



Code 1750

UG HMS/HSU move°S

Upgrade HMS/HSU to move°S Motorized Head-Turning Version

OVERVIEW

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UG HMS/HSU move°S is an optional upgrade for the latest generation of the HMS II series and HSU III.2¹.

The upgrade adds motorized turning of the artificial head with high precision and full repeatability. move°S can realistically simulate the head rotation of a real person. The mechanism operates quietly and therefore is applicable during measurements.

KEY FEATURES

Upgrades qualified HMS II series and HSU III.2¹ with motorized turning mechanism for the artificial head

Realistically simulates head rotation of a real person

Quiet operation – applicable during measurements

Control via software

Control and automation, e.g., via Python® scripts

APPLICATIONS

Virtual/Augmented Reality (VR/AR) headsets

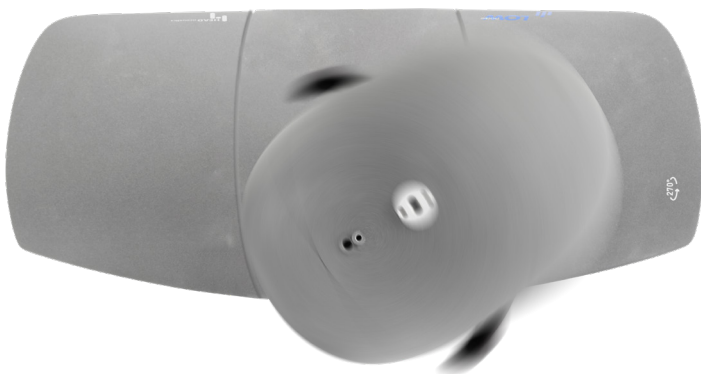
In-vehicle communication systems and devices (ICC, eCall, hands-free communication, etc.)

Effects of acoustic reflections on shoulders and/or nearby surfaces, e.g., in vehicles

Arbitrary applications using head tracking

Systems with direction-dependent behavior, e.g., multi-user conferencing systems

move°S



DETAILS

Turning the head in response to acoustical or visual input is a very innate, instinctive human process. Obviously, turning the head fundamentally alters the acoustic situation for talking and listening. Most notable are changes of level and spectrum, which in turn change localization, psychoacoustic parameters and influence of interfering noise. Therefore, test cases with direction-dependent acoustics benefit from an artificial head that turns in respect to its shoulders. Ideally, the head should be able to turn during measurements, which necessitates motorized, noiseless, and human-like motion capabilities. The move°S technology provides all these features.

Implementation

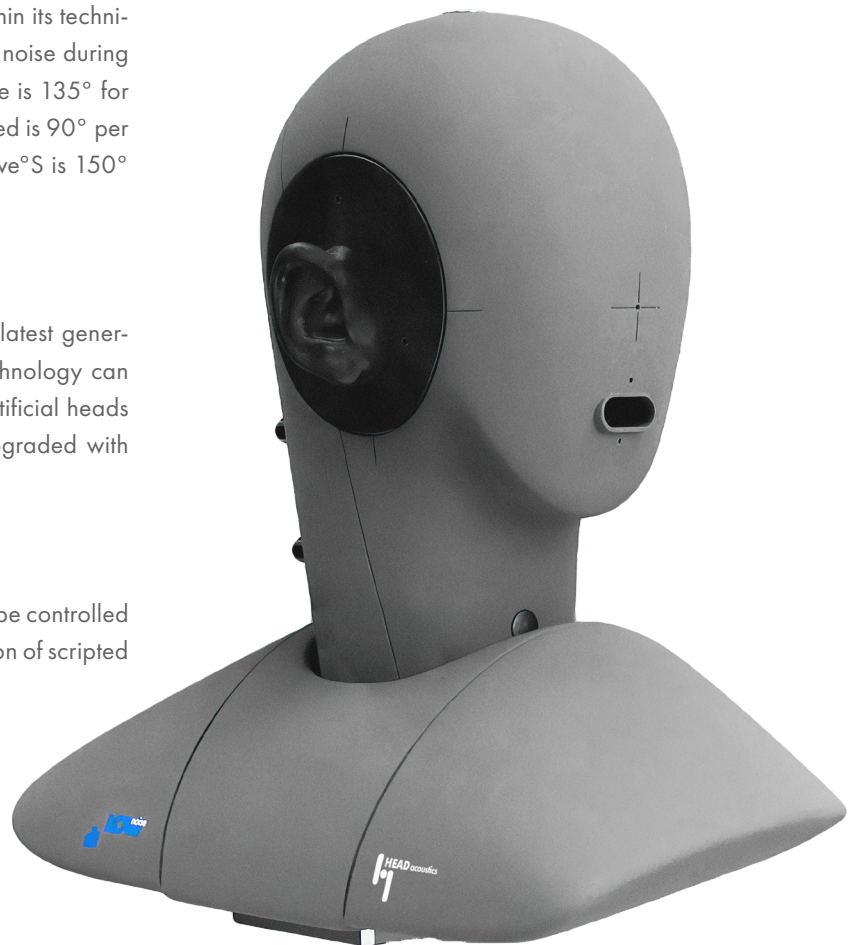
The move°S technology comprises an electro-mechanic drive system integrated into the shoulder unit of qualified HEAD acoustics artificial heads. The drive system operates quietly within its technical limits. Hence, turning the head without interfering noise during measurements is possible. The maximum turning angle is 135° for each direction. For quiet operation, the maximum speed is 90° per second. However, the maximum turning speed of move°S is 150° per second.

Retrofitting

move°S is available as an optional upgrade for the latest generation of HMS II series as well as HSU III.2¹. The technology can be purchased for initial delivery. Existing qualified artificial heads of the HMS II series and HSU III.2¹ can also be upgraded with move°S technology.

Operation

move°S is operated via software. Operation can also be controlled and automated as desired via pulse-triggered execution of scripted control commands in Python®.



HMS II.3 LN HEC including move°S technology

TECHNICAL DATA

Turning range	<ul style="list-style-type: none"> › 135° (left, CCW) › -135° (right, CW)
Angular resolution	0.1°
Angular reproducibility	0.1°
Rotation speed	
› Quiet operation	› 90°/s
› Maximum	› 150°/s
Rotation velocity	
› Quiet operation	› 360°/s ²
› Maximum	› 600°/s ²
Noise level	
› Idle noise	<ul style="list-style-type: none"> › Typically: <ul style="list-style-type: none"> » less than 20 dB(A)_{SPL} at any position
› Quiet operation	<ul style="list-style-type: none"> › Typically: <ul style="list-style-type: none"> » 35 dB(A)_{SPL} at the ear microphones » 28 dB(A)_{SPL} at the MRP » less than 20 dB(A)_{SPL} at the OTRP
Connections	
› Control	› D-sub 9-pin
› Power supply	› LEMO 4-pin, hermaphroditic
Power supply	24 V, 60 W

GENERAL REQUIREMENTS

Hardware

One of the following HEAD acoustics artificial heads:

HMS II.3 (Code 1703)
HMS II.3 LN (Code 1703.1)
HMS II.3 LN HEC (Code 1703.2)
HMS II.3 ViBRIDGE (Code 1703.3)
HMS II.4 (Code 1704)
HMS II.5 (Code 1705)
HMS II.6 (Code 1706)
HMS II.7 (Code 1707)
HSU III.2¹ (Code 1391)

Software

One of the following software applications:

ACQUA (Code 6810)

- › Advanced Communication Quality Analysis Software, full license Version

ACQUA Compact (Code 6860)

- › Compact test system

RC-move°S

- › Control software for move°S

SCOPE OF DELIVERY

UG move°S (Code 1750)

- › Upgrade HMS/HSU to motorized head-turning version

CUD IV (Code 6113)

- › Adapter USB+BNC <> D-sub 9-pin

CAB II.10 (Code 6093-10)

- › Cable D-sub 9-pin, 10 m extension

PS 24-60-L4 (Code 0617B)

- › Power supply, 24 V, 60 W, LEMO 4-pin

RC-TurningDevices

- › Software setup including remote configuration software RC-move°S

Manual

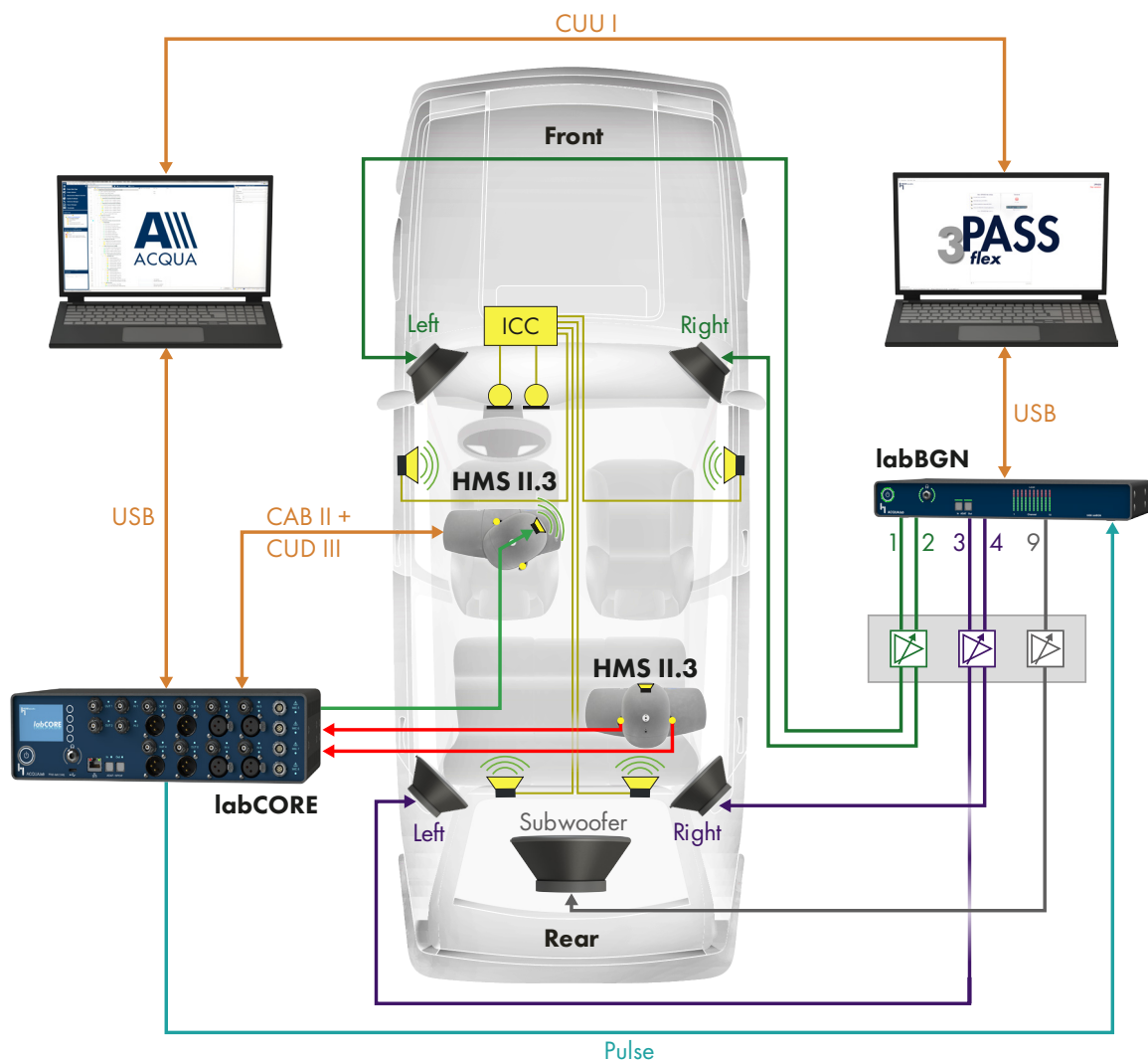
1. The generation of HSU III.2 can be identified via the type number ('T/N') on each unit's type label. Type numbers starting with 'A' designate the obsolete generation (not upgradeable with move°S). Type numbers starting with 'B' and beyond designate heads of the 2021 generation, which are upgradeable with move°S.

IN PRACTICE

APPLICATION EXAMPLE

Measurement of an In-Car-Communication System with move°S

This exemplary test scenario depicts testing the behavior of a vehicle-integrated In-Car-Communication (ICC) system. The system aims to make conversation between occupants less stressful by recording speech with dedicated microphones and playing it back in the car cabin in real time. However, in a conversation between the driver and a diagonally-opposite passenger, the driver often turns the head towards the passenger instinctively to make communication easier. move°S allows to test the ICC system's behavior in regards to this changing acoustic situation.





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