

pHotoFlex®: The “real” multi-parameter photometer for mobile applications

The pHotoFlex® Series offers the unique combination of photometrics, pH, ORP and turbidity measurements. It combines precision with low energy needs due to the use of optical filters in combination with LEDs for six wavelengths.

The electrochemical pH/ORP measurement and the turbidity measurement are integrated in the pHotoFlex® pH and pHotoFlex® Turb. This makes them the perfect companion for all on-site measurements: in treatment plants for wastewater and reference measurements, in drinking water analysis at wellheads or in cisterns, and last but not least for general water monitoring.

pHotoFlex® field case set - the outdoor lab



pHotoFlex® instruments are handy, energy-efficient, and also offer many extras:

- Clever adapter solution for different cuvette types: \varnothing 28 mm and 16 mm, lengths from 92 to 104 mm
- User guidance for simple operation, even without the manual
- Large test selection and large measurement ranges
- Storage with sample identification

- Integrated pH function with pHotoFlex® pH
- Turbidity measurement as per DIN 27027 / ISO 7027 and pH measurement with pHotoFlex® Turb
- Custom methods via the LSdata PC software
- Quick selection of the ten most common test kits from a favorites list
- Case sets with integrated “laboratory table” for comfortable on-site work (see page 146)
- Easy work via barcode: Barcodes are contained in the analysis requirements. Simply hang barcode lists up in the workplace and select them via LabStation test with the barcode scanner

2 year guarantee

IP67

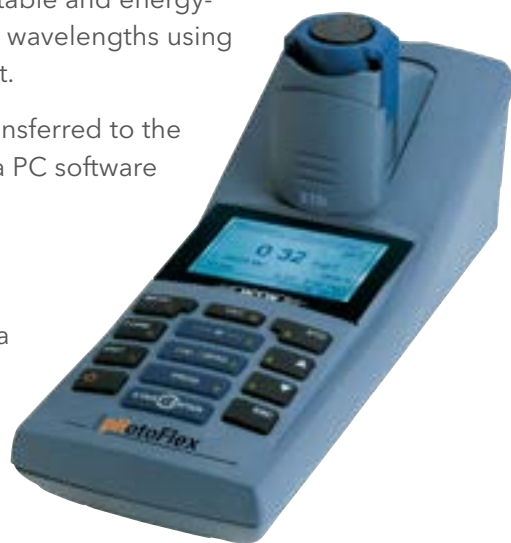


pHotoFlex® STD - portable photometer for on-site water analysis and routine measurement

The portable pHotoFlex® STD makes taking on-site photometric measurements for water analysis and other routine measurements simple, comfortable and energy-efficient. The basic model from the pHotoFlex® Series offers six wavelengths using LEDs, with approx. 3000 measurements possible per battery set.

100 pieces of measurement data can be stored, filtered and transferred to the PC or easily managed and processed using the optional LSdata PC software in a GLP-compliant way.

The pHotoFlex® STD is even easier to use in the laboratory in connection with a LabStation: mains operation and the use of a barcode reader is then possible. The LabStation also serves as a charging station for the rechargeable battery delivered along with it.



pHotoFlex® STD

- **Pure photometry**
- **Intuitive and easy to operate**
- **More than 180 methods**



pHotoFlex® pH – Portable photometer with pH measurement function



with pH measurement chain SenTix® 41

The pHotoFlex® pH portable photometer shows its strength in more complex tasks in multi-site environmental and process applications.

Integrated pH function

The integrated pH function facilitates measurements from pH 0-16 with automatic buffer recognition (TEC/NIST). The temperature compensation takes place automatically in the reliable measurement range of -5 ... 100 °C. The MultiCal® Routine facilitates automatic calibration with up to three calibration points.

- **Integrated pH and ORP measurement**
- **Automatic temperature compensation**
- **CO₂ and NH₃ determination**

pHotoFlex® Turb – the real multi-parameter photometer

pHotoFlex® Turb is the real multi-parameter photometer with pH, ORP, and turbidity measurement all-in-one instrument. It corresponds to the pHotoFlex® pH and also has an infrared light source (IR) for nephelometric turbidity measurement (90°) per DIN 27027/ISO 7027. The precision is equivalent to a laboratory turbidity meter. In combination with the AMCO Clear® Standards, the highest possible precision is also provided for the sensitive drinking water sector. As a result users with high AQA requirements can also carry out in-the-field water analysis at on-site cisterns or wells.

The calibration of the AMCO Clear® Standards delivered can be documented and – in addition to the measurement values – displayed via a RS 232 interface.



pHotoFlex® Turb

- **Turbidity measurement as per DIN 27027 / ISO 7027**
- **Measurement range 0-1100 NTU/FNU**
- **On-site quality control (QC)**

Sets in a portable case – secure on-site work!

The mini-laboratory with integrated "laboratory table" has compartments for the measurement instrument, cuvettes, measuring beakers, and a stand for the pH electrode.

Complete sets with:

- pH electrode SenTix® 41
- Calibration standard (pHotoFlex® Turb)
- LSdata for easy data management and method establishment
- Lots of useful accessories: Empty cuvettes, buffer solutions with pH 4.01 and 7.00, AK Laboratory 540 PC cable, stand for the pH electrode, cleaning cloths, screwdriver
- Optionally available with variably adjustable 5 ml pipette no. 250 546 (pHotoFlex® pH/Turb) or segmented syringes (pHotoFlex® STD)

- **The laboratory for enroute**
- **Integrated "laboratory table"**
- **Data management**



Mobile laboratory

LabStation and LSdata – The smart way to manage your measurement data!

With the portable pHotoFlex® pH photometers and the Turb® 430 turbidity meters, the LabStation provides the ideal laboratory solution. With the LSdata PC software the measurement data recorded can be easily processed on the PC. It is included in the LabStation and case set delivery package. LSdata is also available as an individual package. The LabStation also serves as a charging station for the included rechargeable battery set.

- GLP-compliant data export from the measurement instrument to the PC with user recognition
- Processing in *.XLS format, for, for example, the clear documentation of the respective individual sampling locations
- Custom methods can be created, managed and synchronized between PC and measurement instrument via a user-friendly dialog window.
- The calculation of the calibration curve for custom methods



Even more tests:

For field use, alongside lot-certified reagents, there are also simple powder tests for when you're on the go. pHotoFlex® offers the option to adjust the incline of calibration curves.

You can find the complete reagent program from page 150.



Technical data: pHotoFlex® portable photometers

Model	pHotoFlex® STD	pHotoFlex® pH	pHotoFlex® Turb
Light source	LED	LED	LED
Wavelengths nm	436, 517, 557, 594, 610, 690	436, 517, 557, 594, 610, 690	436, 517, 557, 594, 610, 690 + 860
Custom methods	50	100	100
Methods/software update	Via the Internet	Via the Internet	Via the Internet
Data memory	100 measurements	1000 measurements	1000 measurements
pH	–	0-16	0-16
Turbidity	–	–	0-1100 NTU/FNU
Precision	Photometry	Photometry	Photometry
	pH	pH	pH
	Turbidity (NTU/FNU)	Turbidity (NTU/FNU)	Turbidity (NTU/FNU)
Calibration:	pH/turbidity	pH/turbidity	pH/turbidity
Interface	RS 232, USB via adapter (optional)	RS 232, USB via adapter (optional)	RS 232, USB via adapter (optional)
Measurement type	Photometry	Photometry, pH, ORP	Photometry, pH, ORP, turbidity
Battery	4 Mignon (AA), over 3000 measurements	4 Mignon (AA), over 3000 measurements	4 Mignon (AA), over 3000 measurements
Rechargeable battery	Optional: LabStation	Optional: battery or Lab station	Optional: battery or Lab station
Test mark	cETLus	cETLus	cETLus
Guarantee	2 years	2 years	2 years

Order info: pHotoFlex® portable photometers and accessories

Model	Description	Order No.
pHotoFlex® STD	Portable photometer	251105
pHotoFlex® pH	Portable photometer with pH measurement	251100
pHotoFlex® Turb	Portable photometer with pH and turbidity measurement as per DIN 27027/ISO 7027	251110
pHotoFlex® pH/SET	Portable, universal LED filter photometer in field case with table insert, LSdata and accessories	251200
pHotoFlex® Turb/SET	Portable, universal LED filter photometer with pH and turbidity measurement in field case with table insert, calibration kit, LSdata and accessories	251210
LSdata	PC software for pHotoFlex®/Turb® 430 Series	902762
FC pHotoFlex®/Turb® 430	Field case and table insert for all pHotoFlex® and Turb® 430 models	251304
LS Flex/430	LabStation for all pHotoFlex® and Turb® 430 models with LSdata software, rechargeable battery and universal power supply	251301
RB Flex/430	Rechargeable battery for pHotoFlex® pH/Turb and Turb® 430 IR/T with universal power plug	251300

For further accessories & cables see price list or www.WTW.com

Thermoreactors for COD and all other thermal digestions

Thermoreactors are required for the determination of COD, total nitrogen or total phosphorous as well as electroplating. Due to the high reaction temperature over a defined time, the complete digestion of the sample is guaranteed. There are also three crack sets available for the sample digestion: Crack Set 10 (Model 14687, 100 digestions) and Crack Set 10-C (Model 14688, 25 cuvettes) for heavy metals, as well as Crack Set 20 for total nitrogen (Model 14963, 90 determinations).

The most important temperatures and digestion times are stored in the programs in each of the WTW Thermoreactors: there are eight easily selectable programs available. In addition, thermoreactors CR 3200 and CR 4200 also offer, alongside the eight set programs, the option of storing a further eight custom programs. The bores are suitable for cuvettes with an outer diameter of 16 mm.

CR 2200

If you have to carry out routine tasks in water analysis with smaller sample amounts, the CR 2200 is perfect for you: 12 sample cuvettes can be unlocked here with 8 programs at 100, 120, 148 and 150 °C.



CR 3200

The CR 3200 has 2x12 cuvette slots, all of which can be opened with the same program. The CR 3200 also allows for eight custom programs with free selection of temperature up to 170 °C.



CR 4200

If you need to carry out several measurements at the same time, the CR 4200 is the right choice: using the two separately controlled thermo blocks for each 12 cuvettes, here, for example, you can carry out measurements for COD (148 °C) and total-N (120 °C) at the same time. 8 user-defined programs up to 170 °C are also possible.



TFK CR Temperature Probe for quality assurance

The external TFK CR Temperature Probe (order no. 250100) is available as test equipment for the CR 3200 and CR 4200 models. The temperature probe can be inserted into the thermo reactor instead of a sample and provides the target and actual values determined either via a printer or via the PC.

It is therefore possible to monitor the digestion temperature and document it.



Quick digestion for COD

There are various programs in accordance with international standards for the COD digestion. Due to many user requests, a quick digestion is also available for 20 minutes at 148 °C, as this time period has been proven to be sufficient in practice in communal wastewater operations.

All devices have relevant timer functions. There will be a display on all thermoreactors when the reaction temperature is reached.

Safety measures

All thermoreactors have optimal heat transfer between the heat block and cuvette, and have a high level of safety. An integrated safety cover provides protection in the case of a potential cuvette break. On the heat block surface, a cover prevents the heat block being touched.

Application scopes and technical data: Thermoreactors

Application scope	CR 2200	CR 3200	CR 4200
Routine measurements	●	●	●
Wastewater	●	●	●
Specialist tasks in wastewater	–	●	●
Different programs in parallel	–	–	●
Number of samples, max.	1 x 12	2 x 12, same program	2 x 12, different programs
8 saved programs incl. COD quick digestion	100 °C 30 min, 60 min 120 °C with 30 min, 60 min, 120 min, 148 °C 120 min, 20 min, 150 °C 120 min	100 °C 30 min, 60 min 120 °C with 30 min, 60 min, 120 min, 148 °C 120 min, 20 min, 150 °C 120 min	100 °C 30 min, 60 min 120 °C with 30 min, 60 min, 120 min, 148 °C 120 min, 20 min, 150 °C 120 min
Custom programs	–	8 freely selectable 25–170 °C	8 freely selectable 25–170 °C
Control accuracy	±1 °C ±1 digit		
Protection class	I (as per DIN VDE 0700 Part 1/11.90)		
Device safety	EN 61010, UL 3101, CAN/CSA C22.2-1010; EN 61010-2-010, IEC-CAN/CSA C22.2-1010.2.010		
Dimensions	B: 256 mm H: 185 mm (closed) 290 mm (open) D: 315 mm		

Order information: Thermoreactors

Model	Description	Order No.
CR 2200	Reactor (230 VAC with Euro plug*) for COD and other chemical developments Suitable for the reception of 2x12 reaction cuvettes	1P21-1
CR 3200	Universal reactor (230 VAC with Euro plug*) for COD and other chemical developments Suitable for the reception of 2x12 reaction cuvettes	1P22-1
CR 4200	Universal reactor (230 VAC with Euro plug*) for COD and other chemical developments Suitable for the reception of 2x12 reaction cuvettes Two separately controllable heat zones.	1P23-1
For accessories & cables, see price list or www.WTW.com		

*) other power plugs available

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