

MICROPHONE OUTDOOR PROTECTION HDWME



Applications

- Stationary and mobile noise control
- Long-term outdoor measurements

Features

- Microphone protection from wind and rain
- Stainless birdspikes
- Heated preamplifier
- Frequency response according to IEC 61672:2002-5 (and IEC 60651:2001-10) and ANSI S1.4:1983 class 1, both for airport and environmental noise
- Compatible with standard 1/2" microphone sound calibrator

Description

The HDWME microphone unit is suitable for long lasting outdoor monitoring, even in a fixed unattended location. The unit is adequately protected from rain and wind and the heated preamplifier together with the protective membrane coating of the microphone capsule provide stability of acoustic parameters over time and allow you to make measurements over a wide range of environmental conditions.

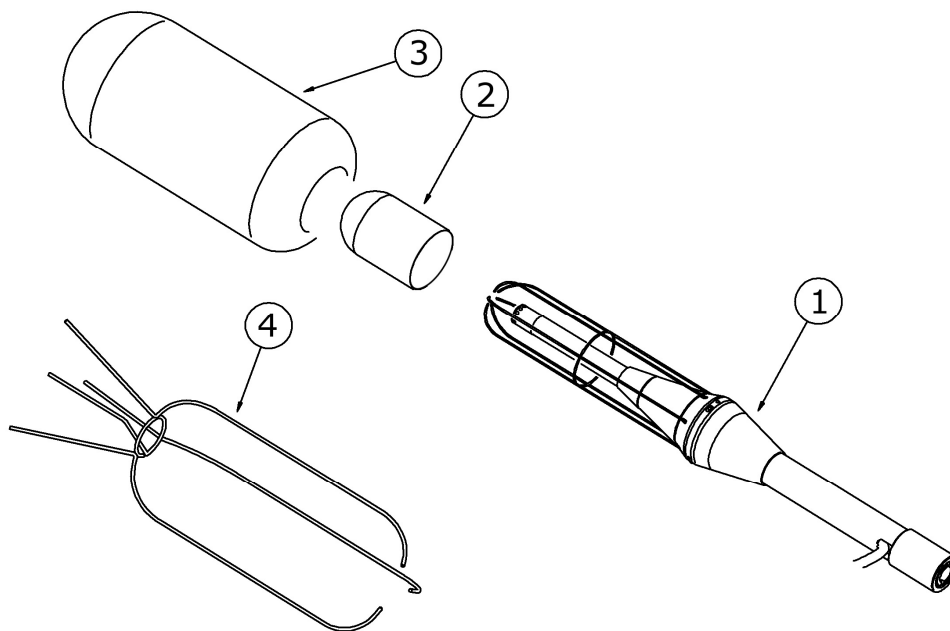
The Delta OHM sound level meter preamplifier matched with the outdoor microphone unit is equipped with a circuit for electrical calibration of the preamplifier - microphone chain, a technique that uses a charge distribution.

The frequency response of the unit in open field meets the specifications of class 1 according to IEC 61672 (and IEC60651) and was certified by I.N.R.I.M. (Certificate of conformity No. 10-0126-02 of 04.29.2010).

The microphone unit HDWME must always be positioned vertically to allow the anti-rain to perform its function and can be used both to detect the noise from the air and the ground. The Delta OHM sound level meters perform spectral corrections to the measures to ensure tolerances in accordance with the IEC61672 class 1 in every situation.

The easiness of disassembly and reassembly of the unit allows to perform periodic testing of the electro-acoustic characteristics the same way as a standard measurement microphone, using a standard calibrator for 1/2" microphone.

The unit consists of a central body and the following parts:

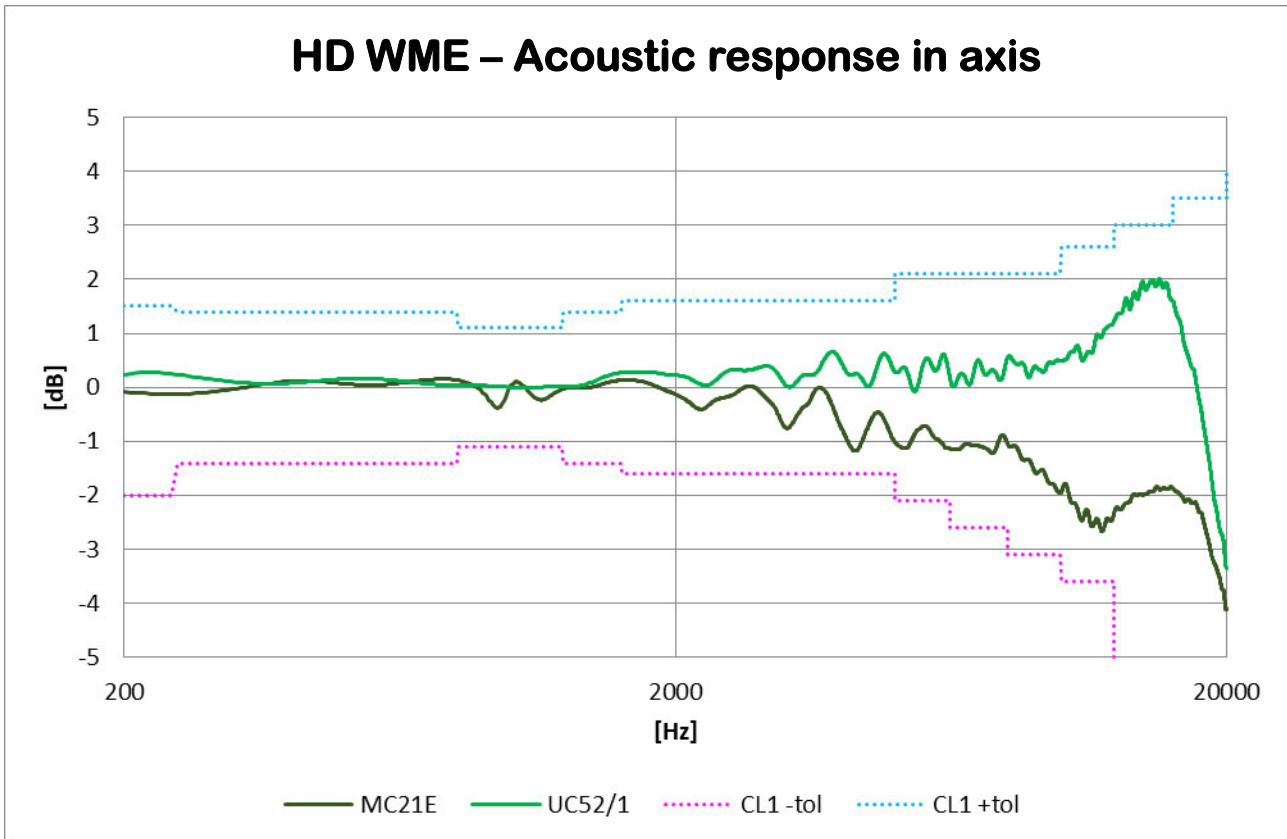


- HDSAV3: windscreen (3)
- HDWME1: birdspike (4)
- HDWME2: rainshield (2)
- HDWME3: stainless steel holder (1)
- Microphone capsule with optimized frequency response for "free field":
 - **UC52**: prepolarized 1/2" condenser microphone with frequency response optimized for "free field" for HD2010UC and HD2010UC/A class 2.
 - **UC52/1**: prepolarized 1/2" condenser microphone with frequency response optimized for "free field" for HD2010UC and HD2010UC/A class 1.
 - **MC21E**: prepolarized 1/2" condenser microphone with frequency response optimized for "free field" for HD2110L.

- Microphone preamplifier:
 - **HD2010PNE2W**: heated preamplifier with integrated 5 m (10 m on request) extension cable for UC52 and UC52/1 microphones. For HD2010UC and HD2010UC/A sound level meters.
 - **HD2010PEWL**: heated preamplifier with integrated 5 m (10 m on request) extension cable for MC21E microphone. For HD2110L sound level meters.

Acoustic response

The microphone unit **HDWME** has an optimized frequency response for "free field" in order to be linear for the sound waves coming from above, such as those of aircraft overflights. The following figure shows the acoustic response measured in an anechoic chamber with the tolerances for Class 1.



The frequency response of the sound level meter can be optimized for the measurement of airborne noise by setting the correction corresponding to the presence of the HDWME outdoor protection:

Menu >> Calibration >> Screen Correction >> WME

The frequency response to noise coming from the ground surrounding the microphone is very different from that for "free field". In order to carry out measurements of this type with the sound level meter, it is necessary to set both the correction relating to the presence of the HDWME outdoor protection, as in the previous case, and that relating to the incidence of sound:

Menu >> Calibration >> Microphone Response >> RI

The sound level meter applies the necessary spectral correction for measurements of noise coming from the ground in accordance with specifications of class 1 according to IEC 61672 (and IEC 60651) and ANSI standards.

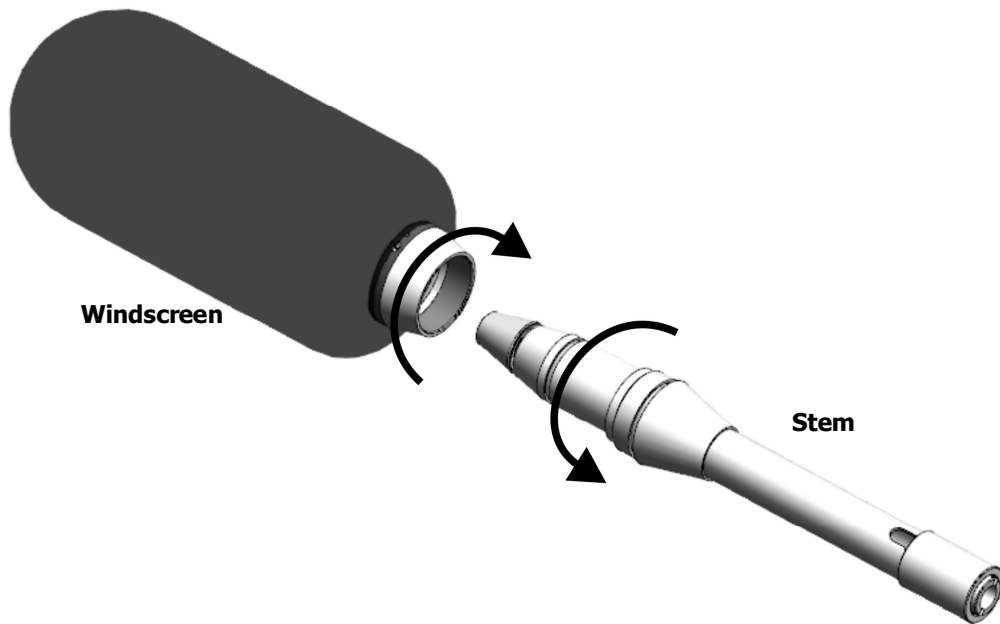
Calibration

To perform the calibration, the ½" standard microphone must be made available by unscrewing the windscreen (see the next paragraph). When calibration is complete, reassemble the protections according to the instructions.

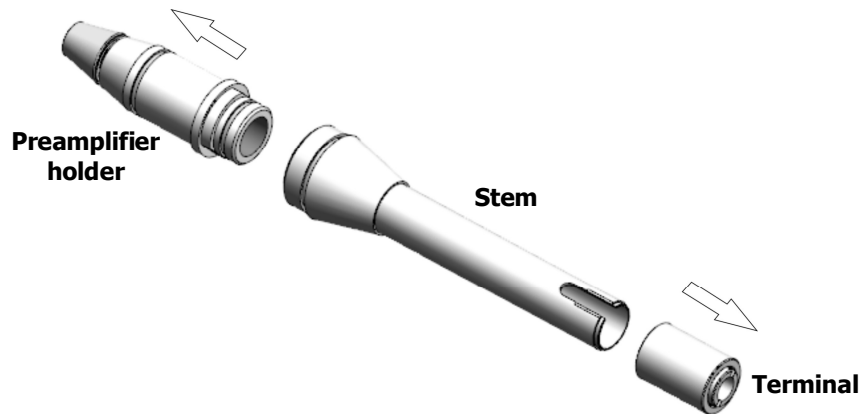
For the parameters necessary to perform the tests, refer to the user manual of the sound level meter used.

Assembling the preamplifier with the microphone

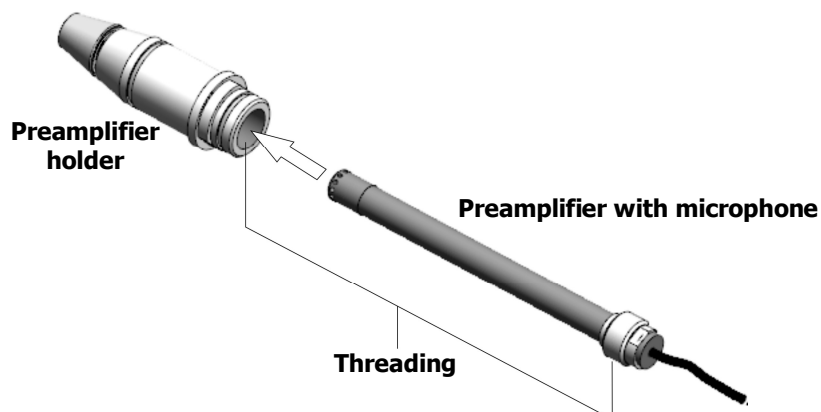
1. Unscrew the windscreen HDSAV3 with the bird spike HDWME1 from the HDWME3 stem.



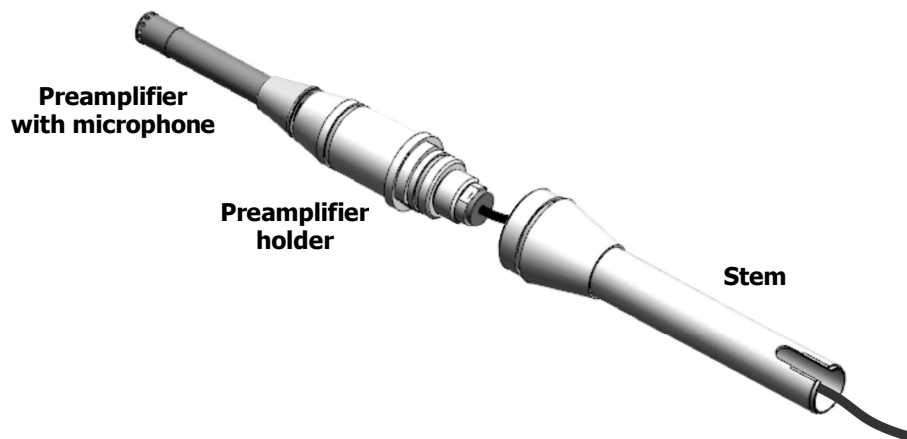
2. Remove the preamplifier holder from the stem and unscrew the terminal placed at the lower end of the stem.



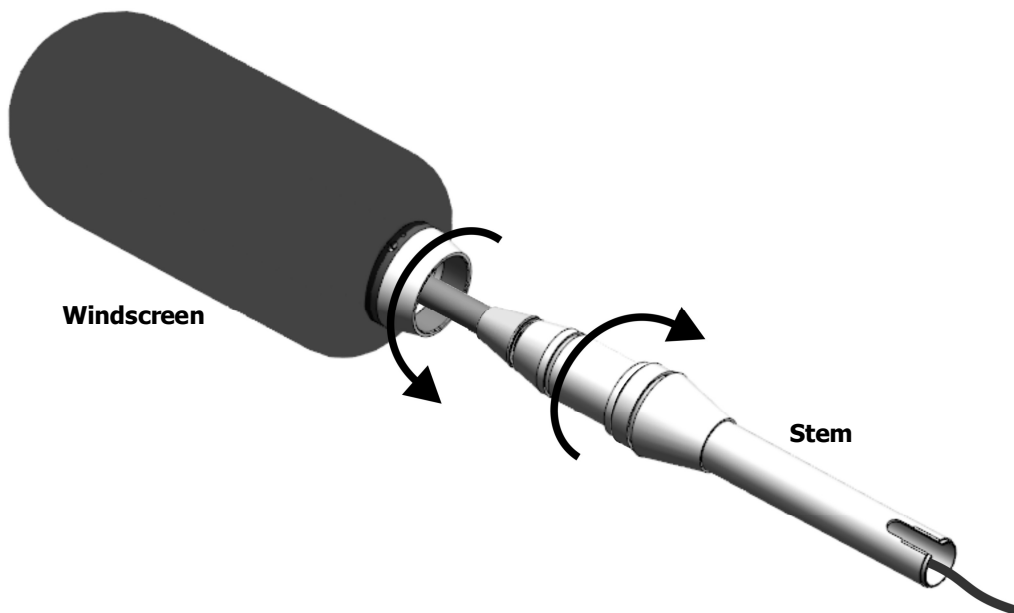
3. Insert the preamplifier with the microphone into the holder (from the underside of the holder) and screw the preamplifier to the holder itself.



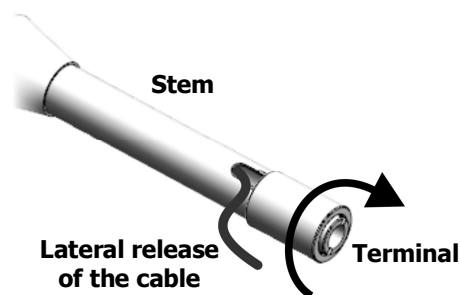
4. Insert the preamplifier cable through the stem and reinsert the holder in the stem (the holder has a locking key so that it can not rotate once inserted into the stem).



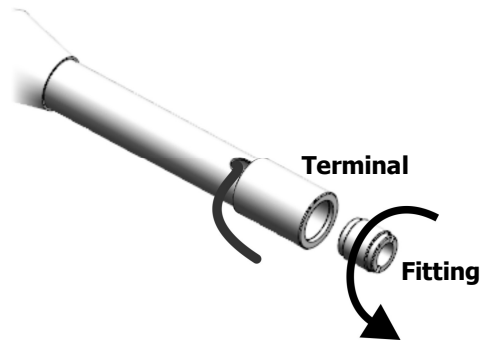
5. Screw the windscreen with the bird spike to the stem.



6. Screw the terminal to the lower end of the stem. The cable can be passed straight (for fixing to the mast) or release laterally (for fixing to a tripod).

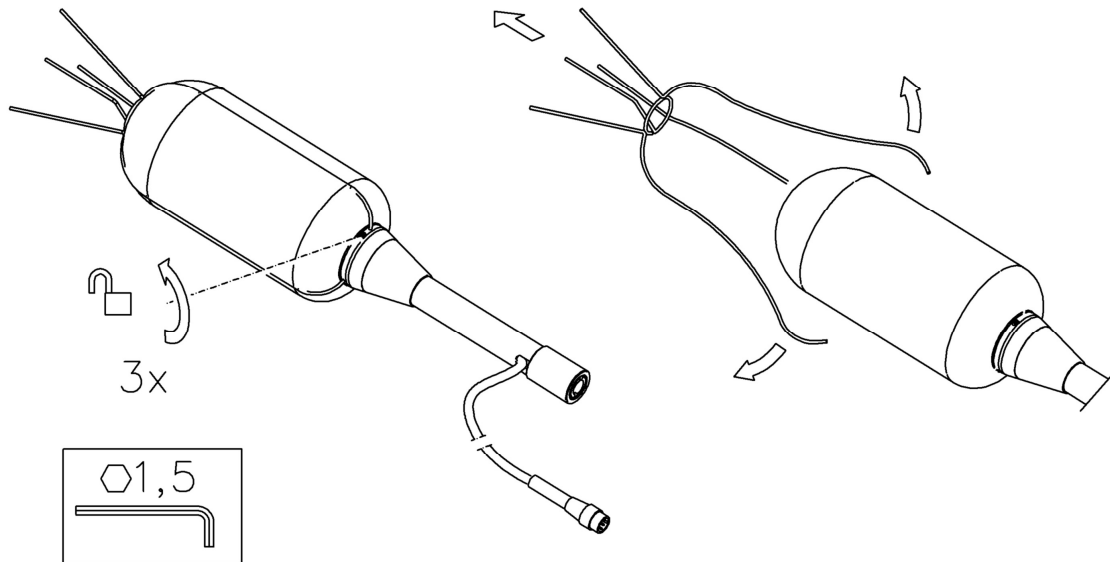


7. To secure the outdoor protection use the threaded terminal. The fitting has two threads: 1/2" and 1/4".

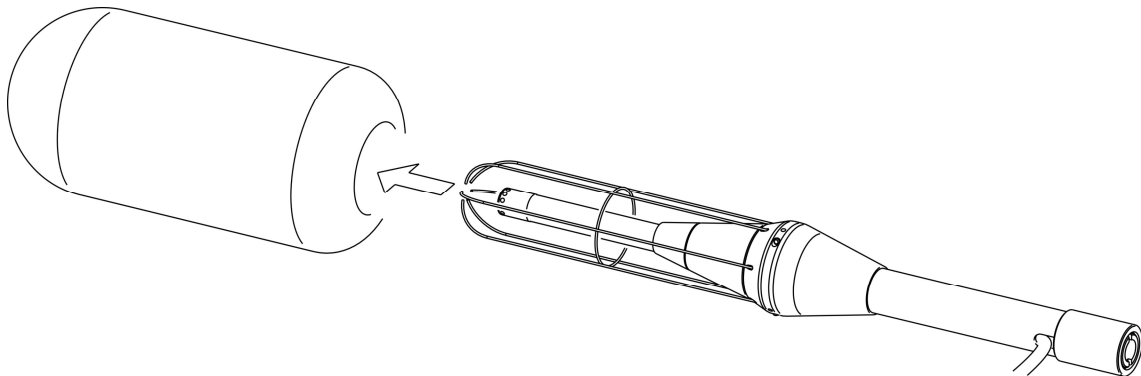


Removing the windscreen

1. Remove the bird spike by loosening, with a 1.5 mm male hex key, the three hex head screws at the base of the windscreen.



2. Pull up the windscreen HDSAV3 and insert the new windscreen.



3. Reinstall the bird spike.

Maintenance

To avoid permanent alteration of the frequency response and consequently a degradation of specifics so as to exit the class 1 tolerance limits, is necessary to prevent accumulation of dust and dirt particles on the microphone membrane. The microphone capsules must be periodically cleaned. **This operation is usually performed during the periodic calibration** and can be performed at Delta OHM or at an accredited laboratory for calibration of measurement microphones. **It is recommended to calibrate the unit annually.**

The removal of the protective grid of the microphone must be performed by qualified personnel. The dirt on the membrane can be cleaned with a soft cloth by working very carefully so as not to damage it. Avoid using the unit in the presence of vapours containing oils, conductive or corrosive substances.

Condensation on the membrane should be avoided because it significantly modifies the acoustic response, causes corrosion and contributes substantially to the formation of residues that are difficult to remove.

When the unit is used to make measurements, the sound level meter power and the preamplifier heating prevent condensation on the membrane. For this reason, when the unit is not used, it should be stored in a dry place.

Ordering codes

- **HDWME** Outdoor microphone protection for HD2110L, HD2010UC and HD2010UC/A. Includes:
 - Stainless steel preamplifier support HD WME3
 - Windshield HDSAV3
 - Rainshield HDWME2
 - Birdspikes HDWME1
- **HD2110PNE2W** Heated preamplifier with integrated 5 m (10 m on request) extension cable for UC52 and UC52/1 microphones. For HD2010UC and HD2010UC/A sound level meters.
- **HD2110PEWL** Heated preamplifier with integrated 5 m (10 m on request) extension cable for MC21E microphone. For HD2110L sound level meters.
- **UC52** Prepolarized 1/2" condenser microphone with frequency response optimized for "free field" for HD2010UC and HD2010UC/A class 2.
- **UC52/1** Prepolarized 1/2" condenser microphone with frequency response optimized for "free field" for HD2010UC and HD2010UC/A class 1.
- **MC21E** Prepolarized 1/2" condenser microphone with frequency response optimized for "free field" for HD2110L.

Accessories

- **HDWME1** Birdspikes for outdoor protection HDWME.
- **HDWME2** Rainshield for outdoor protection HDWME.
- **HDWME3** Stainless steel housing for the preamplifier and the support for rainshield of outdoor protection HDWME.
- **HDSAV3** Windscreen for outdoor protection HDWME.

Specifications

Microphone MC21E

Type	½" standard condenser
Class	1
Polarization voltage	0V
Frequency response	3.15 Hz – 20 kHz
Sensitivity	50 mV/Pa
Maximum sound pressure level (3% THD at 1kHz)	146 dB

Microphone UC52/1

Type	½" standard condenser
Class	1
Polarization voltage	0V
Frequency response	20 Hz – 16 kHz
Sensitivity	22.5 mV/Pa
Maximum sound pressure level (3% THD at 1kHz)	146 dB

Microphone UC52

Type	½" standard condenser
Class	2
Polarization voltage	0V
Frequency response	22.5 Hz – 10 kHz
Sensitivity	22.5 mV/Pa
Maximum sound pressure level (3% THD at 1kHz)	146 dB

Preamplifier

Power supply	± 6V
Power consumption	5 mA
Heater	35 mA @ 6V
Output impedance	50 Ω

Operating conditions

Temperature	-25 ... +70 °C
Relative humidity	< 100% without condensation

Mechanics

Dimensions (Ø x L) complete with birdspikes	90 x 470 mm
Weight	600 g
Thread for type MK microphone capsules	11.7 mm 60 UNS
Thread for type UC52 microphone capsules	M11.6 x 0.4
Thread for the support of the unit	M18 x 1, ½ W, ¼ W
Cable length	5 m (other lengths on request)
Connector	DIN 8-pole