

1/2-inch Low-noise Level Microphone System Type 40HT

Product Data and Specifications

Typical features/applications

- **Low-noise set-ups in confined spaces, e.g. in the KEMAR Head Type 45DA and Hearing-protector Test Fixture Type 45CA**
- **Very low sound pressure measurements**
- **Very low sound power measurements**

The G.R.A.S. 1/2-inch Low-noise Microphone System Type 40HT (Fig. 1) has specifications similar to the Type 40HH but can also be used in confined spaces such as:

- in the KEMAR Head Type 45DA
- in the Hearing-protector Test Fixture Type 45CA

when these are to be used for very low noise level measurements.

The Type 40HT can measure sound pressure levels below the threshold of human hearing; and is amply suitable for sound-power measurements on even very quiet products. Its very, wide dynamic range permits measurements down to below -2 dB re. $20 \mu\text{Pa}$ (in $1/3$ -octave bands) from 20 Hz to 20 kHz. It comprises:

- special high-sensitive 1/2-inch Condenser Microphone Type 40AH
- 1/4-inch High-impedance Preamplifier Type 26HG with adapter (GR0010) for the 1/2-inch microphone
- special Gain and Filter Unit Type 26HT

The Gain and Filter Unit and Microphone are an individually-matched combination. To complete the system, a special single or 10-channel power module (available from G.R.A.S.) is required, i.e.

- Type 12HF for single-channel measurements
Or
- Type 12HM for 1 to 10 channel measurements

Each channel provides all voltages required for a Type 40HT and polarizing its microphone.

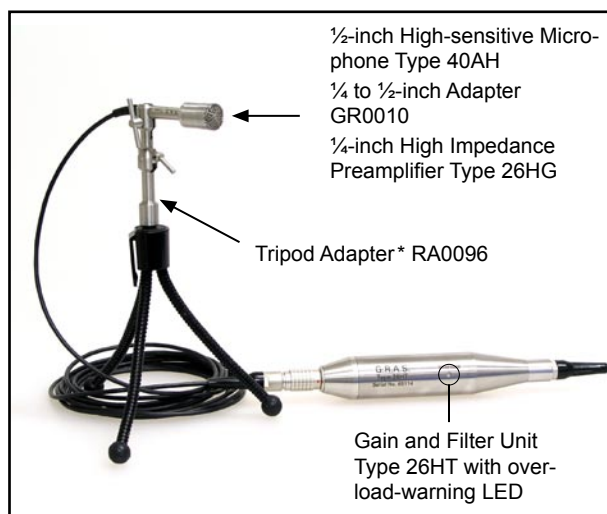


Fig. 1 1/2-inch Low-noise Level Microphone System Type 40HT

Gain and Filter Unit Type 26HT

This has a built-in overload indicator (which is repeated on the chosen power supply) and a frequency correction facility for both pressure-microphone operation as well as free-field microphone operation (Fig. 2).

Microphone

The Microphone Type 40AH is an externally polarized microphone with a specially reduced inherent noise floor in order to achieve a high dynamic range and wide frequency range. Its diaphragm is specially tuned to yield high sensitivity coupled with low internal-noise generation.

Frequency response and noise floor

The chosen power supply has a two-position switch for selecting which microphone operation to use, i.e. pressure or free-field. A typical free-field response for an angle of incidence of 0° is shown in Fig. 2 when the Type 40HT is switched to free-field operation. Fig. 3 shows, for a complete low-noise measuring system, a typical noise floor in $1/3$ -octave bands for both the linear and A-weighted cases.

* Tripods and Tripod adapters are available from G.R.A.S.

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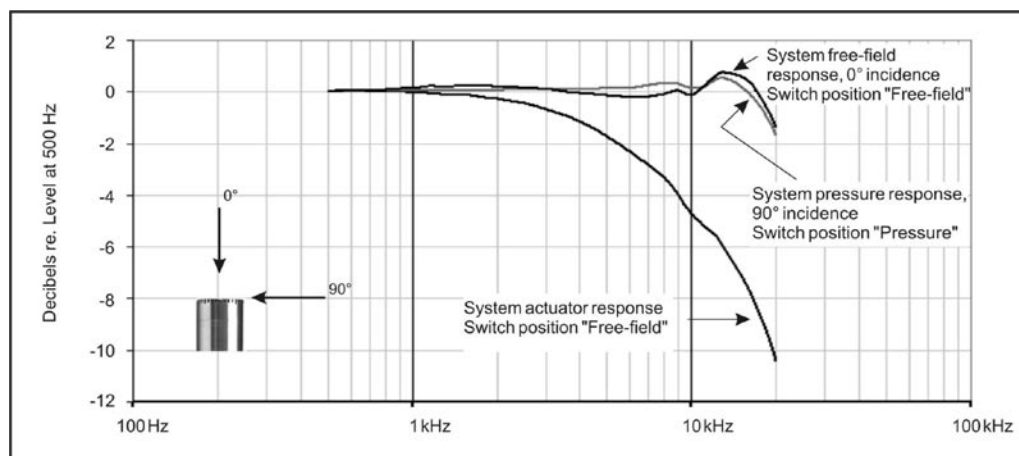
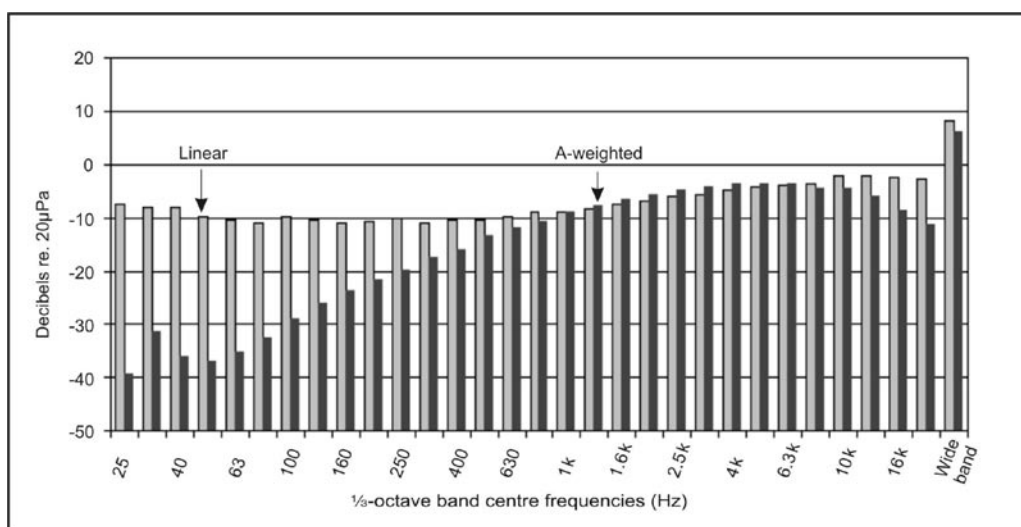


Fig. 2 Typical frequency response curves of Type 40HT

Fig. 3 Typical noise floor of Type 40HT for system and microphone. Shown in ⅓-octave bands for both the linear and A-weighted cases



Specifications

Low-noise Measuring System comprising:

½-inch Microphone: Type 40AH
Gain and Filter Unit Type 26HT
(with 3 m cable and LEMO FGA.1B.307 plug)
¼-inch Preamplifier: Type 26HG
(with 3 m cable and ¼ - ½-inch Adapter GR0010)

Frequency response:

12.5 Hz - 10 kHz: ±1.0 dB
10 Hz - 16 kHz: ±2.0 dB
6 Hz - 20 kHz: +2.0 dB, -3.0 dB

Nominal sensitivity:

System: 800 mV/Pa
Microphone: 80 mV/Pa

Microphone polarization voltage:

200 V

Dynamic range:

Upper limit: 113 dB re. 20 μPa

Lower limit: 6.5 dBA re. 20 μPa
(inherent noise)

Temperature range:

-20 °C to +60 °C

Accessories available:

Power Module (1 ch.): Type 12HF
Power Module (10 ch.): Type 12HM
Windscreens (set of 5) AM0069
Pistonphone Type 42AA
Pistonphone Coupler: RA0090
(for 94 dB re. 20 μPa)
Tripod: AL0006
Tripod Adapter: RA0096
3m Ext. cable: AA0046
10m Ext. cable: AA0047
30m Ext. cable: AA0048

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

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