Compliance by Design:
The High-Performing
Polarimeter Series

Measure.
Comply.
Perform.

Working in highly regulated industries comes with certain expectations. Passing audits is a must. Even small issues require time-intensive follow-up. Big ones are business-critical. Either way, that's extra stress and costs.

That's where the high-performing, automated MCP polarimeter series comes in. It eliminates errors before they can even occur, bringing you maximum efficiency and reduced costs. Accuracy up to <±0.0020° OR. Zero errors. Full compliance. Results in seconds.

WELCOME TO THE MCP SERIES.

MEASURE	COMPLY	PERFORM

Powerful features for top measurement accuracy

- FillingCheck™ camera lets you catch filling errors, contaminations, and sample abnormalities before they cause a measurement error.
- Worldwide fastest and most precise Peltier temperature control in a polarimeter reduces cycle time between measurements.
- Up to eight different wavelengths (365 nm to 880 nm) that can be added during purchase or retrofitted on-site. This makes the MCP ready for today and fit for upcoming tasks.

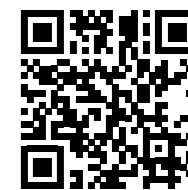## Fully compliant with all pharma regulations

- Qualify your instrument 3x quicker with our Pharma Qualification Package (PQP).
- Compliance with GMP, GAMP 5, 21 CFR Part 11, and GMP Vol. 4 Annex 11.
- Three secure data management solutions (stand-alone, PC-based, AP Connect) to satisfy data integrity standards.

Perfect results in seconds for the highest efficiency in your lab

- Guided workflows keep training efforts low and optimize operation.
- Toolmaster™ recognizes measuring cells and automatically transfers data to instrument, which eliminates human error.
- (Semi-)automated workflows for system suitability tests (SST) and calibration improve lab efficiency.

No Errors.
Passed Audits.
Increased Efficiency.

STRICT COMPLIANCE REQUIRES AUDIT-PROVEN SOLUTIONS

45 °C

10 °C

PRECISE AND HOMOGENEOUS PELTIER TEMPERATURE CONTROL

TOOLMASTER™: AUTOMATIC DATA TRANSFER

Toolmaster™ prevents errors such as using the wrong sample cell for the measurement or the wrong quartz control plate for calibration. This technology transfers parameter data – such as temperature, optical path length, and serial number – to the instrument. No manual data input needed.

FILLINGCHECK™ CAMERA: ERROR-FREE MEASUREMENTS

With the FillingCheck™ camera (standard with MCP 5100 and MCP 5500), you can be sure that your samples are always filled correctly. Real-time images of the filling process inside the sample cell let you see filling errors, contaminations, and sample abnormalities before they cause a measurement error.

FAST TEMPERATURE CONTROL: REDUCED CYLCE TIMES

MCP's temperature control system provides high heating and cooling rates, 2 °C sample temperature gradient eliminated in less than 30 seconds.*

* 100 mm stainless steel cell, re-filled with water.

PHARMA QUALIFICATION PACKAGE: REDUCE LEAD TIME TO "GO LIVE"

Our Pharma Qualification Package (PQP), which has been proven in hundreds of audits, qualifies your instrument 3x quicker. Enjoy a complete package of IQ/OQ/PQ, a risk analysis, and a 21 CFR Part 11 checklist.

WATERTIGHT DATA INTEGRITY: CHOOSE YOUR RULES, SECURE YOUR DATA
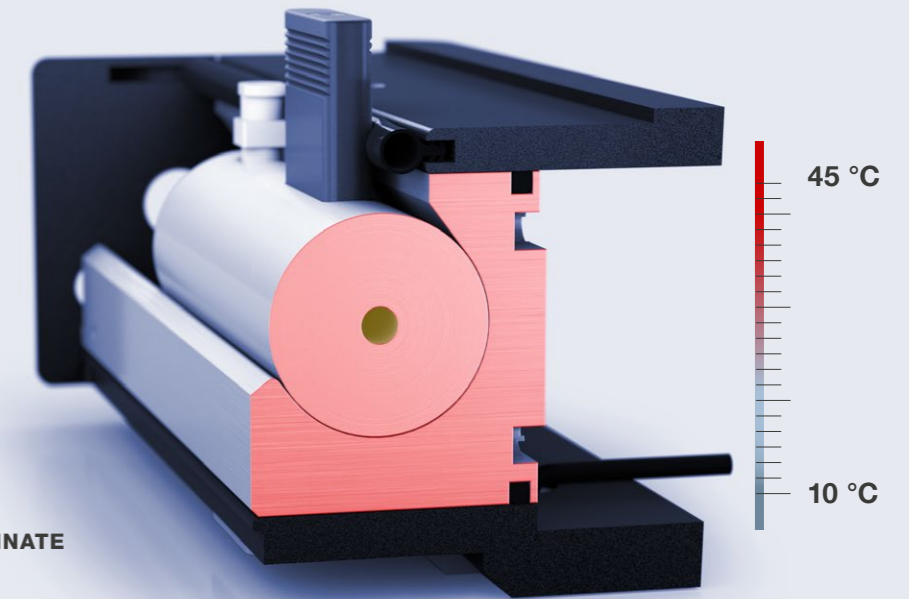
Different roles in your lab require different, individually defined user privileges. That's why the MCP series comes with clear and definable user group management as well as password rules and security settings that can be aligned to your local IT rules and workflows.

TRACEABLE, GUIDED CALIBRATION: ELIMINATE MANUAL ERRORS

The semi-automatic calibration routine doesn't require any manual data input. All calibration information is stored on the RFID chip of the quartz plate and is transferred to the MCP wirelessly via the RFID Toolmaster™. Typically, the whole calibration process takes less than 10 seconds.

HIGH-QUALITY, DURABLE COMPONENTS: REDUCE MAINTENANCE TO A MINIMUM

With the MCP series, you can rely on precision optical and mechanical components that will offer high instrument performance for decades to come. MCP's long-lasting LED light source (100,000 hours) keeps your instrument's downtime to a minimum. Every polarimeter also comes with a three-year warranty. But just in case you need them, our global network of service teams is always ready to help.
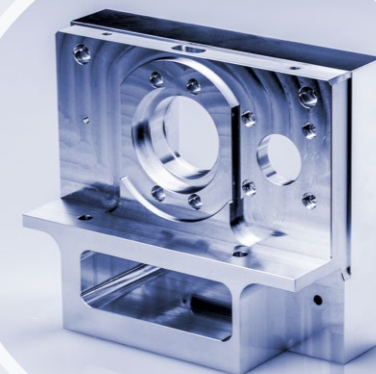

→
HIGHLY PRECISE, SMALL BANDWITH INTERFERENCE FILTERS

→
BENCH FOR ROBUST OPTICAL SETUP
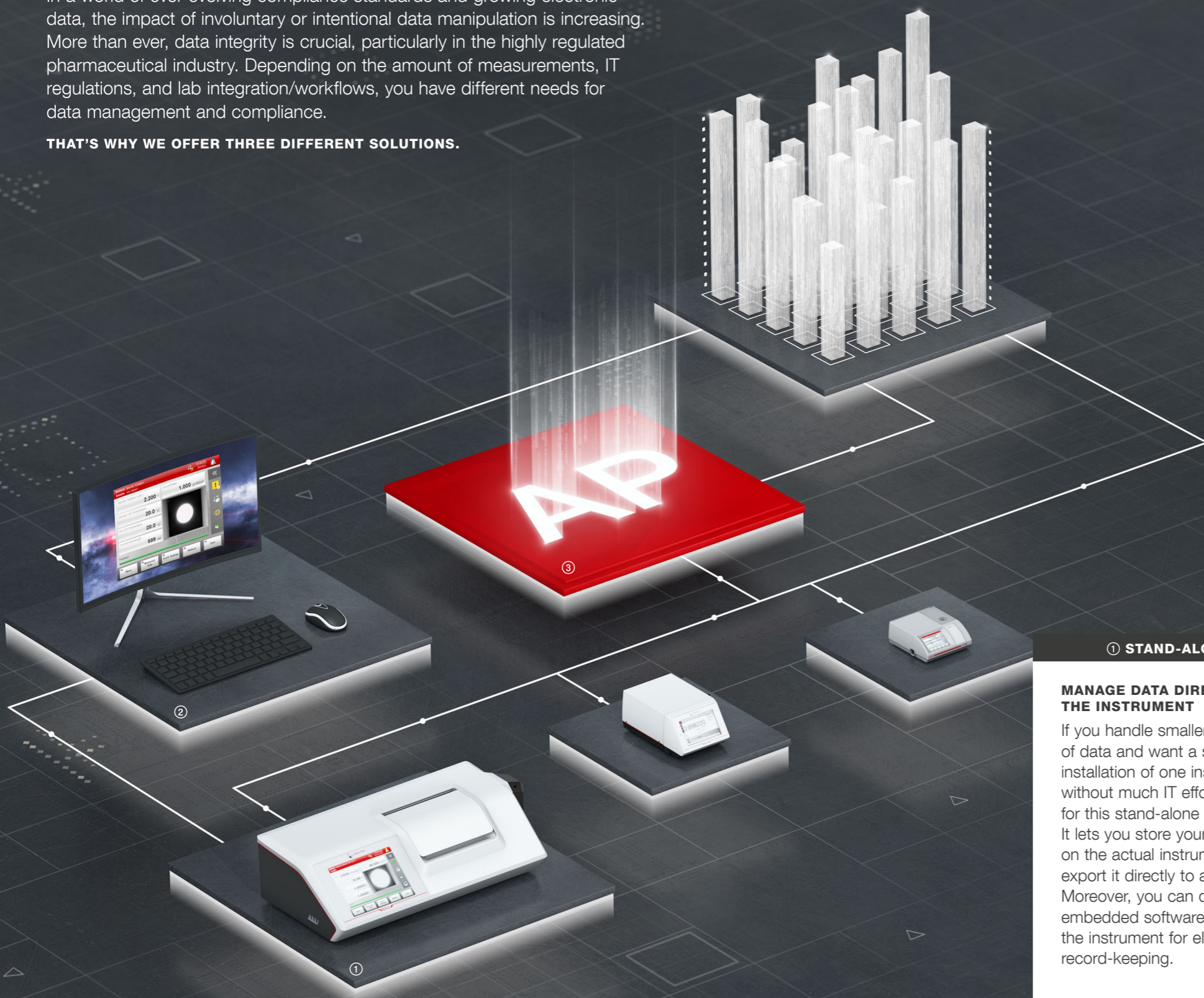
Data Management Solutions for Every Need

WHATEVER YOUR IT POLICY, WE HAVE THE PERFECT SOLUTION

In a world of ever-evolving compliance standards and growing electronic data, the impact of involuntary or intentional data manipulation is increasing. More than ever, data integrity is crucial, particularly in the highly regulated pharmaceutical industry. Depending on the amount of measurements, IT regulations, and lab integration/workflows, you have different needs for data management and compliance.

THAT'S WHY WE OFFER THREE DIFFERENT SOLUTIONS.

③ AP CONNECT

MANAGE MULTIPLE INSTRUMENTS' DATA IN A POWERFUL DATA HUB

This is the option if you want to run a powerful data management software independent of instruments. It's also great if you need to integrate several instruments into our data management hub, or if you intend to use one of AP Connect's interfaces to connect to various systems (e.g., LIMS). With AP Connect, you can collect, sign, and control data from more than 50 Anton Paar instruments with full data integrity on an SQL database. The system architecture allows plug-and-play integration in just a few minutes. Windows Active Directory gives you convenient password administration. Choose from three editions (Start, Standard, Pharma). Pharma comes with advanced compliance options and a signing process. With AP Connect, go paperless and have all of your data at your fingertips.

② PC-BASED

CONTROL THE INSTRUMENT AND COLLECT DATA VIA YOUR PC

The perfect solution if you're generating large amounts of data and you don't want to have data and system administration on the instrument. Perform your administrative tasks for systems, user groups, and data management all on the external PC, not on the actual instrument. All data is automatically stored as raw data in the computer database. With your standard IT processes, you can back up and restore this database at any time (on demand or automatically). Windows Active Directory gives you convenient password administration.

① STAND-ALONE

MANAGE DATA DIRECTLY ON THE INSTRUMENT

If you handle smaller amounts of data and want a single installation of one instrument without much IT effort, go for this stand-alone solution. It lets you store your data on the actual instrument or export it directly to a server. Moreover, you can qualify the embedded software and use the instrument for electronic record-keeping.

Optimal Conditions for
Your Samples

QUARTZ CONTROL PLATES

System suitability test and calibration are error-free, quick, and traceable.

All quartz control plates comply with international standards (ICUMSA, OIML) and are traceable to PTB, Germany's National Metrology Institute.

Thanks to Toolmaster™ technology, the instrument receives all parameters wirelessly from the quartz control plate without any manual data input.

Different optical rotation values in the positive and negative range are available to check the linearity across the entire range.

The quartz control plates have an accuracy of ±0.002 °OR. These come with the manufacturer certificate. On request, they can be certified by PTB, Germany's National Metrology Institute.

SAMPLE CELLS

Dark samples, aggressive substances, delicate chemicals – choose the right sample cell for your application.

Never pick the wrong sample cell again. All parameters for measurement, identification, and traceability are stored on an RFID microchip in the sample cell with Toolmaster™ technology and transferred wirelessly to the instrument.

Cells with Luer connector: For sample filling by syringe or peristaltic pump.

Cells with filling funnel: Whenever higher sample volume is available.

Cells with steel body: Material classes from standard stainless steel to Hastelloy.

Cells with ceramic inlay: Utmost material durability of highly aggressive substances.

Path lengths: Lengths from 2.5 mm to 200 mm. Volumes from 0.05 mL to 20 mL suit all industry requirements, sample volumes, and sample properties (e.g., color).

Designed to Comply with
Your Requirements

PHARMACEUTICALS AND BIOPHARMACEUTICALS

Since hundreds of monographs in national and international pharmacopoeias require a polarimeter for specific tests or identification processes, you're set with our MCP series. It meets the standards of international pharmacopoeias and is fully compliant with the FDA's 21 CFR Part 11 and GMP Volume 4 Annex 11.

Use your MCP polarimeter to ensure proper enantiomer separation, to determine the concentrations of optically active substances, or to investigate correlations between toxicological and pharmacological properties based on chiral analysis.

FLAVORS AND FRAGRANCES

Since flavors and fragrances belong to the supply chain of food and pharmaceuticals, they need to comply with FDA regulations. MCP polarimeters offer this compliance.

Costly or light-absorbing ingredients for flavors and fragrances demand high-performance polarimetry. They require short pathlength and an instrument with high light intensity. The MCP polarimeters measure stable results of highly absorbing samples with an optical density of up to 4.0.

For expensive substances, sample cell volumes starting at 0.05 mL are available.

FOOD AND DIETARY SUPPLEMENTS

Certain food supplements (e.g., glutamine or glutamic acid), can regulate metabolism and energy production, and can also protect muscles. To determine the quality of such substances, specific tests in international pharmacopoeias request the measurement of optical rotation and/or specific rotation. Since our MCP polarimeters are FDA-compliant, you can use them in this context as well.

The Series at a Glance

	MCP 4100	**MCP 5100**	**MCP 5500**
	⌄	⌄	⌄

ECONOMIC ANALYSIS IN FULL COMPLIANCE	**UMMATCHED TRACEABILITY WITH BUILT-IN CAMERA**	**TOP ACCURACY MEETS UNMATCHED TRACEABILITY**
Best price/performance ratio on the market.	Perfect for precise measurements of small changes in concentrations or optical rotations.	Detect the smallest impurities and material changes in your sample.
- MCP 4100 has a measurement accuracy of ±0.003°OR that exceeds pharmacopoeia requirements. - Reduce cylce times and maximize throughput with fast temperature change (2 °C sample temperature gradient eliminated in less than 30 seconds). - With its multiple wavelength options, you're ready for every task.	- MCP 5100 comes with an accuracy of ±0.002°OR. - FillingCheck™ camera to see sample abnormalities before they cause a measurement error. - Fast temperature control (2 °C sample temperature gradient eliminated in less than 30 seconds) reduce cycle times, which maximizes throughput and efficiency in your lab. - With its multiple wavelength options, you're ready for every task.	- MCP 5500 comes with an accuracy of <±0.0020°OR. - FillingCheck™ camera to see sample abnormalities before they cause a measurement error. - Extra air pump dries the sample cell and reduces your cycle times even more. - The MCP desktop software is included and can be used whenever it's needed. - With its multiple wavelength options, you're ready for every task.

Anton Paar Certified Service

"
We're confident in the high quality of our instruments. That's why we provide **a full warranty for three years**.
"

All new instruments* include repair for three years.
You avoid unforeseen costs and can always rely on your instrument.
Alongside the warranty, we offer a wide range of additional services and maintenance options.

*Due to the technology they use, some instruments require maintenance according to a maintenance schedule.
Complying with the maintenance schedule is a prerequisite for the three-year warranty.

	MCP 4100	**MCP 5100**	**MCP 5500**
	⌄	⌄	⌄

SPECIFICATIONS

	MCP 4100	MCP 5100	MCP 5500
Measuring scales	°Optical Rotation, °Optical Rotation (cell-length corrected), °Specific Rotation, °Specific Rotation (cell-length corrected), % concentration (g/100 mL, g/L, g/100 cm³, kg/m³), °International Sugar Scale (not temperature-compensated), mathematic functions, and user-definable scales		
Measuring range	±89.9 °OR	±89.9 °OR	±89.9 °OR
Accuracy	±0.003 °OR across entire range	±0.002 °OR across entire range	±<0.002 °OR across entire range
Repeatability	±0.002 °OR	±0.002 °OR	±0.001 °OR
Resolution	0.001 °OR	0.0001 °OR	0.0001 °OR
Available wavelenghts	589 nm standard 365, 405, 436, 546, 578, 633, 880 nm opt.	589 nm standard 365, 405, 436, 546, 578, 633, 880 nm opt.	589 nm standard 365, 405, 436, 546, 578, 633, 880nm opt.
Light source	LED (100,000 h lifetime)		
Temp. control range	Peltier temperature control 10 °C to 45 °C	Peltier temperature control 10 °C to 45 °C	Peltier temperature control 10 °C to 45 °C
Temp. accuracy	±0.1 °C	±0.1 °C	±0.03 °C
Temp. control speed*	2 °C sample temperature gradient eliminated in less than 30 seconds.		
Max. sample cell length	200 mm	200 mm	200 mm
21 CFR Part 11 compliance	✓	✓	✓

USER ASSISTANCE FEATURES

	MCP 4100	MCP 5100	MCP 5500
FillingCheck™ camera	✕	✓	✓
Automatic detection of sample cell and quartz standard by Toolmaster™ function	✓ Wireless Toolmaster technology	✓ Wireless Toolmaster technology	✓ Wireless Toolmaster technology
Automated calibration / adjustment process by Toolmaster™ function	✓	✓	✓
Separate drying facility for sample cell (air pump)	✕	✓ Optional	✓

DATA MANAGEMENT

	MCP 4100	MCP 5100	MCP 5500
Data management software for multiple instruments (AP Connect)	✓ Optional	✓ Optional	✓ Optional
Control by desktop-software	✓ Optional	✓ Optional	✓ Included

✓ Yes ✕ No
* 100 mm sample cell filled with water

www.anton-paar.com