

DEN-1 and DEN-1B, McFarland Densitometers

DESCRIPTION

Densitometers are designed for measurement of cell suspension's turbidity in the range:

DEN-1: 0.3–5.0 McFarland units
 (100×10^6 – 150×10^7 cells/ml);

DEN-1B: 0.0–6.0 McFarland units
 (0 – 180×10^7 cells/ml);

Densitometers provide the opportunity to measure solution turbidity in a wider range (up to 15.0 McFarland units) however, it is necessary to remember that in this case the standard deviation values increase.

A densitometer is used for measurement of cell concentration (bacterial, yeast cells) during fermentation process, determination of microorganism sensitivity to antibiotics, microorganism identification using various test-systems, for measurement of absorption at the definite wavelength, as well as for quantitative estimation of concentration of colour solution, absorbing green light.

The operation principle is based on measurement of optical density with digital presentation of results in McFarland units. The unit is calibrated at the factory (for operation with 16 mm diameter glass tubes) and keeps calibration without power supply. However, if necessary, it is possible to calibrate the unit by 2–6 points in 0.5–5.0 (DEN-1) and 0.0–6.0 (DEN-1B) McFarland unit range. Both commercial standards (e.g. produced by BioMerieux, Lachema, etc.) and the cell suspensions prepared in a laboratory can be used for calibration.

Following calibration kits are available on request:

- **CKG16** for glass tubes with diameter 16 mm (latex particles);
- **CKG1802** for glass tubes with diameter 18mm (BaSO₄).

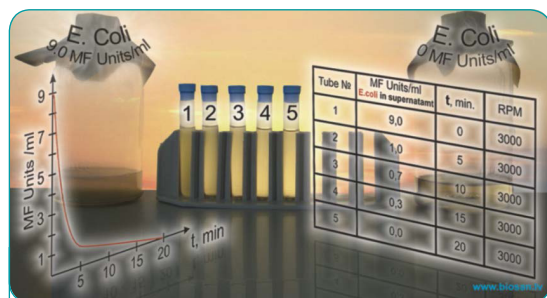
Up to date information on calibration kits can be found on the website: <http://www.biosan.lv>

Two versions of the product are available:

1. **DEN-1** powered from external energy supply;
2. **DEN-1B** powered both from external energy supply and from batteries (AA). Besides, **DEN-1B** operates with higher precision of measurements (up to 0.01 McF).



Adapter A-16



Application of **DEN-1** for determining concentration of microbial cells of supernatant in tubes during centrifugation. Turbidity is determined in McFarland units.



DEN-1B rear side with calibration controls

DEN-1 and DEN-1B, McFarland Densitometers

	DEN-1	DEN-1B
Light source	LED	
Wavelength	$\lambda = 565 \pm 15 \text{ nm}$	
Measurement range	0.3–15.0 McF	0.00–15.00 McF
Display resolution	0.1 McF	0.01 McF
Accuracy, of the full scale	$\pm 3\%$	
Measurement time	1 sec	
Sample volume	not less than 2 ml	
Tube external diameter	18 mm (without adapter) or 16 mm (using included A-16 adapter)	
Possibility to restore factory calibration settings		
Display	LED	LCD
Overall dimensions (W×D×H)	165×115×75 mm	
Weight	0.7 kg	
Independent power supply	—	3×AA batteries
Input current/ power consumption	12 V, 80 mA/1 W	12 V, 7 mA/0.1 W
External power supply	Input AC 100-240 V, 50/60 Hz; Output DC 12 V	Input AC 100-240 V, 50/60 Hz, Output DC 12 V
Standard set	External power supply	External power supply or 3×AA batteries



ORDERING INFORMATION:

Cat. number

DEN-1 with A-16 adapter BS-050102-AAF

DEN-1B with A-16 adapter BS-050104-AAF

Optional accessories:

CKG16 calibration kit for glass tubes \varnothing 16 mm (latex particles) BS-050102-BK

CKG1802 calibration kit for glass tubes \varnothing 18mm (BaSO₄) BS-050102-GK

Standards **CKG1802** must be shaken before use. We recommend using vortex **V-1 plus**, (BS-010203-AAG) which provides intensive mixing.

