

PRODUCT DATA

HBK 2755 Smart Power Amplifier

HBK 2755 Smart Power Amplifier is a powerful, compact, and lightweight power amplifier with an integrated signal generator and wireless remote-control capabilities



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Uses and Features

Uses

- Building acoustics measurements with OmniPower™ Omnidirectional Sound Source Type 4292-L and HBK 2255 Sound Level Meter with Building Acoustics Partner
- Architectural acoustics measurements with DIRAC Type 7841 and OmniPower Type 4292-L
- Structure-borne and airborne source path contribution analysis with a volume velocity source
- Auditory perception research

Features

- High-power output, delivering up to 500 W into 4 Ω in bridged mode
- Single- or dual-channel output with optional splitter cable
- Lightweight and highly portable for field use, weighing only 2.2 kg (4.9 lb)
- Powerful signal generator with pre-loaded signals optimized for specific applications
- Designed for multi-application use:
 - With OmniPower Omnidirectional Sound Source Type 4292-L with signals optimized for maximum and flat acoustical power for multiple frequency spans
 - With HBK volume velocity sources with signals optimized for maximum acoustical power with each extension tube diameter
- Power compression compensation, enabling extremely stable acoustical power output over long periods of continuous operation
- Wireless remote control with HBK 2255 Sound Level Meter and Building Acoustics Partner (Wi-Fi® enabled versions only)
- Wireless remote control from integrated web server (Wi-Fi enabled versions only)
- Can operate as a universal USB audio device, accepting direct connection to phantom-powered or CCLD* microphones and loudspeakers
- Accurate, digitally controlled gain setting with 0.5 dB resolution

* Constant current line drive, also known as DeltaTron® (ICP and IEPE compatible)

The Amplifier

The amplifier provides high-quality amplification and signal generation in one small, lightweight package. The amplifier is available in two versions:

- **HBK 2755:** Includes Wi-Fi®, allowing you to configure and control the amplifier from a PC or mobile device when needed
- **HBK 2755-A:** Does not include Wi-Fi and is only operated by controls on the front panel

The amplifier has easy-to-access ports with calibrated dials and indicators to allow setups to be easily reproduced in future tests. The main functions are readily available upon power up, while additional functions and settings are accessible through a menu on the display.

Fig. 1 Close-up of HBK 2755 Smart Power Amplifier



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Building Acoustics Applications

Building acoustics is the assessment of sound insulation between spaces in buildings. The most common building acoustics task is airborne sound insulation testing, where a powerful sound source is placed in a room (the source room). With the loudspeaker turned on, sound pressure levels are measured in the source room as well as an adjacent room (the receiving room). The level difference between the two rooms is calculated, and sometimes adjusted based on the background noise levels and reverberation time in the receiving room.

Airborne sound insulation measurements require a powerful and stable sound source, particularly when testing strong partitions or in the presence of high background noise levels. HBK 2755 Smart Power Amplifier is designed specifically to power Type 4292-L to its full 122 dB potential for building acoustics measurements. HBK 2755's powerful signal generator ensures that the noise signals are optimized for Type 4292-L, and when controlled by [Building Acoustics Partner](#) the signals are even optimized to the frequency span of the test.

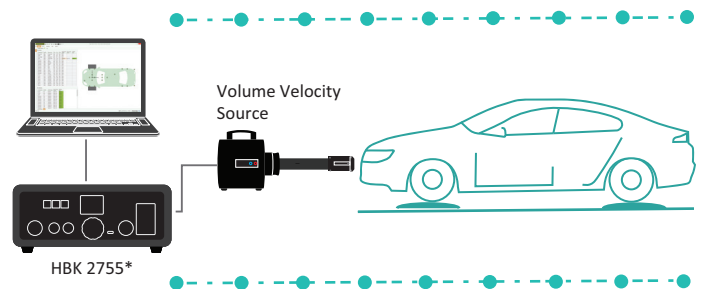
Building acoustics measurements are often performed near the end of construction, on building sites that can be dirty and without functional elevators. Equipment needs to be rugged and robust, yet lightweight enough to be comfortably carried from room to room and up and down stairs. Just like HBK 2255 Sound Level Meter and Type 4292-L, HBK 2755 is designed for real-world conditions. At just 2.2 kg, it is a breeze to carry around building sites.

Source Path Contribution Applications

Source path contribution (SPC) analysis is a technique for breaking down the operating noise of a vibro-acoustic system, typically a vehicle, into contributions from known vibration or acoustic sources. It enables NVH engineers to evaluate the dominant sources and paths contributing to the sound inside a vehicle while driving, or outside as the vehicle passes by.

An important step in the SPC process is to measure frequency response functions to determine the path sensitivity from various source locations to the receiver, whether inside or outside the vehicle. Acoustic transfer functions (sound pressure per unit volume velocity, P/Q) require a volume velocity sensor (VVS) and powerful sound source over the required frequency range. HBK volume velocity sources are designed for this purpose. HBK 2755 is designed to provide tailored output to optimize the performance of each VVS.

Fig. 2 Typical system setup of HBK 2755 with a volume velocity source



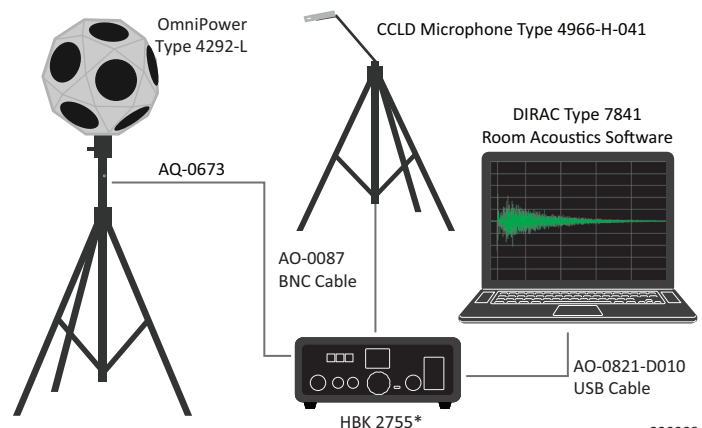
* Also available as HBK 2755-A without Wi-Fi capability
● External measurement point

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Architectural Acoustics Applications

DIRAC Room Acoustics Software Type 7841 is used for measuring a wide range of room acoustical parameters, based on the measurement and analysis of impulse responses. HBK 2755 Smart Power Amplifier is designed to work seamlessly with DIRAC, combining power amplification, microphone conditioning and sound card capabilities into a single, compact and lightweight device.

Fig. 3 Typical system setup of HBK 2755 with DIRAC Type 7841




* Also available as HBK 2755-A without Wi-Fi capability

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When HBK 2755 is connected to DIRAC over USB, the amplifier can be directly connected to a single CCLD microphone input, or up to two line-level inputs with external conditioning.

HBK 2755 can also be used for asynchronous measurements with DIRAC, where the signals are loaded on the amplifier and the microphone inputs from another device.

Compliance with Standards

	<p>The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives.</p> <p>RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME.</p> <p>China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China.</p> <p>WEEE mark indicates compliance with the EU WEEE Directive.</p> <p>FCC mark is a certification mark employed on electronic products manufactured or sold in the United States, which certifies that the electromagnetic interference from the device is under limits approved by the Federal Communications Commission.</p> <p>The UKCA (UK Conformity Assessed) marking is a UK product marking that is used for goods being placed on the market in Great Britain</p>
SAFETY	EN/IEC 61010-1-2010: Safety requirements for electrical equipment for measurement, control and laboratory use
RADIO TRANSMISSION	ETSI EN 300 328 V2.2.2 (2019-07): Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz band; Harmonised Standard for access to radio spectrum FCC Rules, Part 15C: Intentional Radiators
EMC EMISSION	<p>EN/IEC 61000-6-3: Generic standards – Emission standard for residential, commercial and light industrial environments.</p> <p>EN/IEC 61000-6-4: Generic standards – Emission standard for industrial environments.</p> <p>EN 61326-1: Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements.</p> <p>FCC Rules, Part 15B: Unintentional radiators – Complies with the limits for a class B digital device.</p> <p>This ISM device complies with Canadian ICES-001 (interference-causing equipment standard)</p>
EMC IMMUNITY	<p>EN/IEC 61000-6-1: Generic standards – Immunity for residential, commercial and light-industrial environments.</p> <p>EN/IEC 61000-6-2: Generic standards – Immunity for industrial environments.</p> <p>EN 61326-1: Electrical equipment for measurement, control and laboratory use – EMC requirements.</p> <p>NOTE: The above is only guaranteed using accessories listed in this document</p>
TEMPERATURE	<p>EN 60068-2-1: Environmental Testing – Part 2-1: Tests – Test A: Cold.</p> <p>EN 60068-2-2: Environmental Testing – Part 2-2: Tests – Test B: Dry Heat.</p> <p>Storage Temperature: –25 to +70 °C (–13 to +158 °F)</p>
HUMIDITY	EN 60068-2-78: Damp Heat: 93% RH (non-condensing at +40 °C (104 °F)).
MECHANICAL	<p>Non-operating:</p> <p>EN 60068-2-6: Vibration: 0.15 mm, 20 m/s², 10 – 500 Hz</p> <p>EN 60068-2-27: Bump: 1000 bumps at 250 m/s²</p> <p>EN 60068-2-27: Shock: 1000 m/s²</p>
ENCLOSURE	EN 60529: Protection provided by enclosures: IP 20

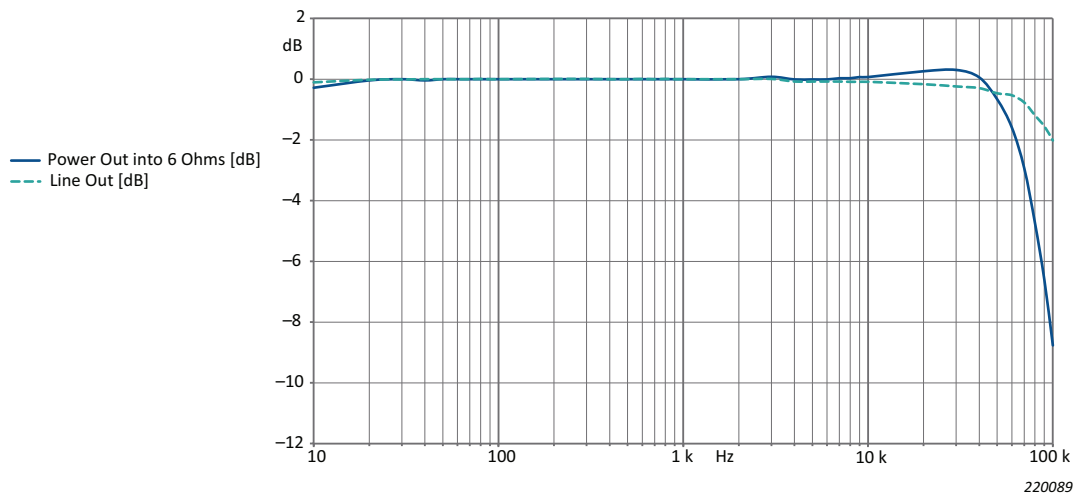
Specifications – HBK 2755 Smart Power Amplifier

General Specifications

MAXIMUM OUTPUT POWER	$T_A = 25\text{ °C}, 230\text{ V}_{AC}/50\text{ Hz}, 1\text{ kHz}, \text{THD} < 10\%$	4 Ω	500 W
		6 Ω	330 W
		8 Ω	250 W
CONTINUOUS OUTPUT POWER (1 kHz, 6 Ω)		$T_A = 25\text{ °C}$ with air filter	250 W
		$T_A = 25\text{ °C}$ without air filter	330 W
		$T_A = 35\text{ °C}$	175 W
INPUT VOLTAGE	Nominal Voltage @ Input Gain:	0 dB	2.0 V
		10 dB	0.63 V
		20 dB	0.20 V
		30 dB	0.063 V
	Headroom at Nominal Input Voltage		17 dB
	Common Mode Rejection (1 kHz)	XLR	80 dB
		TRS	55 dB
	Maximum DC Voltage	BNC	–15 to +24 V
XLR		±15 V	
TRS		±30 V	
INPUT CURRENT Microphone power supply DC Current	BNC	4.5 mA	
	XLR (Max. per input)	7 mA	
INPUT IMPEDANCE	1 kHz, Unpowered	Balanced	20 kΩ +0/–2%
		Unbalanced	10 kΩ +0/–2%
	DC, Unpowered	Balanced (XLR)	220 kΩ ±1%
		Balanced (TRS)	20 kΩ ±1%
		Unbalanced	10 kΩ ±1%

OUTPUT VOLTAGE	Power Output Peak Voltage	32 V	
	Line Output Peak Voltage	14.5 V	
	Power Output DC Voltage	0 V	
OUTPUT IMPEDANCE (1 kHz)	Line Output	100 Ω	
	Line Output Load	$\geq 0 \Omega$	
	Power Output	Typical 18 m Ω	
	Power Output Load	$\geq 3 \Omega$	
FREQUENCY RESPONSE (20 Hz – 20 kHz) See also Fig. 4	Input Gain and Attenuation 0 dB, from BNC Input to:	Line Output	-0.2 dB
		Power Output	0.3 dB
SNR (MAX POWER 1 kHz)/(SILENCE 0 – 20 kHz)	Line Output		100 dB
	Power Output		106 dB
THD+N (20 Hz – 20 kHz)	Input Gain 0 dB, Attenuation 0 dB, 1 kHz	Line Output (1 V _{rms})	-90 dB
		Power Output (1 – 450 W, 4 Ω)	1%
GAINS AND ATTENUATION	Input Gains		0, 10, 20, 30 dB
	Input Gain Error (No Error @ 0 dB)		± 0.1 dB
	Attenuation Range		-90 to 0 dB
	Attenuation Stepsize		0.5, 1 dB
	Attenuation Error (No Error @ 0 dB)		± 0.1 dB
	Total Gain (Input gain = Attenuation = 0 dB), Any Input to:	Line Output	0 ± 0.2 dB
Bridge Mode Power Output		27 ± 1 dB	
Single-ended Mode Power Output		21 ± 1 dB	
LEVEL INDICATOR	Trigger Levels re Power Output Clip Level	Yellow/Red Transition	0 dB
		Green/Yellow Transition	-12 dB

Fig. 4 Frequency responses with both input gain and attenuation at 0 dB, power output connected to 6 Ω load and BNC input voltage of 1 V_{rms} from 10 Hz to 20 kHz and 316 mV_{rms} from 20 to 100 kHz. Reference at 1 kHz



Power

MAINS POWER	
Voltage Selector (rear panel)	230/115 V
Mains Voltage Range	@ 230 V: 200 – 240 V
	@ 115 V: 100 – 125 V
Mains Frequency Range	45 – 65 Hz
Fuse	Littelfuse T 5 AH 250 V 215 series, part no. 215005.MXP
Maximum Power Consumption	650 W
Minimum Power Consumption	15 W

Mechanical

Minimum Dimensions W × H × D (carry handle folded down)	294 × 120 × 190 mm (11.6 × 4.7 × 7.5")
Weight	2.2 kg (4.9 lb)

Fan

Turn On Heat Sink Temperature	55 °C
L _w at Min Speed	25 dB re 1 pW
L _w at Max Speed	52 dB re 1 pW

Signal Generator

INTERNAL STANDARD NOISE TYPES	4292-L Mode and Frequency Range (1/3-octave bands)	White	50 Hz – 5 kHz
		Pink	50 Hz – 5 kHz
		Equalized (4292)	50 Hz – 5 kHz
	4250 VVS Mode and Frequency Range (1/3-octave bands)	LF	10 Hz – 1.6 kHz
		MF	20 Hz – 6.3 kHz
		HF	100 Hz – 12.5 kHz
CREST FACTOR		3.5 dB	
PERIOD TIME		10.9 s	
1/3-OCTAVE SPECTRAL ERROR (Type 4292-L standard noise signals)		±0.35 dB	
LINE OUTPUT VOLTAGE	Attenuation = 0 dB	1.9 V _{rms}	
TURN OFF: EQUIVALENT RT IN 1/3-OCTAVES		<100 ms @ 50 Hz <1 ms @ 5 kHz	

User Interface

CONNECTORS	Input Socket	BNC	
		Neutrik Combo Jack	3-pole XLR (balanced) and TRS (¼-in jack, 1 × differential or 2 × single-ended)
	Line Output Socket		BNC
	Power (Speaker) Output Socket		Neutrik 4-pole speakON type (1 × bridge or 2 × single-ended output)
	Mains Power Inlet		IEC type
CONTROLS	Generator Buttons (3×)		Toggling between On and Off
	Attenuation Rotary/Push Knob		Attenuation or menu
	Mains Power Rocker Switch		2-pole
STATUS INDICATORS	Display (Operational)	Output Level	Single or dual green/yellow/red bar
		Attenuation	In dB
		Status Bar	<ul style="list-style-type: none"> • Attenuation lock • Wi-Fi • Amplifier mode • Constant power • Fans • Inputs • Filters • Output
	Display (Main Menu)		<ul style="list-style-type: none"> • Presets • Input • Bass/Treble • Output • User signal • Network • Settings • About • Exit
	Full-screen Attention Icons		<ul style="list-style-type: none"> • Attenuator locked • Power stage over-temperature • Power stage over-current/over-load/long-term high frequency
	Generator Indicators	4292-L Mode	<ul style="list-style-type: none"> • White noise: White • Pink noise: Pink • Equalized noise: Light green • User signal: Light blue
		4250 VVS Mode	<ul style="list-style-type: none"> • LF noise: White • MF noise: Pink • HF noise: Light green
	Input Power Indicators	BNC input	IEPE power on: Amber
		XLR input	P48 phantom power on: Amber
	USB Active LED		Amber

Ordering Information

2755-X HBK 2755 Smart Power Amplifier, with Wi-Fi
2755-A-X HBK 2755 Smart Power Amplifier, without Wi-Fi
both include country-specific power cable, UO-0753

System Components

SOURCE PATH CONTRIBUTION (SPC) APPLICATION

Type 4250 Volume Velocity Source
Type 8441 BK Connect Pass-by Viewer
Type 8441-C BK Connect Indoor Pass-by
Type 8441-D BK Connect Pass-by SPC
Type 8442 BK Connect VVS Measurements

ARCHITECTURAL ACOUSTICS APPLICATION

Type 7841 DIRAC application
Type 4966-H-041 ½" Prepolarized Free-field Microphone Type 4966
with Preamp. Type 1706
Type 4292-L OmniPower Omnidirectional Sound Source

Optional Accessories

AO-0523 Signal Cable, LEMO triaxial to XLR, 10 m (32.8 ft)
AO-0524 Signal Cable, LEMO triaxial to BNC, 10 m (32.8 ft)
AQ-0673 Speaker Cable, 10 m (32.8 ft)
AO-2030 Splitter Cable, 0.37 m (1.2 ft)
AO-0821-D-010 USB Cable, USB-C (M) with ferrite to USB-A (M)
black, 1.0 m (3.3 ft) max.+70 °C (+158 °F)
AO-0087-D-xxx* BNC Cable, coax single-screen, BNC (M) to BNC
(M), max.+8 5°C (+185 °F)

THIRD-PARTY ACCESSORIES

Littelfuse® T 5 AH 250V 215 series fuses (part number 215005.MXP)

Service Products

Factory Standard Warranty: One year

Extended Warranty Contract: Extend your standard product warranty up to 10-years of age. For details, go to www.bksv.com/en/Service/Service-and-support-contracts/Extended-warranty-hardware



Please note:

Wear and tear on parts like windscreens and cables are not covered by the Factory Standard Warranty or Extended Warranty.

For more information about our calibration services, go to www.bksv.com/en/Service/Calibration-and-verification

* Available in various lengths. D = decimetres, xxx = length. Please specify when ordering

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