

# PRODUCT DATA

## Outdoor Microphones — Types 4952 and 4952-A

*Outdoor Microphones Types 4952 and 4952-A are suitable for long periods of unattended outdoor use. Their exterior housing is made of a chemical resistant polymer that provides extremely high protection against corrosion.*

*The microphones' long-term stability guarantees unattended outdoor use for up to a year without any significant change in sensitivity.*

*Frequency response is precisely controlled, such that, with the appropriate linearization, IEC 61672 Class 1 requirements are fulfilled.*

*The windscreen upper part and bird spike can be removed in seconds, enabling easy acoustical calibration of the microphone.*

*Low weight makes this an ideal choice for portable use.*



### USES AND FEATURES

#### USES

- Unattended outdoor installations
- Measurements in all weather conditions
- Microphone for noise monitoring systems
- IEC 61672 Class 1 compliant outdoor sound measurement
- Complaint investigations

#### FEATURES

- Easy 'click-on' and 'click-off' assembly and disassembly
- Easy and true acoustical calibration
- CIC for on-site verification
- Measurement to EN/IEC 61672 Class 1 and ANSI S 1.40–1984
- Sensitivity 31,6 mV/Pa
- Wide dynamic range
- Built-in preamplifier with TEDS – IEEE P1451.4
- Protected against the effects of wind, rain and perching birds
- Useable for both 0° and 90° angle of incidence

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## Description

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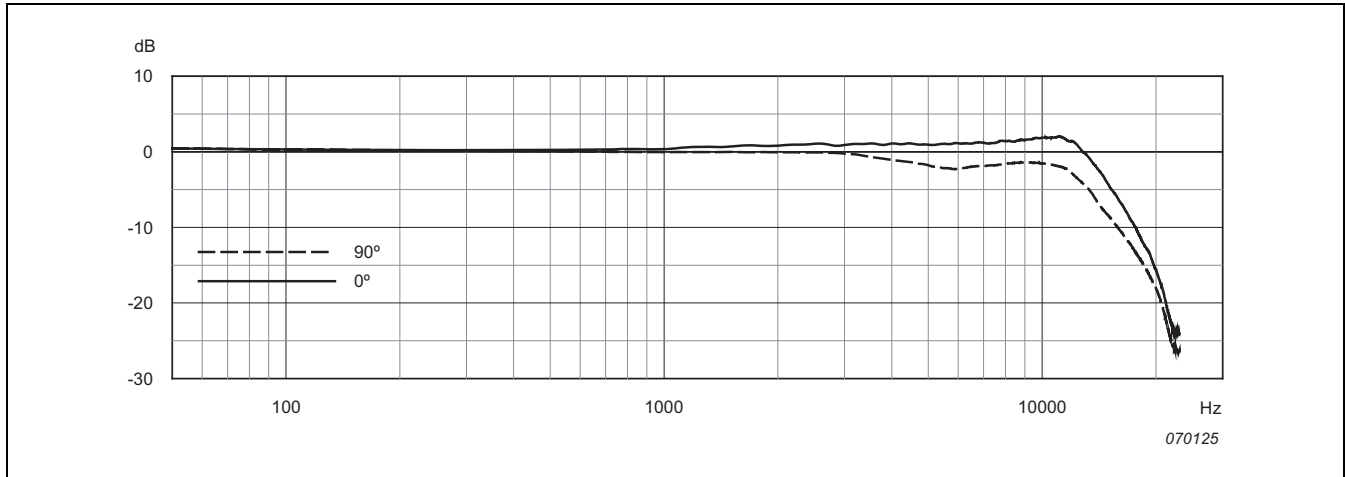
The exterior housing of Outdoor Microphones Types 4952 and 4952-A is made of a chemical resistant polymer that provides extremely high protection against corrosion. This and the microphones' excellent long-term stability guarantee unattended outdoor use for at least a year with no significant change in sensitivity.

Many outdoor microphone systems provide durability at the expense of microphone accessibility, which makes acoustical calibration difficult. With Types 4952 and 4952-A, the windscreen can be removed in seconds, enabling easy true acoustical calibration of the microphone.

The Brüel & Kjær patented Charge Injection Calibration (CIC) feature allows precise verification of the microphone (including preamplifier and cabling) at remote sites.

Frequency response is precisely controlled, such that, with the appropriate linearization (as available with Brüel & Kjær's Noise Monitoring Terminal Type 3639-E), EN/IEC 61672 Class 1 requirements are fulfilled up to 20 kHz. Typical frequency response without linearization is shown in Fig. 1.

**Fig. 1** Type 4952 – Typical frequency response



### Directivity Response

The complete microphone unit including wind and rain protection has been carefully designed in order to obtain true omnidirectional characteristics. With the appropriate filtering (as available in recommended Brüel & Kjær instrumentation), the requirements of the IEC 61672 paragraph 5.3 (table 1) and ANSI S1.4–1983 can be met with the same Outdoor Microphone, both for 0° and 90° reference direction, thus increasing the number of possible applications for Outdoor Microphones Types 4952 and 4952-A.

### Windscreen and Rain Protection

A carefully designed windscreen keeps the airflow away from the microphone, thereby avoiding influence on the diaphragm from flow-borne pressure fluctuations. The windscreen also protects the microphone and preamplifier from the direct airflow, eliminating flow noise caused by von Karman vortices.

Additionally, the windscreen provides rain protection, but even if water should enter behind the windscreen, acoustically designed fine-mesh water protection will lead the water away, providing double rain protection for the microphone cartridge.

The upper part ends in a bird spike, which prevents birds from perching on the microphone. The end of the bird spike is rounded in order to reduce the risk of eye injury.

Finally the windscreen can be replaced easily, and spare windscreens are available in sets of six in order to reduce the cost of lifetime ownership.

**Mounting**

This Outdoor Microphone is available in two variants: Types 4952 and 4952-A. Type 4952 fits onto a pole with 1" thread according to ISO 228 BSP (British Standard Pipe). Type 4952-A includes Tripod Adaptor UA-1707 for tripod mounting.

For both variants, the output socket is located under the pole coupling so that the connector and cable are well protected.

**Long Lasting**

The units provide excellent long-term mechanical stability. Replacement upper parts with windscreen are available.

**Microphone Cartridge**

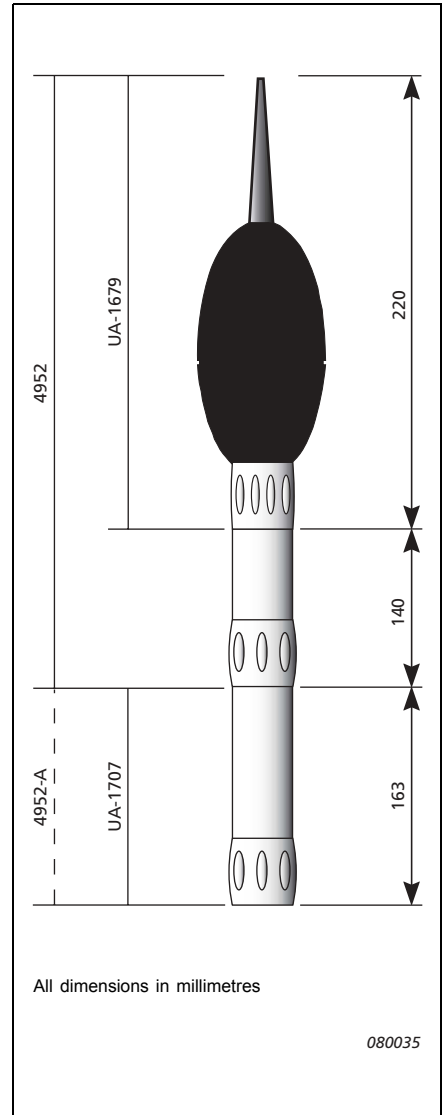
Types 4952 and 4952-A feature a highly stable, prepolarized, free-field, 1/2" type 1 microphone cartridge with a stainless steel diaphragm.

**Integral Preamplifier**



The integrated preamplifier operates over a wide range of temperatures, humidity levels and other environmental conditions. It combines an extremely wide frequency and dynamic range with low noise and is capable of driving very long cables.

**Calibration Chart Included**

A calibration chart, showing the frequency response for 0° as well as 90° angle of incidence, is included with the Outdoor Microphone.



**Compliance with Standards**

 	<p>CE-mark indicates compliance with: EMC Directive and Low Voltage Directive. C-Tick mark indicates compliance with the EMC requirements of Australia and New Zealand.</p>
<p><b>Safety</b></p>	<p>EN/IEC 61010-1 and ANSI/UL 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use.</p>
<p><b>EMC Emission</b></p>	<p>EN/IEC 61000-6-3: Generic emission standard for residential, commercial and light industrial environments. EN/IEC 61000-6-4: Generic emission standard for industrial environments. CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits. FCC Rules, Part 15: Complies with the limits for a Class B digital device.</p>
<p><b>EMC Immunity</b></p>	<p>EN/IEC 61000-6-1: Generic standards – Immunity for residential, commercial and light industrial environments. EN/IEC 61000-6-2: Generic standards – Immunity for industrial environments. EN/IEC 61326: Electrical equipment for measurement, control and laboratory use – EMC requirements. <b>Note:</b> The above is only guaranteed using accessories listed in this Product Data sheet.</p>
<p><b>Mechanical</b></p>	<p>Non-operating: IEC 60068-2-6: Vibration: 0.3 mm, 20 m/s<sup>2</sup>, 10-500 Hz IEC 60068-2-27: Shock: 1000 m/s<sup>2</sup> IEC 60068-2-29: Bump: 1000 bumps at 400 m/s<sup>2</sup></p>
<p><b>Enclosure</b></p>	<p>IEC 60529: Protection provided by enclosures: IP 44.</p>

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## Specifications – Outdoor Microphones Types 4952 and 4952-A

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### Guaranteed Specifications<sup>a</sup>

#### SENSITIVITY (at 250 Hz)

31.6 mV/Pa corresponding to –30 dB re 1 V/Pa ±3 dB

### General Specifications

#### FREQUENCY RESPONSE

Calibration Chart with typical frequency response for both 0° and 90° angle of incidence, see Fig. 1

#### SUPPLY VOLTAGE

±14 to ±60 V  
or 28 to 120 V

#### MICROPHONE POLARIZATION VOLTAGE

0 V

#### INHERENT NOISE

<16 dB SPL (A-weighted)

#### MAX SPL

>130 dB

#### MAX. OUTPUT VOLTAGE

V<sub>supply</sub> –10 V

#### OUTPUT IMPEDANCE

<25 Ω

#### MAX. OUTPUT CURRENT

20 mA peak

#### OUTPUT SLEW RATE

2 V/μs

#### PREAMPLIFIER CONNECTOR

LEMO Type FWG.IB.307

#### MOUNTING THREAD

Standard 1" thread according to ISO 228 ("water pipe thread")

### Environmental

#### OPERATING TEMPERATURE RANGE

–30 to +60°C (–22 to +140°F)

#### STORAGE TEMPERATURE

–30 to +70°C (–22 to +158°F)

#### TEMPERATURE COEFFICIENT (at 250 Hz)

–10 to +50°C 0.005 dB/K

#### OPERATING HUMIDITY RANGE

0% – 100% RH without condensation

#### INFLUENCE OF HUMIDITY

<0.1 dB in the absence of condensation

#### PRESSURE COEFFICIENT (at 250 Hz)

–0.021 dB/kPa

#### VIBRATION SENSITIVITY (< 1 kHz)

63.5 dB equivalent SPL for 1 m/s<sup>2</sup> axial acceleration

#### MAGNETIC FIELD SENSITIVITY

7 dB SPL for 80 A/m, 50 Hz field

#### DIMENSIONS

Max. Diameter: 75 mm (2.99")

**4952**      Max. Length: 360 mm (14.2")

Weight: 230 g (8.12 oz.)

**4952-A**    Max. Length: 523 mm (20.6")

Weight: 430 g (15.17 oz.)

a. Guaranteed specifications are valid at 23°C (73.4°F).

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## Ordering Information

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### Optional Accessories

#### CABLES<sup>b</sup>

AO-0414    Microphone extension cable for Type 3639-E, LEMO 1B to LEMO 1B

AO-0645    Microphone extension cable for 2250, LEMO 1B female to 10-pin LEMO 1B male

#### OTHER

UA-1700    Windscreen for Type 4952

UA-1701    Windscreens for Type 4952, set of 6

UA-1679    Upper part, complete with windscreen

UA-1251    Lightweight tripod

b. Cables are available in customer specified lengths

#### OPTIONAL ACCESSORIES (4952 only)

UA-1707    Tripod adaptor for Type 4952

#### Services

4952-CAF    Accredited Calibration of Outdoor Microphone, Replacement of Windscreen Included

4952-CTF    Traceable Calibration of Outdoor Microphone, Replacement of Windscreen Included

For annual preventive maintenance, including recalibration, please consult your local Brüel & Kjær representative

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Brüel & Kjær reserves the right to change specifications and accessories without notice

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**Brüel & Kjær** 

