

μZ-30 datasheet

Team ASCEE¹

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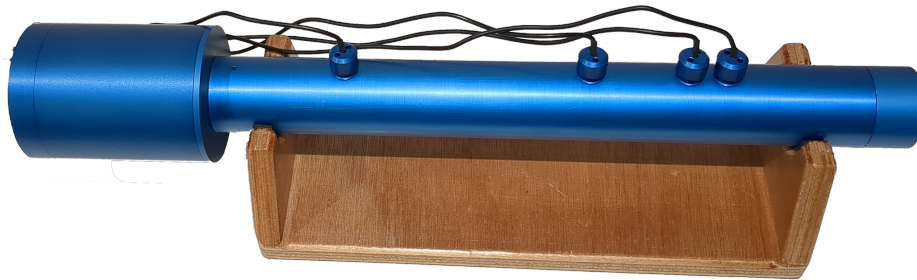
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1 Overview

The ASCEE μ Z-30 is a 30 mm diameter impedance tube, designed for small samples. A special calibration method allows for quick calibration, without having to switch the microphone positions.

μ Z-30 accurately measures impedance, reflection and absorption. It is specifically designed for small samples. It requires an easy calibration without switching microphone positions.

Due to the used calibration method, we claim to achieve a **higher accuracy** than the one obtained upon using EN-ISO 10534-2. The result is also that we do not claim to be conforming this standard. Although:

- The hole microphone hole sizes are conforming EN-ISO 10534-2.
- The mechanical design is conforming EN-ISO 10534-2.

Each tube section is has a threaded connection with other sections. O-rings make sure the system is free of any leakage. A small vent ensures no static pressure build-up occurs when parts are connected.

2 Technical data

2.1 Acoustic measurement outputs

The specified technical data below are possible measurement outputs. These quantities are related via known acoustic relations.

- Acoustic input impedance (rayls / acoustic Ohms)
- Acoustic series impedance (rayls / acoustic Ohms)
- Complex reflection coefficient (-)
- Normal incidence sound absorption coefficient (-)

2.2 Acoustic measurement range

| Parameter | Min. | Max. | Unit |
|--|------|-----------------|------------------------|
| Frequency range | 30 | 6,000 | Hz |
| Acoustic input impedance range | 0 | $12 \cdot 10^3$ | mks. rayls |
| Acoustic input impedance range rel. air, z/z_0 | 0 | 30 | |
| Series impedance range | 0 | 17 | MPa·s / m ³ |
| Sound pressure level (closed tube) | | ~ 110 | dB SPL |

2.3 Mechanical

| | | |
|-------------------------------------|--------------------|----|
| Tube inner diameter | 30 | mm |
| Material | Aluminum | |
| Finish | Anodized, blue | |
| Tube thread | M45×1.5; length 10 | mm |
| Weight | 17 | kg |
| Dimensions, base system (L x W x H) | 82 × 15 × 20 | cm |
| Dimensions, case | 117.5 × 46 × 15.5 | cm |

2.4 Electrical

2.4.1 Microphone and preamplifier

| | | |
|---------------------------|----------------------------------|------------------------|
| Output connector | XLR, requires 48 V phantom power | |
| Noise floor | 21 | dB(A) |
| Microphone sensitivity | -40 | dBV @ 94 dB SPL, 1 kHz |
| Max. sound pressure level | 135 | dB SPL |
| Max. output voltage | 1 | V rms |

2.4.2 Speaker amplifier

| | |
|-------------------|-------------------------|
| Input connector | 1/4" TRS jack, balanced |
| Input sensitivity | +4 dBU / 1.228 V rms |

2.5 Interface

| | |
|--------------------|--|
| Computer interface | USB A connector, USB 2.0 / USB Audio Class 2.0 |
| Software | ACME with μ Z module |
| Operating system | Ubuntu / Debian Linux / Linux Mint / Windows 10 or later |
| Driver Windows | Requires an ASIO driver for high channel synchronous audio I/O |
| Driver Linux | Not required |