

DEN-1 and DEN-1B, McFarland Densitometers

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 18 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;
- **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>

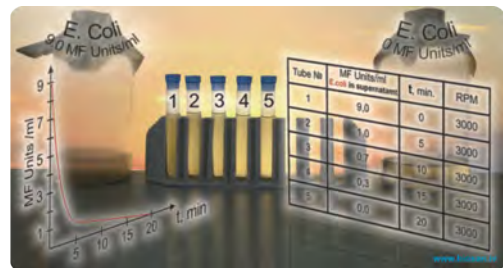
Two versions of the product are available:

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 rear side with calibration controls



A A-16




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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	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 optional A-16 adapter)	
Possibility to restore factory calibration settings	NEW FUNCTION	
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 BS-050102-AAF

DEN-1B BS-050104-AAF

Optional accessories:

CKG16 BS-050102-BK

for glass tubes with diameter 16 mm;

CKG18 BS-050102-CK

for glass tubes with diameter 18 mm;

A-16, adapter BS-050102-AK

DEN-1B



Change of factory calibration of densitometers DEN-1 and DEN-1B

Date: 14 December 2015



We herewith inform about the change of densitometers factory calibration to glass tubes of 16 mm outer diameter.

The change is connected with two facts:

- 1) majority of users using densitometers with A-16 adapters (i.e. for 16 mm diameter tubes),
- 2) discontinuation of the standard used for factory calibration for 18 mm tubes.

The cat.numbers for ordering will remain the same.