis

Compact photometer PF-3



Safe and flexible

- Runs on standard or rechargeable batteries
- Power supply via USB port
- Optional internal accu-pack chargeable via USB

Consistent and safe workflow



Individual and adaptive

- Various case solutions including reagents
- Rugged cases with premium foam inlays
- Flexible case content for multiple applications

Convenient operation with the perfect case for your need



Smart and clever

- Evaluation of both VISOCOLOR® ECO and NANOCOLOR® tube tests
- Results in different units
- Optional storage for just one zero-measurement
- Data transfer via USB

High measurement safety and easy data administration



Fair and economical

- Free of charge data export software
- Add new tests and parameters anytime
- Cost efficient photometer and reagent bundles
- Create customized methods for individual user

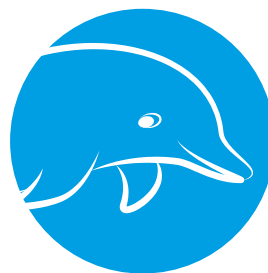
Consistently fair concept with impressive price-performance ratio

Compact photometer PF-3

For swimming pools

Swimming pools are important areas of recreation and relaxation. To constantly provide highest water quality and a safe user environment, the water within swimming pools has to be treated, conditioned and closely monitored. For reliable and easy water analysis for swimming pools, the PF-3 is the perfect tool.

The built-in LEDs allow quality control personnel to analyze the classic swimming pool parameters chlorine, pH, cyanuric acid and total alkalinity, as well as a selection of additional parameters, thus providing fundamental and vital information on pool water quality. The PF-3 and *VISOCOLOR® ECO* tests combine convenient handling for reliable test procedures and results as well as safe handling for convenient and efficient daily pool water analysis.



Tests suitable for the PF-3 Pool

Tests	Measurement range	Test number	No. of tests	REF
<i>VISOCOLOR® ECO</i> tests				
■ Alkalinity TA	5–250 mg/L CaCO ₃	5-04	100	931 204
■ Bromine	0.10–13.00 mg/L Br ₂	5-11	200	931 211
■ Chlorine 1, free, total and combined	0.05–2.00 mg/L Cl ₂	5-35	150	931 235
■ Chlorine 2, free, total and combined*	0.05–2.00 mg/L Cl ₂	5-15	150	931 215
■ free Chlorine 2*	0.05–2.00 mg/L Cl ₂	5-16	150	931 216
■ Chlorine 6, free, total and combined	0.05–6.00 mg/L Cl ₂	5-17	200	931 217
■ free Chlorine 6	0.05–6.00 mg/L Cl ₂	5-19	400	931 219
■ Chlorine dioxide*	0.10–3.80 mg/L ClO ₂	5-21	150	931 221
■ Cyanuric acid *	10–100 mg/L Cya	5-23	100	931 223
■ Fluoride*	0.1–2.0 mg/L F ⁻	5-27	150	931 227
■ Iron 1*	0.04–2.00 mg/L Fe	5-25	150	931 225
■ Iron 2	0.04–2.00 mg/L Fe	5-26	150	931 226
■ pH 6.0–8.2	6.10–8.40	5-70	150	931 270
■ Silica HR 200*	10–200 mg/L SiO ₂	5-34	100	931 234
<i>NANOCOLOR®</i> tests				
■ Chlorine / Ozone	0.05–2.50 mg/L Cl ₂ / 0.05–2.00 mg/L O ₃	0-17	20	985 017
■ pH 6.5–8.2	6.10–8.40	0-72	100	918 72



Ordering information

Description	REF
Compact photometer PF-3 Pool, in a cardboard box, incl. manual, batteries and certificate	919 340
Compact photometer PF-3 Pool, in a case with foam inlay, incl. manual, batteries and certificate	934 102
Reagent case with photometer PF-3 Pool, with <i>VISOCOLOR® ECO</i> reagents* chlorine 2 (liquid) free and total, pH 6.0–8.2, cyanuric acid, alkalinity TA	934 118
Reagent case with photometer PF-3 Pool, with <i>VISOCOLOR® ECO</i> reagents* chlorine 6 (solid) free and total, pH 6.0–8.2, cyanuric acid, alkalinity TA	934 119

* This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.

Compact photometer PF-3

For drinking water

Drinking water is the most important foodstuff and cannot be replaced. Hence, it has to be wholesome and free of impurities that may adversely affect human health. Continuous water analysis is therefore the fundament for a sustainable and reliable drinking water supply.

The compact photometer PF-3 in combination with the proven *VISOCOLOR® ECO* tests allows a quick and easy way of monitoring and checking the most important drinking water parameters (chlorine, chlorine dioxide, pH, fluoride and iron) for all water suppliers and industrial users during drinking water treatment.



Tests suitable for the PF-3 Drinking Water

Tests	Measurement range	Test number	No. of tests	REF
<i>VISOCOLOR® ECO tests</i>				
■ Alkalinity TA	5–250 mg/L CaCO ₃	5-04	100	931 204
■ Bromine	0.10–13.00 mg/L Br ₂	5-11	200	931 211
■ Chlorine 1, free, total and combined	0.05–2.00 mg/L Cl ₂	5-35	150	931 235
■ Chlorine 2, free, total and combined*	0.05–2.00 mg/L Cl ₂	5-15	150	931 215
■ free Chlorine 2*	0.05–2.00 mg/L Cl ₂	5-16	150	931 216
■ Chlorine 6, free, total and combined	0.05–6.00 mg/L Cl ₂	5-17	200	931 217
■ free Chlorine 6	0.05–6.00 mg/L Cl ₂	5-19	400	931 219
■ Chlorine dioxide*	0.10–3.80 mg/L ClO ₂	5-21	150	931 221
■ Cyanuric acid *	10–100 mg/L Cya	5-23	100	931 223
■ Fluoride*	0.1–2.0 mg/L F ⁻	5-27	150	931 227
■ Iron 1*	0.04–2.00 mg/L Fe	5-25	150	931 225
■ Iron 2	0.04–2.00 mg/L Fe	5-26	150	931 226
■ pH 6.0–8.2	6.10–8.40	5-70	150	931 270
■ Silica HR 200*	10–200 mg/L SiO ₂	5-34	100	931 234
<i>NANOCOLOR® tests</i>				
■ Chlorine / Ozone	0.05–2.50 mg/L Cl ₂ / 0.05–2.00 mg/L O ₃	0-17	20	985 017
■ pH 6.5–8.2	6.10–8.40	0-72	100	918 72



Ordering information

Description	REF
Compact photometer PF-3 Drinking Water, in a cardboard box, incl. manual, batteries and certificate	919 343
Compact photometer PF-3 Drinking Water, in a case with foam inlay, incl. manual, batteries and certificate	934 402
Reagent case with photometer PF-3 Drinking Water, with <i>VISOCOLOR® ECO</i> reagents* chlorine 2 (liquid), free and total, pH 6.0–8.2, fluoride, iron 2, chlorine dioxide	934 124
Reagent case with photometer PF-3 Drinking Water, with <i>VISOCOLOR® ECO</i> reagents* chlorine 6 (solid), free and total, pH 6.0–8.2, fluoride, iron 2, chlorine dioxide	934 125

* These products contain harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.

Compact photometer PF-3

For soil analysis

Monitoring and reliable analysis is a corner stone in supporting and maintaining 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 (nitrate, phosphate, potassium and ammonium). The PF-3 Soil in combination with the proven *VISOCOLOR® ECO* and *NANOCOLOR®* tests are ideally suited for mobile analysis of the soil quality right at the point of interest.



Tests suitable for the PF-3 Soil

Tests	Measurement range	Test number	No. of tests	REF
<i>VISOCOLOR® ECO</i> tests				
■ Ammonium 3*	0.2–4.0 mg/kg NH ₄ -N	5-08	50	931 208
■ Potassium*	40–300 mg/kg K ⁺	5-32	60	931 232
■ Nitrate	2–28 mg/kg NO ₃ -N	5-41	110	931 241
■ Phosphate*	20–500 mg/kg PO ₄ -P	5-84	80	931 284
<i>NANOCOLOR®</i> tests				
■ Ammonium 3*	0.08–4.60 mg/kg NH ₄ -N	0-03	20	985 003
■ Ammonium 10*	0.4–16.0 mg/kg NH ₄ -N	0-04	20	985 004
■ Ammonium 50*	2.0–80.0 mg/kg NH ₄ -N	0-05	20	985 005
■ Potassium 50*	40–1000 mg/kg K ⁺	0-45	20	985 045
■ Nitrate 50*	1–44 mg/kg NO ₃ -N	0-64	20	985 064
■ Phosphate 5*	4–100 mg/kg PO ₄ -P	0-81	20	985 081
■ Phosphate 15*	6–300 mg/kg PO ₄ -P	0-80	20	985 080



Ordering information

Description	REF
Compact photometer PF-3 Soil, in a cardboard box, incl. manual, batteries and certificate	919 341
Compact photometer PF-3 Pool, in a case with foam inlay, incl. manual, batteries and certificate	934 202
Reagent case with photometer PF-3 Soil, with <i>VISOCOLOR® ECO</i> reagents* nitrate, potassium, ammonium 3, phosphate	934 210
Reagent case for soil analysis with photometer PF-3 Soil, incl. reagents and accessories for sample preparation*	934 220

* This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.

Compact photometer PF-3

For fishing waters

A regular water monitoring is the precondition for a healthy and productive living space for fishes. To avoid deficits and fish mortality, it is important to determine all relevant parameters and react promptly.

With its three wavelengths, the compact photometer PF-3 Fish is perfectly suited for the analysis of fishing waters. Together with the proven *VISOCOLOR® ECO* and *NANOCOLOR®* tests, the PF-3 Fish is the perfect tool for a fast and reliable statement on the water quality.



Tests suitable for the PF-3 Fish

Tests	Measurement range	Test number	No. of tests	REF
<i>VISOCOLOR® ECO tests</i>				
■ Ammonium 3*	0.1–2.0 mg/L NH ₄ -N	5-08	50	931 208
■ Chlorine 6 free, total and combined	0.05–6.00 mg/L Cl ₂	5-17	200	931 217
■ Iron 1*	0.04–2.00 mg/L Fe	5-25	150	931 225
■ Iron 2	0.04–2.00 mg/L Fe	5-26	150	931 226
■ Silica*	0.2–3.0 mg/L SiO ₂	5-33	80	931 233
■ Copper	0.1–5.0 mg/L Cu ²⁺	5-37	100	931 237
■ Nitrate	1.0–14.0 mg/L NO ₃ -N	5-41	110	931 241
■ Nitrite	0.01–0.15 mg/L NO ₂ -N	5-44	120	931 244
■ pH 6.0-8.2	6.10–8.40 pH	5-70	150	931 270
■ Phosphate*	0.2–5.0 mg/L PO ₄ -P	5-84	80	931 284
■ Oxygen*	1–8 mg/L O ₂	5-88	50	931 288
<i>NANOCOLOR® tests</i>				
■ Ammonium 3*	0.04–2.30 mg/L NH ₄ -N	0-03	20	985 003



Ordering information

Description	REF
Compact photometer PF-3 Fish, in a cardboard box, incl. manual, batteries and certificate	919 345
Compact photometer PF-3 Fish, in a case with foam inlay, incl. manual, batteries and certificate	934 602
Reagent case with compact photometer PF-3 Fish, incl. <i>VISOCOLOR® ECO</i> reagents, <i>VISOCOLOR® HE</i> reagents, <i>QUANTOFIX®</i> test strips and manual, batteries, certificate and accessories*	934 127

* These products contain harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS

Compact photometer PF-3

For COD analysis

COD levels play a major role in assessing communal and industrial waste water. As a sum parameter indicating the organic load of waste water, COD is one of the most important parameters in waste water analysis. Among others, COD values are used to calculate and monitor the purification capacities of waste water plants. The PF-3 COD together with the user friendly *NANOCOLOR*[®] tests is ideally suited to obtain information on the COD content (2–60000 mg/L) easily and directly at the place of sampling.



Tests suitable for the PF-3 COD

Tests		Measurement range	Test number	No. of tests	REF
<i>NANOCOLOR</i> [®] test					
■ COD 40*	ISO 15705	2–40 mg/L O ₂	0–27	20	985 027
■ COD 60*	ISO 15705	5–60 mg/L O ₂	0–22	20	985 022
■ COD 160*	ISO 15705	15–160 mg/L O ₂	0–26	20	985 026
■ COD 600*	ISO 15705	50–600 mg/L O ₂	0–30	20	985 030
■ COD 1500*	ISO 15705	100–1500 mg/L O ₂	0–29	20	985 029
■ COD LR 150*	ISO 15705	3–150 mg/L O ₂	0–36	20	985 036
■ COD HR 1500*	ISO 15705	20–1500 mg/L O ₂	0–38	20	985038
■ COD 4000*		400–4000 mg/L O ₂	0–11	20	985 011
■ COD 10000*		1.00–10.00 g/L O ₂	0–23	20	985 023
■ COD 15000*		1.0–15.0 g/L O ₂	0–28	20	985 028
■ COD 60000*		5.0–60.0 g/L O ₂	0–12	20	985 012

* These products contain harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.



Ordering information

Description	REF
Compact photometer PF-3 COD, in a box, incl. manual, batteries and certificate	919 342
Compact photometer PF-3 COD, in a case with foam inlay, incl. manual, batteries and certificate	934 302
<i>NANOCOLOR</i> [®] analysis case with compact photometer PF-3 COD, with additional space for 1 heating block <i>NANOCOLOR</i> [®] VARIO C2, 2 pipettes, 3 <i>NANOCOLOR</i> [®] tube tests and accessories	919 212

Compact photometer PF-3

VISOCOLOR® ECO and NANOCOLOR® tests suitable for the PF-3

VISOCOLOR® ECO tests	Measurement range	Test number	Version	No. of tests	REF
Alkalinity TA	5–250 mg/L CaCO ₃	5-04	 	100	931 204
Ammonium 3*	0.1–2.5 mg/L NH ₄ ⁺ ¹⁾	5-08	 	50	931 208
Bromine	0.10–13.00 mg/L Br ₂	5-11	 	200	931 211
Chlorine 1, free, total and combined	0.05–2.00 mg/L Cl ₂	5-35	 	150	931 235
Chlorine 2, free, total and combined*	0.05–2.00 mg/L Cl ₂	5-15	 	150	931 215
free Chlorine 2*	0.05–2.00 mg/L Cl ₂	5-16	 		931 216
Chlorine 6, free, total and combined	0.05–6.00 mg/L Cl ₂	5-17	  	200	913 217
free Chlorine 6	0.05–6.00 mg/L Cl ₂	5-19	 	400	931 219
Chlorine dioxide*	0.10–3.80 mg/L ClO ₂	5-21	 	150	931 221
Copper	0.1–5.0 mg/L Cu ²⁺	5-37		100	931 237
Cyanuric acid*	10–100 mg/L Cya	5-23	 	100	931 223
Fluoride*	0.1–2.0 mg/L F ⁻	5-27	 	150	931 227
Iron 1*	0.04–2.00 mg/L Fe	5-25	  	150	931 225
Iron 2	0.04–2.00 mg/L Fe	5-26	  	150	931 226
Nitrate	1.0–14.0 mg/L NO ₃ -N ¹⁾	5-41		100	931 241
Nitrite	0.01–0.15 mg/L NO ₂ -N	5-44		120	931 244
Oxygen*	1–8 mg/L O ₂	5-88		50	931 288
pH 6.0–8.2	6.10–8.40	5-70	 	150	931 270
Phosphate*	0.2–5.0 mg/L PO ₄ -P ¹⁾	5-84	 	80	931 284
Potassium*	2–15 mg/L K ⁺ ¹⁾	5-32		60	931 232
Silica*	0.2–3.0 mg/L SiO ₂	5-33		80	931 233
Silica HR 200*	10–200 mg/L SiO ₂	5-34	 	100	931 234
NANOCOLOR® tests					
Ammonium 3*	0.05–3.00 mg/L NH ₄ ⁺ ¹⁾	0-03	 	20	985 003
Ammonium 10*	0.20–10.0 mg/L NH ₄ ⁺ ¹⁾	0-04		20	985 004
Ammonium 50*	1.0–50.0 mg/L NH ₄ ⁺ ¹⁾	0-05		20	985 005
Chlorine / Ozone	0.05–2.50 mg/L Cl ₂ / 0.05–2.00 mg/L O ₃	0-17	 	20	985 017
COD 40*	ISO 15705 2–40 mg/L O ₂	0-27		20	985 027
COD 60*	ISO 15705 5–60 mg/L O ₂	0-22		20	985 022
COD 160*	ISO 15705 15–160 mg/L O ₂	0-26		20	985 026
COD 600*	ISO 15705 50–600 mg/L O ₂	0-30		20	985 030
COD 1500*	ISO 15705 100–1500 mg/L O ₂	0-29		20	985 029
COD LR 150*	ISO 15705 3–150 mg/L O ₂	0-36		20	985 036
COD HR 1500*	ISO 15705 20–1500 mg/L O ₂	0-38		20	985038
COD 4000*	400–4000 mg/L O ₂	0-11		20	985 011
COD 10000*	1.00–10.00 g/L O ₂	0-23		20	985 023
COD 15000*	1.0–15.0 g/L O ₂	0-28		20	985 028
COD 60000*	5.0–60.0 g/L O ₂	0-12		20	985 012
Nitrate 50*	0.3–22.0 mg/L NO ₃ -N ¹⁾	0-64		20	985 064
pH 6.5–8.2	6.10–8.40	0-72	 	100	918 72
ortho and total Phosphate 5*	0.20–5.00 mg/L PO ₄ -P ¹⁾	0-81		20	985 081
ortho and total Phosphate 15*	0.30–15.00 mg/L PO ₄ -P ¹⁾	0-80		20	985 080
Potassium 50*	2–50 mg/L K ⁺ ¹⁾	0-45		20	985 045

* This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.

¹⁾ For soil specific measurement ranges please refer to page 8 of the selection guide or www.mn-net.com/PF-3.

Additional tests and versions will be launched successively.

You can find all your current options at www.mn-net.com/PF-3.

Compact photometer 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 quick 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
Measuring modes	NANOCOLOR® tube tests and VISOCOLOR® ECO tests
Cuvette slot	Tubes 16 mm OD
Memory	50 results
Display	Backlit graphic display, 128 x 64 pix, all important data at a glance: result with unit, date, time
Operation	Self-explanatory menu guidance, plastic 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 IP68
Dimensions	170 mm x 95 mm x 68 mm
Weight	0.5 kg
Warranty	2 years
CE	CE-certified



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