Digital Density Meter - U-tube Oscillating Densitometer - 0-3 g – cm³ - ±0.0001 g

Model **MSDM-3005SWISS, MSDM-3005ASWISS, MSDM-3004SWISS** | Brand **Master Science**





The Master Science Digital Density Meter determines liquid density and specific gravity by the oscillating U-tube method. A small sample of about 2 to 3 mL is drawn into a quartz glass tube, and the change in its vibration frequency is converted into density at a precisely controlled temperature.

KEY HIGHLIGHTS

- Bubble-free results
- Precise temperature
- Higher throughput
- Data integrity

AT A GLANCE

0 to 3 g/cm³ DENSITY RANGE	**5 to 70 °C (3005, 3005A); 5 to 50 °C (3004)** TEMPERATURE RANGE
0.01 °C TEMPERATURE RESOLUTION	**±0.0001 (3005), ±0.0003 (3005A), ±0.0005 g/cm³ (3004)** DENSITY ACCURACY

Request a Quotation
Contact us for pricing, configuration options and delivery details.

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Overview

A 10.1-inch Android touchscreen with step-by-step SOPs, live HD camera view of the U-tube and an integrated peristaltic pump for automatic filling and cleaning make routine work quick and consistent.

Many labs measure refractive index alongside density using the Master Science automatic refractometer.

Key Benefits

Bubble-free results
the HD camera shows the U-tube during filling, so air bubbles are spotted before measuring.

Precise temperature
Peltier control holds the cell within hundredths of a degree for stable density values.

Higher throughput
the Master Science Digital Density Meter fills, measures and cleans automatically with its peristaltic pump.

Standards compliant
methods follow ASTM D4052, D5002, D3505, ISO 12185, IP 559 and pharmacopoeias.

Data integrity
user levels, electronic signatures and optional audit trail support regulated labs.

Technical Specifications

GENERAL	
General	The Master Science Digital Density Meter is supplied in three models. Main specifications:
Brand	Master Science
Model Number	MSDM-3005SWISS, MSDM-3005ASWISS, MSDM-3004SWISS
SKU	MSDM-3005SWISS, MSDM-3005ASWISS, MSDM-3004SWISS
Models	MSDM-3005SWISS, MSDM-3005ASWISS, MSDM-3004SWISS
Density Range	**0 to 3 g/cm³**
Density Accuracy	**±0.0001 (3005), ±0.0003 (3005A), ±0.0005 g/cm³ (3004)**
Density Repeatability	±0.00005 (3005), ±0.0001 (3005A), ±0.0002 g/cm³ (3004)
Density Resolution	0.00001 (3005); 0.0001 g/cm³ (3005A, 3004)
Temperature Range	**5 to 70 °C (3005, 3005A); 5 to 50 °C (3004)**
Temperature Accuracy	**±0.05 °C (3005, 3005A); ±0.1 °C (3004)**
Temperature Resolution	0.01 °C
Measuring Units	Density, specific gravity at 4/20/25 °C; 30+ scales incl. alcohol, API, Brix, urea (3005)
Sample Filling	Manual or automatic with peristaltic pump
Fill Check	1080p HD camera with video and photo
Calibration	Dry air and distilled water; multi-point
Drying	Built-in DC air pump with drying column
Pressure Compensation	Built-in barometric sensor
U-tube	Quartz glass
Minimum Sample	About 2 to 3 mL
Temperature Control	Peltier with platinum resistance sensor and PID
User Management	Four levels, electronic signature, optional audit trail (3005, 3005A)
Reports	PDF and Excel
Power Supply	AC 100 to 240 V, 50/60 Hz, 120 W

DISPLAY & DATA	
Display	10.1-inch color touchscreen, Android
Storage	128 GB; up to 200,000 results
Interfaces	RS232, USB, RJ45 (3004: RS232, USB); PC and LIMS connection

DIMENSIONS & WEIGHT	
Dimensions (L × W × H)	439 × 350 × 217 mm
Net Weight	12 kg (3005, 3005A); 8.5 kg (3004)

COMMON LABORATORY PROBLEMS AND HOW THIS DENSITY METER HELPS

Common Laboratory Problems and How This Density Meter Helps	How the Master Science Digital Density Meter addresses typical density testing problems:
Hidden air bubbles	camera inspection confirms a clean fill.
Temperature drift	Peltier control keeps conditions stable.
Operator-to-operator variation	automatic filling and SOPs standardise the process.
Exposure to hazardous liquids	pump injection reduces handling.
Manual unit conversions	more than 30 built-in scales give the needed result directly.

The Master Science Digital Density Meter is used in

Beverages
sugar concentration and soft drink QC

Breweries and distilleries
alcohol content

Petrochemicals
API gravity of crude oil and fuels

Pharmaceutical raw materials and preparations

Chemicals, flavours, fragrances and metalworking fluids

Measurement

- Oscillating quartz U-tube
- Fast and accurate measurement modes
- Automatic barometric compensation
- Multi-point calibration with air and water

Operation

- 10.1-inch Android touchscreen with built-in SOPs
- 1080p camera view of the measuring cell
- Manual or pump-assisted filling and cleaning

Data and Connectivity

- 128 GB storage, up to 200,000 results
- PDF and Excel reports
- RS232, USB and Ethernet; LIMS connection
- Optional thermal, stylus or Wi-Fi printer

Optional Accessories

- Thermal, stylus or Wi-Fi printer
- Audit trail software (MSDM-3005SWISS, MSDM-3005ASWISS)