

DEN-1 and DEN-1B, Densitometers (suspension turbidity detector)



Medical-Biological
Research & Technologies

Densitometer **DEN-1** and **DEN-1B** is designed for measurement of cell suspension's turbidity in the range 0.3–5.0 (**DEN-1**); 0.0–6.0 (**DEN-1B**) McFarland units (100×10^6 – 150×10^7 cells/ml; or 0 – 180×10^7 cells/ml correspondingly). **DEN-1** and **DEN-1B** 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 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 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;
- **CKG18** for glass tubes with diameter 18 mm.

Up to date information on calibration kits is 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).



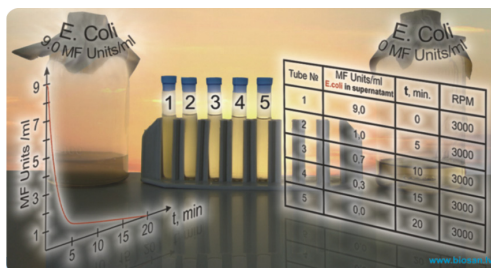
DEN-1B



DEN-1



DEN-1B rear side with calibration control



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

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Specifications:		
Model	DEN-1	DEN-1B
Light source	Light diode	
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
Precision	$\pm 3\%$	
Measurement time	1 sec	
Sample volume	not less than 2 ml	
Tube external diameter	18 mm (without adaptor) or 16 mm (using A-16 A adaptor)	
Display	LED	LCD
McFarland unit standard deviation	0.5 \pm 0.1 McF 3.0 \pm 0.1 McF 6.0 \pm 0.2 McF 7.5 \pm 0.2 McF	0.0 \pm 0.1 McF 0.5 \pm 0.1 McF 3.0 \pm 0.1 McF 6.0 \pm 0.2 McF 7.5 \pm 0.2 McF
Overall dimensions	165×115×75 mm	
Weight, not more	0.9 kg	
Power supply	DC 12V 300 mA	DC 12V 300 mA or battery (3×AA type)
Standard set	External power supply	3×AA batteries



Catalogue number:

DEN-1	BS-050102-AAF
DEN-1B	BS-050104-AAF
CKG16	BS-050102-BK
CKG18	BS-050102-CK
A-16	BS-050102-AK