



## Densitometers

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DEN-1 for 0.3 - 15.0 McFarland units

DEN-1B for 0.00 - <15.00 McFarland units, powered by battery or mains

# Densitometers

Compact and efficient benchtop densitometers for measuring turbidity of cell suspensions in a variety of life-science applications.

The densitometers are designed and factory calibrated to measure turbidity in the range of 0.3 to 15.0 McFarland units (DEN-1) 0.00 to <15.00 McFarland units (DEN-1B) with a small standard deviation. The densitometers can deliver a wider measurement range (up to 15.00 McFarland units) with a greater standard deviation.

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Measurement range: 0.3 to 15.0 McFarland units (DEN-1), 0.00 to <15.00 McFarland units (DEN-1B)

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Precision:  $\pm 3\%$

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Measurement time: 1second

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Standard deviation at 3.00 McFarland units:  $\pm 0.1\text{McF}$

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User calibration option

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Designed for tubes with an outer diameter of 18mm. 16mm tubes can also be accommodated by using the optional tube adaptor D16 (included).

Extremely compact design with small footprint and low profile - fits easily into the smallest workspace.

DEN-1 and DEN-1B units are calibrated for operation in range 0.3-15.0 McF and 0->15.00 McF, but it is possible to measure turbidity from 0McF to 15McF. (note: the standard deviation of the values increases).



Factory calibrated - retains calibration without power supply. Can be user calibrated with commercial standards or cell suspensions prepared in the laboratory.

Bright LED display readings conveniently shown in McFarland units, are clearly visible.

Powered by 3 x AA batteries (DEN-1B only) or via external 12v power supply.



## Applications

- Life-science - typical applications include determining concentration of cells (bacterial and yeast cells) in the fermentation process, detecting the susceptibility of micro-organisms to antibiotics, identifying micro-organisms with various test systems, and measuring optical density at fixed wavelength.

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## Technical specifications



|                            |                         | DEN-1                                       | DEN-1B                                |
|----------------------------|-------------------------|---|---------------------------------------|
| Densitometers              |                         |   |                                       |
| Dimensions                 | h x d x w<br>mm         | 75x115x165                                  |                                       |
| Operating temperature      | °C                      | +4 to 40                                    |                                       |
| Light source               |                         | LED   |                                       |
| Wavelength                 | nm                      | 565 ±15                                     |                                       |
| Range                      | (McFarland<br>units)    | 0.3 to 15.0                                 | 0.00 to 15.00                         |
| Precision                  |                         | ±3%   |                                       |
| Measurement time           | sec                     | 1   |                                       |
| Tube diameter              | external diameter<br>mm | 18  |                                       |
|                            | with D16 adaptor<br>mm  | 16  |                                       |
| Sample volume              | ml                      | >2  |                                       |
| Display/display resolution |                         | LED/0.1McF                                  | LCD/0.01McF                           |
| Independent power supply   |                         | -   | 3 x AA batteries (included with unit) |
| External power supply      |                         | Input AC 120-230V, 50/60Hz<br>Output DC 12V |                                       |
| Power consumption          | 230V W                  | 1(0.08A)                                    | 0.1(0.007A)                           |
|                            | 120V W                  |   |                                       |
| Weight                     | kg                      | 0.7   |                                       |

## PCV series

### Options and accessories

|              |  | DEN-1 | DEN-1B |
|--------------|--|-------|--------|
| DEN MCF STDS | Set of liquid McFarland standards in 16mm ø glass tubes. 0.5/1.0/2.0/3.0/4.0 can be decanted into an alternative tube (shelf-life no longer valid). Requires D16 adaptor, supplied with DEN-1/DEN-1B | •     | •      |
| D16          | <br>Spare tube adaptor for tubes with 16mm outer diameter – included as standard                                  | •     | •      |

