

# Sound-intensity Probe Type 50AI

## Product Data and Specifications

### Typical applications

- **Sound-intensity measurements**
- **Sound-source location**
- **Sound-power measurements**
- **IEC 61043 standard measurements**
- **Sound-source ranking**
- **Sound-intensity mapping**

Over 20 years of theory and practical experience in sound-intensity measurements have gone into the G.R.A.S. Sound-intensity Probes Type 50AI (Fig. 1). It is adjustable, durable and fully complies with the requirements in IEC 61043, *Electroacoustics - Instruments for the Measurement of Sound Intensity - Measurements with Pairs of Pressure Sensing Microphones, 1993* for Class 1 Sound-intensity probes.

All components are made specifically for sound intensity applications. Each small ¼-inch diameter by 40 mm long microphone preamplifier is housed in a robust stainless steel casing, which enables novel probe designs for reducing disturbances to the sound field otherwise brought about by the effects of shadows and diffraction, and a symmetry which enables reliable calibrations as described in the proposed standard (ISO/DIS 9614-2) for sound power measurements using sound-intensity measurements.

The Sound-intensity Probe Type 50AI comprises:

- Sound Intensity Microphone Pair Type 40AK (see separate data sheet)
- Two Microphone Preamplifiers Type 26AA (see separate data sheet)
- Four solid spacers of various lengths
- Remote-control handle

The microphones are high sensitivity, free-field ½-inch condenser microphones with a uniquely-designed pressure equalisation system which ensures

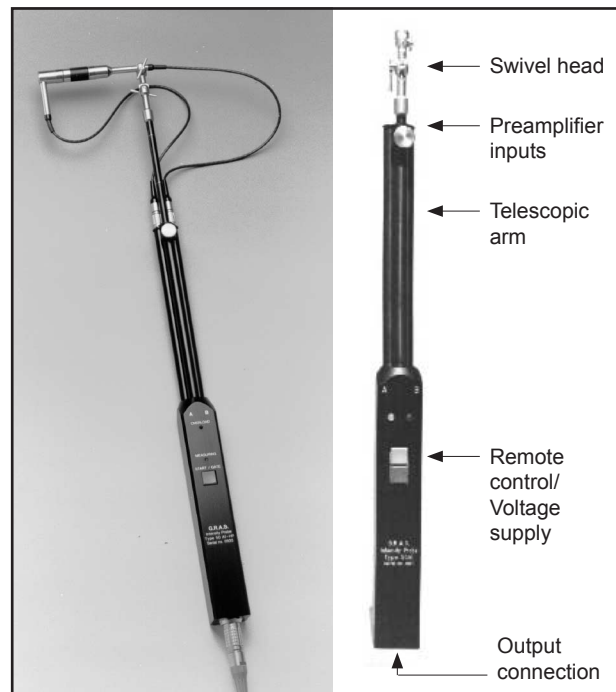


Fig. 1 Sound-intensity Probe Type 50AI (left), and (right) principle features of its remote-control handle.

extremely well defined phase characteristics. The microphones and preamplifiers are mounted on a swivel head on the telescopic arm of the Remote-control handle. To cover the full frequency range from 50 Hz to 10 kHz, the Type 50AI probes are delivered with four solid spacers for spacing the microphones at 12 mm, 25 mm, 50 mm and 100 mm. These spacers can be easily interchanged without dismantling the probe.

The Type 50AI can also be supplied with a pair of phase-matched ¼-inch microphones Type 40BI (see separate data sheet) instead of the ½-inch pair Type 40AK mentioned above. The Type 40BI is for measuring very high intensity levels which lie above the dynamic range of the Type 40AK or in situations where the smaller size of the Type 40BI is necessary. Please mention Type 40BI when ordering.

# Sound-intensity Probe Type 50AI

Different versions of the Type 50AI are available for connecting directly to a wide range of general-purpose frequency analysers as well as specialised sound intensity analysers.

**Type 50AI version A** has built-in remote control functions for direct connection to, and control of, a Norsonic Real-time Analyser Nor840.

**Type 50AI version B** has built-in remote control functions for direct connection to, and control of, sound-intensity measuring systems from a wide range of suppliers such as 01 dB, Müller-BBM and Neutrix-Cortex. Can be used with G.R.A.S. Intensity Module Type 12AB.

**Type 50AI version C** can be connected to any analyser with standard 7-pin LEMO microphone inputs or G.R.A.S. Power Module Type 12AA or Intensity Power Module Type 12AB..

**Type 50AI version D** is similar to version B but uses internal batteries for enabling its remote-control functions.

**Type 50AI version HP** has built-in remote control functions for direct connection to, and control of, Hewlett-Packard analysers such as the type HP 3569A.

**Type 50AI version LD** has built-in remote control functions for direct connection to, and control of, Larson Davis analysers such as the types LD2900 and LD3000 (please state which when ordering).

All versions of the Type 50AI are delivered in a carrying case, complete with microphones, preamplifiers, mechanical parts, windscreen and Remote-control handle (for the relevant version). Special configurations can also be made to order.

## Specifications

<b>Sound-intensity microphone pairs:</b> G.R.A.S. .... Type 40AK	for enabling its remote-control functions. 5 m cable AA0021 and adapter cable AC0005 included.
<b>Frequency response and phase matching:</b> IEC 1043 Class 1	<b>Remote-control handle version HP:</b> Built-in remote control functions for Hewlett-Packard analysers. One button for measurement control. LEDs for status indication and overload indication. 3 m cable AA0040 and adapter cable AC0006 included.
<b>Preamplifiers:</b> G.R.A.S. ¼-inch (2): .... Type 26AA with 4-pin LEMO connector type FGG OB	<b>Remote-control handle version LD:</b> Built-in remote control functions for Larson Davies analysers. One button for measurement control. LEDs for status indication and overload indication. 5 m cable AA0021 and adapter box AC0007 or AC0004 included (depending on analyser).
<b>Remote-control handle version A:</b> Built-in remote control functions for Norsonic analysers. Three buttons for start/stop and continue averaging control and three LEDs for status indication and overload indication. 10 m cable AA0022 included.	<b>Operating temperature range:</b> +5 °C to +40 °C
<b>Remote-control handle version B:</b> Built-in remote control functions for 01 dB analysers. Two buttons for averaging control and two LEDs for status indication and overload indication. 5 m cable AA0021 and adapter cable AC0002 included.	<b>Weight (version B):</b> 0.4 kg (0.9 lbs)
<b>Remote-control handle version C:</b> General-purpose intensity handle with two 7-pin LEMO 1B output connectors. 5 m cable AA0021 and adapter cable AC0003 included.	<b>Accessories included:</b> Windscreen: ..... AI0001
<b>Remote-control handle version D:</b> Similar to version B but uses internal batteries	<b>Accessories available:</b> Intensity Power Module ..... Type 12AB (for versions B, C, D) Power Module: ..... Type 12AA (for version C)

G.R.A.S. Sound & Vibration reserves the right to change specifications and accessories without notice

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