

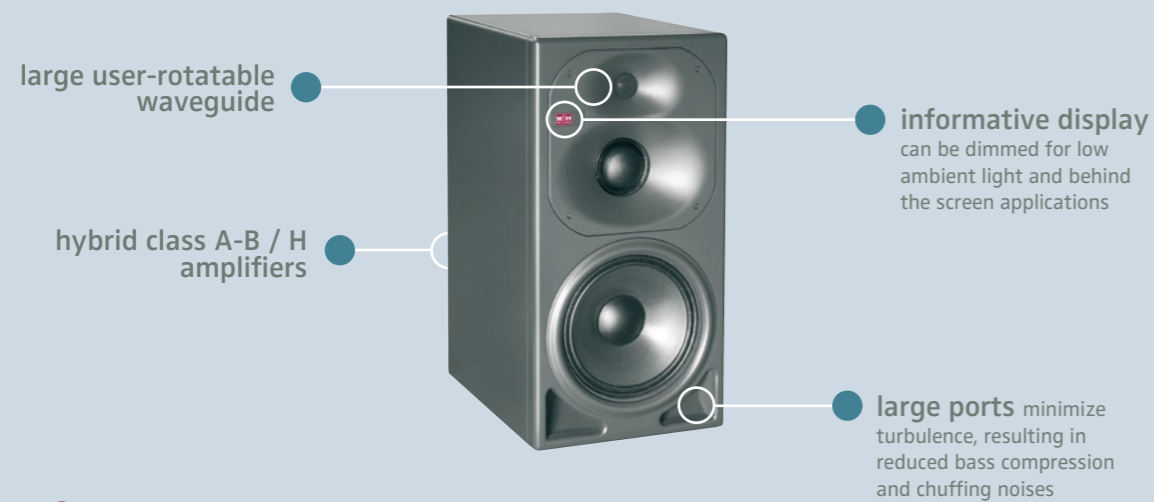


**NEW**  
**O 410**  
Active Mid-Field Monitor



**Back in 1967,** Klein + Hummel launched the world's first active studio monitor, the OY. The O 410 represents the latest incarnation of the many technologies pioneered by Klein + Hummel during the intervening 40 years. Engineering excellence applied to all aspects of the O 410 design brings a new benchmark in audio reproduction quality. A waveguide featuring Mathematically Modeled Dispersion™ (MMD™), flexible acoustical controls, various input options and an extensive mounting hardware range allow the O 410 to be used in diverse acoustical conditions, with any source equipment, and in a wide variety of physical locations.

The O 410 has been designed for use as a mid-field or main monitor. It is particularly well-suited for use in music, broadcast and post production studios for tracking, mixing and mastering. The O 410 can be used free-standing or flush-mounted into a wall, and, in multichannel systems, can be mixed freely with other loudspeakers in the Klein + Hummel range.



## O 410 Mid-Field Monitor

### Mid Sized 3-way System

- The most important part of the frequency spectrum is reproduced by a separate midrange driver
- Extremely low harmonic and intermodulation distortion results in clean sounding audio reproduction
- Exceptionally neutral sound stage from 30 Hz to 24 kHz (– 3 dB)
- Ideal cabinet materials with excellent self-damping properties
- Structural resonances avoided using LRIM™ (Low Resonance Integral Molding™)
- Vented enclosure extends bass response, even at very high output
- Modern-looking design with optional grille
- Extensive accessories allow for a multitude of installation possibilities
- Magnetically shielded for use next to CRT screens

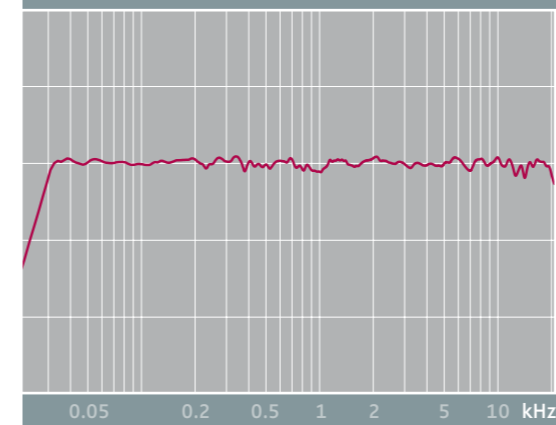
### Mathematically Modeled Dispersion™ (MMD™)

- Three stage design process:
  - ▶ Waveguide is mathematically modeled before physical prototypes are realized
  - ▶ Physical prototypes are measured under anechoic conditions to verify theoretical performance
  - ▶ Extensive listening tests correlate objective measurements and subjective perception
- Wide horizontal directivity gives increased freedom of movement along the mixing console
- Narrow vertical directivity reduces the effect of early reflections off the console surface
- MMD™ is easily rotated in the field when horizontal mounting the cabinet
- Perfect directivity pattern leads to a smooth power response

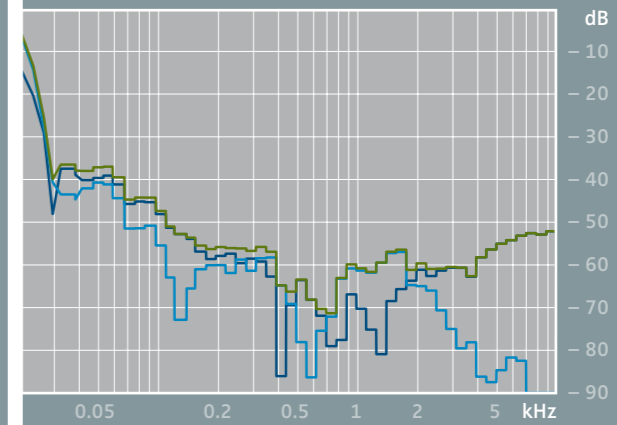
### Advanced Electronics

- Transformer balanced input stage (TIM 1) equipped with special distortion reduction crossover function
- 16...24-Bit, 20...216 kHz digital input stage (DIM 1) for AES3, AES 3id and S/P-DIF signals
- Electronics can be remotely accessed when the cabinet is flush mounted (REK 1 and CP 2, 5, 10, 15, 20, 25, or 30)
- Integrated electronic limiter for each driver
- Hybrid class A-B amplifiers, employed for their best overall performance, are also protected
- Active three-way crossover with 24 dB/oct. slopes
- Input options give flexibility without burdening basic product:
  - ▶ Transformer balanced input stage equipped with special distortion reduction crossover function
  - ▶ 16...24-bit, 20...216 kHz digital input stage for AES3, AES 3id and S/P-DIF signals
  - ▶ XLR and BNC inputs, and a BNC output for flexible and robust interconnectivity
- Display for signal type, protect and digital status is integrated into the MMD™, together with a K+H logo
- Controls adapt the monitor's response to compensate for the loudspeaker's environment:
  - ▶ Bass, mid and treble controls for specific and common acoustical issues
  - ▶ Parametric EQ for low-frequency corrections
- Accelerated Heat Tunneling™ (AHT™) ensures effective amplifier cooling whether the cabinet is mounted vertically or horizontally
- Electronics can be remotely accessed when the cabinet is flush mounted
- Electronics can be remotely powered on with two modes of operation (0 V and 12 V trigger)
- Attention to detail in design results in low self-generated noise

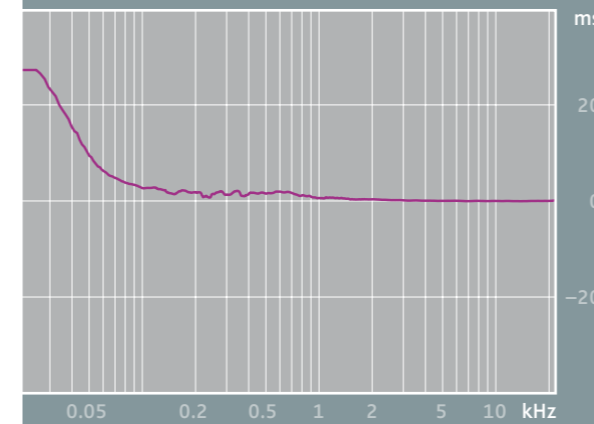
### Frequency response



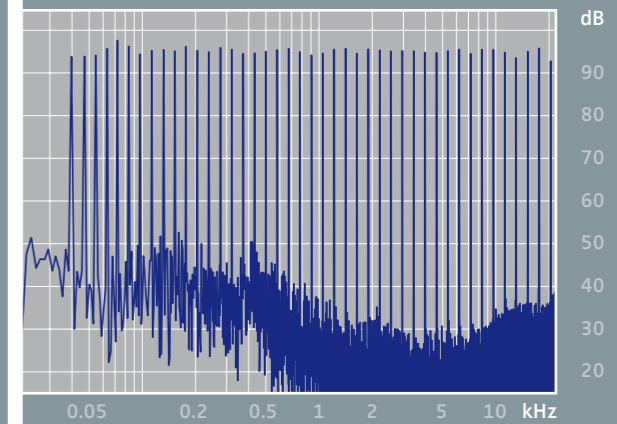
### THD at 95 dB SPL at 1 m



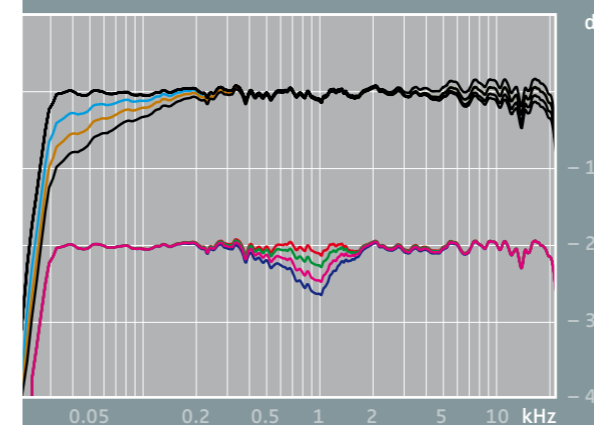
### Group delay



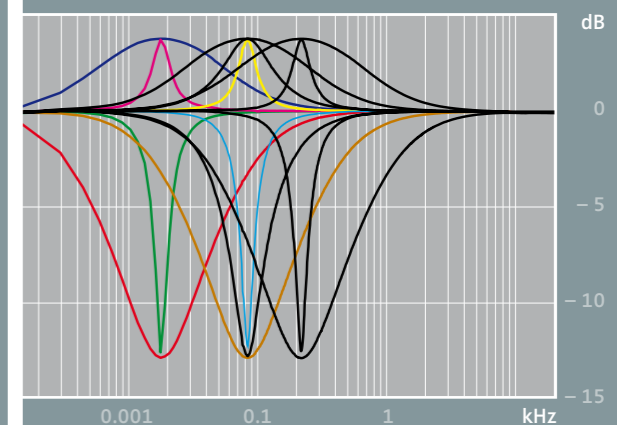
### Multitone distortion O 410 at 95 dB SPL at 1 m



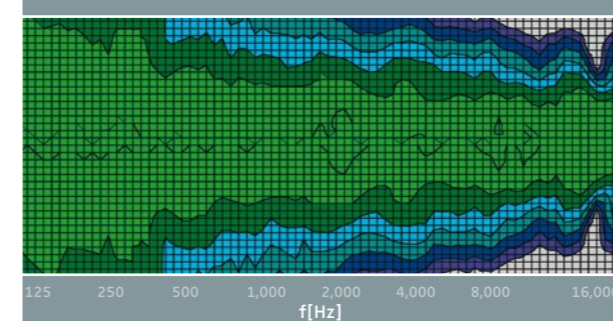
### Acoustical controls



### Parametric equalizer



### Horizontal directivity



### Vertical directivity

