



Portable Density and  
Concentration Meter

More than 50 years of experience in your hand



DMA™ 35 is your portable digital meter for determining density, specific gravity, and concentration directly at the sampling location. It is prepared to withstand the knocks and spills of outdoor use and is an expert in addressing the individual needs of its operators.

Anton Paar is the pioneer and market leader in the field of density and concentration measurement. Our renowned DMA™ density meters based on the oscillating U-tube principle have been advanced over decades in direct response to customers' needs.

We at Anton Paar are constantly looking for progress, thriving to be better than the day before. This is what drives us and as we grow with the tasks we perform, so do our products. Join in and take the next step together with us ...

### Go digital – the benefits of digital density measurement

The DMA™ 35 digital density meter ...

#### ... replaces all glass hydrometers in your workplace

DMA™ 35 covers scores of different concentration units and product-specific parameters, whereby each unit will cover the whole measuring range relevant for your application.

#### ... delivers quick results

You measure directly out of the storage container, with no need to pour the sample into a measuring cylinder or transport it to the lab. DMA™ 35 displays the concentration or temperature-compensated density result within a few seconds.

#### ... does not waste any sample

You need only 2 milliliters of sample for your measurement. Especially for samples that cannot be poured back into the storage tank to avoid contamination, the savings on sample are enormous.

#### ... ensures perfect traceability of results

Measurements are allocated to a sample name, stored and ready to be printed or exported to a computer. There is no chance of making an error in the documentation of results.

In short, DMA™ 35 saves you time and effort by replacing your old measuring methods and delivers the values you need at the push of a button.

# Simplify your work

## Robust housing – for a long working life

With protection class IP54 the instrument withstands the rough conditions of industrial and field applications. It is operated via capacitive keys suitable for use with or without gloves and the display is protected by a robust hard-glass front. The measuring cell has an additional rubber protection. If your instrument nevertheless suffers from a cell rupture by mischance, you benefit from the unique patented connection of the measuring cell which allows replacement.

## Perfect traceability – for comprehensive data control

Especially when handling many different samples, the automatic sample identification via RFID increases the efficiency of your measuring process tremendously. The sample ID and measuring method to be used for the next measurement are simply read from the RFID tag. More than 1000 data points, including timestamp and sample ID, are stored in the instrument's memory. The RFID interface and a Bluetooth® interface for convenient data handling in the field are integral parts of the instrument.

Due to its intelligent design, DMA™ 35 can be used as a benchtop as well as a handheld instrument.



## One instrument – for a huge variety of samples

You can use the same instrument for different types of samples: from fermenting beer and wine to creams or acids. The smart oscillator placement makes sure that gas bubbles move to where they can't affect your result: outside the measuring cell. Various preinstalled concentration units and product-specific parameters ensure that you get the results in the format you need.

## Unbeaten usability – for fast measuring routines

For filling highly viscous or expensive samples, the instrument is put in a stable position on the table and filled with a syringe from the top. The lock-function of the pump prevents any carryovers of sample or cleaning liquid and the screen rotates automatically depending on the instrument position. Enjoy how your handheld device turns into a mini benchtop instrument. But there is more to it than that: the influence of the viscosity on your density result is automatically corrected.

## On-site measurements – for quick reactions

Your sample is filled directly from the container using the built-in pump at temperatures up to 100 °C (e.g. hot wort). Read RFID tags and start or abort measurements via gesture control so that one hand is free to hold you steady when measuring hard-to-reach samples. Operation is easy, for both left- and right-handed users. After entering a temperature coefficient, DMA™ 35 determines the density of your sample at the reference temperature of your choice. Your measurement is finished in a few seconds and DMA™ 35 warns you if the product you measured is out of your accepted tolerance range.

# Applications



## Food and beverage industries

Besides determination of the extract content in beer wort or sugar content in grape juice, DMA™ 35 is also used to monitor the fermentation process of beer and wine.

It is used to measure, for example:

- the sugar content in fruit juices, syrups, soft drinks
- the alcohol content in spirits
- the density of milk and dairy products
- the density or concentration of preserving fluids



## Pharmaceutical and cosmetics industries

Having DMA™ 35 at hand during intake control makes sure the raw materials delivered are of the quality and type expected. Intermediate products are quickly checked for their quality directly at the production line.

Typical samples include:

- infusion solutions
- serums
- personal care products
- ethanol



## Chemistry and machinery production

In chemical production the instrument gives information about the mixing ratio at hand. It determines the correct concentration of sulfuric acid to be used in lead acid battery production and is suitable for quickly checking the battery acid for maintenance purposes.

It is also used to measure, for example:

- the concentration of etching baths in electronics production
- the density of coatings
- the concentration of cooling agents



## Environment

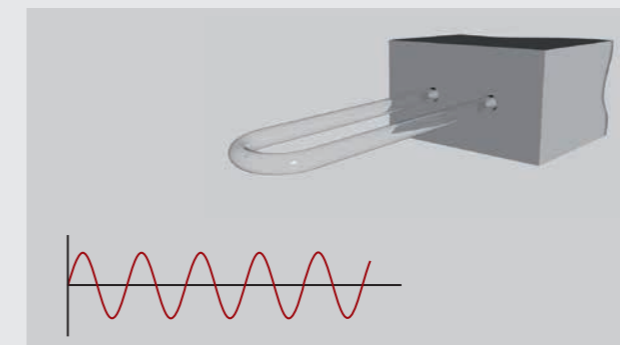
Specimens that are well-preserved in jars filled with ethanol at a certain strength are required to enable further analysis and research on them at any time. To avoid deterioration of collected specimens, the alcohol strength in the jars is regularly checked with a DMA™ 35.

The instrument is also used for density measurement on samples such as:

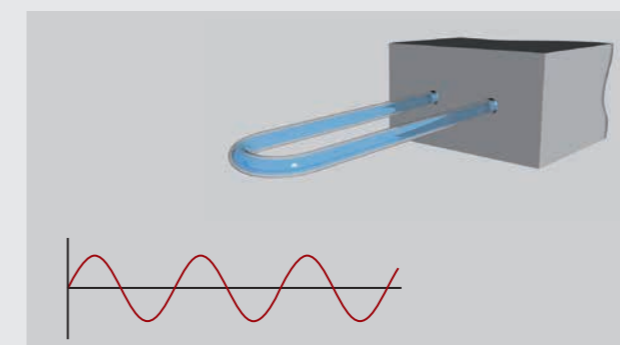
- pesticides
- sewage sludge, and
- wastewater

## Good vibrations – a proven measuring principle

The density measurement with DMA™ 35 is carried out according to the oscillating U-tube principle. The measuring cell – a U-shaped borosilicate glass tube – is filled with sample and is electronically excited to oscillate at its characteristic frequency. Depending on the filled-in sample, the oscillation frequency differs and based on that the density can be measured. High frequency corresponds with a low density and vice versa.



Oscillation of a U-tube filled with air



Oscillation of a U-tube filled with water

## Technical specifications

Patents granted	Smart connection of measuring cell: AT516421 (B1), EP3015847 (B1)
Other special functions	- Viscosity correction for reliable measurements, also on highly viscous samples - Gesture control for easy one-hand measurements - Identification of results outside your specified limits
Measuring range	Density: 0 g/cm <sup>3</sup> to 3 g/cm <sup>3</sup> Temperature: 0 °C to 40 °C (32 °F to 104 °F)*
Sample temperature range	0 °C to 100 °C (32 °F to 212 °F)
Accuracy**	Density: 0.001 g/cm <sup>3</sup> Temperature: 0.2 °C (0.4 °F)
Repeatability, s.d.***	Density: 0.0005 g/cm <sup>3</sup> Temperature: 0.1 °C (0.2 °F)
Reproducibility, s.d.***	Density: 0.0007 g/cm <sup>3</sup>
Resolution	Density: 0.0001 g/cm <sup>3</sup> Temperature: 0.1 °C (0.1 °F)
Ambient temperature	Standard version: -10 °C to +50 °C (14 °F to 122 °F)
Output parameters	Density, specific gravity, alcohol concentration, sugar/extract concentration, API functions, H <sub>2</sub> SO <sub>4</sub> concentration, ten programmable custom-specific measuring units
Sample volume	2 mL
Sample filling	Via manual filling pump or syringe in one second
Dimensions (L x W x H)	245 mm x 103 mm x 126 mm (9.6 in x 4 in x 5 in)
Internal storage	1024 measured results, 250 sample IDs, 30 measuring methods
Power supply	Three 1.5 V LR06 AA alkaline batteries
Weight	660 g (23.3 ounces)
Interfaces	Bluetooth®, RFID (included by default; no extra charge)
Protection class	IP54 (dust- and splash-proof)
Scope of supply	Portable density meter, filling tube, adapter for syringe filling, syringes, transportation suitcase, rubber protection for measuring cell, three batteries, Allen key, instructions
Available options	Elongated filling tube Portable Bluetooth® printer Bluetooth® USB adapter Wristband ISO calibration Carrying strap Rubber protection for operating panel

\* Measurements up to 100 °C possible

\*\* Viscosity <300 mPa.s, density <2 g/cm<sup>3</sup>

\*\*\* According to ISO 5725

