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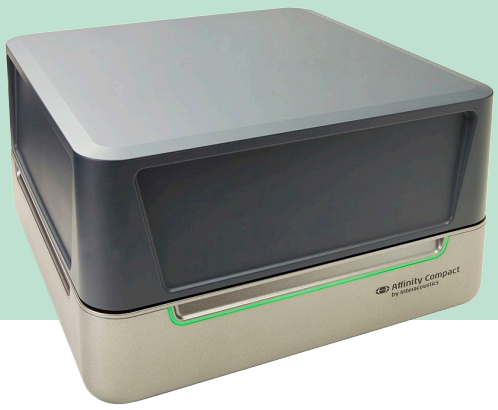
Technical Specifications

Affinity Compact



D-0123683-J - 2025/07

Interacoustics

Standard and optional parts

AC440	REM440/VSP440	HIT440

Standard parts
• Affinity Suite software
• DD45 audiometric headset[1]
• Monitor headset
• Talk back microphone
• B71 bone conductor[1/2]
• APS3 Patient response button[1]
• Standard USB cable
• Power supply - UES65-240250SPA3
• Power cable
• Mouse pad
 	
Optional parts
• IP30 insert earphones[1]
• B81 bone conductor[1]
• IP30 insert phone – single sited
• Audiocup enclosures
• DD65 v2[1]
• DD450 high frequency headset[1]
• SP85A loudspeaker
• SP90A loudspeaker
• SP100 loudspeaker
• Audiometer keyboard
• 10m cable for SP100
• EM400 electret microphone
• Ambient noise microphone
• Accessory bracket
• Desktop bracket
• Table mount bracket
• Wall mount bracket
• Cable extender box
• Sound room kit
• OtoAccess® database
	Standard parts
	• Affinity Suite software
	• IHM65 In-situ headset[1/2]
	• Probe tubes, 50 pcs.
	• SPL60 transducer kit for RECD measurement including probes and ear tips
	• Coupler and microphone kit
	  ○ ½” microphone
	  ○ Reference microphone
	  ○ 2cc coupler
	  ○ 0.4cc coupler
	  ○ BTE short
	  ○ BTE long
	  ○ ITE
	  ○ Rubber tubes
	• Coupler seal wax
	• Aidapters
	• SP100 loudspeaker
	• Standard USB cable
	• Power supply - UES65-240250SPA3
	• Power cable
	• Mouse pad
	
	Optional parts
	• Accessory bracket
	• Desktop bracket
	• Table mount bracket
	• Wall mount bracket
	• Battery adapters BAA675, BAA13, BAA312, BAA10, BAA5
	• Coupler support
	• Coupler support kit
	• Ear simulator
	• Monitor headset
	• SP85A loudspeaker
	• SP90A loudspeaker
	• 10m cable for SP100
	• Travel trolly
	• OtoAccess® database
		Standard parts
		• Affinity Suite software
		• Coupler and microphone kit
		  ○ ½” microphone
		  ○ Reference microphone
		  ○ 2cc coupler
		  ○ 0.4cc coupler
		  ○ BTE Short
		  ○ BTE long
		  ○ ITE
		  ○ Rubber tubes
		• Coupler seal wax
		• Aidapters
		• Standard USB cable
		• Power supply - UES65-240250SPA3
		• Power cable
		• Mouse pad
		
		Optional parts
		• Battery adapters BAA675, BAA13, BAA312, BAA10, BAA5
		• Coupler support
		• Coupler support kit
		• Adaptor for body style HA
		• Ear simulator
		• SKS10 skull simulator with power supply
		• Tele coil
		• Monitor headset
		• Travel trolly
		• OtoAccess® database

[1] Applied part according to IEC 60601-1
[2] This part is not certified according to IEC 60601-1

General technical specifications

Affinity Compact hardware - technical specifications

Medical CE-mark	The CE-mark in combination with MD symbol indicates that Interacoustics A/S meets the requirements of the Medical Device Regulation (EU) 2017/745 Annex I. Approval of the quality system is made by TÜV – identification no. 0123.	
Safety standards	IEC 60601-1 2005 (Third Edition) + CORR. 1 2006 + CORR. 2 2007 + A1 2012, AAMI ES60601-1 2005+A2+A1 CSA-C22.2 No.60601-1:14 Class I, Applied parts type B, Continuous operation	
EMC standard	IEC 60601-1-2 2014+AMD1:2020 IEC 60645-1 2017	
Calibration	Technical information is in the specifications for the software modules. Calibration information and instructions are located in the Service manual.	
PC requirements (recommended minimum)	2 GHz Intel i3 processor 4GB Ram 2.5 GB available disk space 1024x768 resolution (1280x1024 or higher recommended) Hardware accelerated DirectX/Direct3D graphics card. One or more USB ports, version 2.0 or higher.	
Operating Systems	Windows® 10 Professional (64 bit) Windows®11 Professional (64 bit)	
Compatible software	Noah 4, OtoAccess® and XML compatible.	
Input specifications	**Talk back**	240µVrms at max. input gain for 0dB VU-reading Input impedance: 47.5kΩ
	Mic. – Talk forward	240µVrms at max. input gain for 0dB VU-reading Input impedance: 47.5kΩ
	Patient respond	Switches 3.3V to the logic input. (The switch current is 1.5mA)
	AUX	10mVrms at max. input gain for 0dB VU-reading Input impedance: 68kΩ
	Insitu headset ref. **Insitu headset tube.**	Max input level before clipping 220mVrms. calibration by 94 dB SPL 250Hz or 1kHz. Input impedance: 68kΩ Max input level before clipping 3800mVrms. calibration relative to reference microphone. Input impedance: 33kΩ
	Ambient- calibrated mic.	Max input level before clipping 220mVrms. calibration by 94 dB SPL 250Hz or 1kHz. Input impedance: 68kΩ Required that an Interacoustics microphone is used, to work
	Test box reference	Max input level before clipping 220mVrms. calibration by 94 dB SPL 250Hz or 1kHz. Input impedance: 68kΩ
	Test box coupler	Max input level before clipping 3800mVrms. calibration relative to reference microphone. Input impedance: 33kΩ
	Wave files	Plays wave file from hard disk drive
Output specifications	**AC headsets 1**	Up to 7.0 Vrms by 10 Ω load 70Hz-20kHz ±3dB
	AC headsets 2	Up to 7.0 Vrms by 10 Ω load 70Hz-20kHz ±3dB

	Insert Masking	Up to 7Vrms by 10 Ω load 70Hz-20kHz ±3dB
	Bone	Up to 7.0 Vrms by 10 Ω load 70Hz-20kHz ±3dB
	FF1 / FF2 power	Up to 14.0Vrms by 8 Ω load 70Hz-20kHz ±3dB Minimum speaker impedance: 4Ω
	FF1-2 Line	Up to 7.0 Vrms by 1 kΩ load 70Hz-20kHz ±3dB
	Monitor	Up to 3.1Vrms by 4Ω load 125-20kHz ±3dB
	Insitu Headset	Up to 7.0 Vrms by 10 Ω load 70Hz-20kHz ±3dB
	Battery pill	Software adjustable: Voltage output 1100-1600mV DC Output Impedance 0-25.0 Ω Current measuring maximum 50mA.
	Tele coil	Max output current 20 mA 0 Ω load
	Test box speaker	Up to 14.0Vrms. by 8 Ω load 70Hz-20kHz ±3dB
Data connections	**USB-PC**	USB B socket for connection to PC (compatible with USB 2.0 and later)
Internal test box	Built in test box holds connections to reference microphone, coupler microphone, battery pill and tele coil	
Dimensions (LxWxH)	Affinity Compact version 1-3: 22.6 x 22.6 x 6 cm / 8.9 x 8.9 x 2.4 inches Affinity Compact version 4: 24.4 x 22.6 x 13.5 cm / 9.6 x 8.9 x 5.3 inches	
Weight	Affinity Compact version 1: 0.9 kg / 2.0 lbs. Affinity Compact version 2: 1.9 kg / 4.2 lbs. Affinity Compact version 3: 2.0 kg / 4.4 lbs. Affinity Compact version 4: 3.9 kg / 8.6 lbs.	
Power supply	Use only specified power supply unit UES65 type Input: 100-240VAC 50/60Hz, 2.0 A Output: 24.0 VDC	
Operation environment	Temperature: 15 – 35°C Re. Humidity: 30 – 90% Non-condensing	
Transport and storage	Transport temperature: -20 – 50°C Storage temperature: 0 – 50°C Re. humidity: 10 – 95% Non-condensing	

AC440 software – technical specifications

Medical CE-mark:	The CE-mark in combination with MD symbol indicates that Interacoustics A/S meets the requirements of the Medical Device Regulation (EU) 2017/745 Annex I Approval of the quality system is made by TÜV – identification no. 0123.
Audiometer standards:	Tone: IEC60645-1 2017/ANSI S3.6 2018 (R2023) Type 1 EHF Speech: IEC60645-1 2017/ANSI S3.6 2018 Type (R2023) A or A-E
Transducers & calibration:	Calibration information and instructions are located in the Service manual. Check the accompanying Appendix for RETSPL levels for transducers
Air Conduction	
DD45	ISO 389-1 2017, ANSI S3.6 2018 (R2023): Headband Static Force 4.5N ±0.5N
TDH39	ISO 389-1 2017, ANSI S3.6 2018 (R2023): Headband Static Force 4.5N ±0.5N
DD65 v2	PTB 1.61-4091606/18, AAU 2018 Headband Static Force 11.5N±0.5N
HDA300	PTB report 1.61.4066893/13 Headband Static Force 8.8N ±0.5N
DD450	ISO 389-8 2004, ANSI S3.6 2018 (R2023): Headband Static Force 10N ±0.5N
E.A.R Tone 3A	ISO 389-2 1998, ANSI S3.6 2018 (R2023)
IP30	ISO 389-2 1998, ANSI S3.6 2018 (R2023)
Bone Conduction	Placement: Mastoid
B71 B81	ISO 389-3 2016, ANSI S3.6 2018 (R2023): Headband Static Force 5.4N ±0.5N ISO 389-3 2016, ANSI S3.6 2018 (R2023): Headband Static Force 5.4N ±0.5N
Free Field	ISO 389-7 2005, ANSI S3.6 2018 (R2023)
High Frequency	ISO 389-5 2006, ANSI S3.6 2018 (R2023)
Effective masking	ISO 389-4 1994, ANSI S3.6 2018 (R2023)
Patient response switch:	Handheld push button.
Patient communication:	Talk Forward and Talk Back.
Monitor:	Output through external earphone or speaker.
Stimuli:	Pure tone, Warble tone, NB, SN, WN, TEN noise, PED noise, Wave files.
Tone	125-20000Hz separated in two ranges 125-8000Hz and 8000-20000Hz. Resolution 1/2-1/24 octave.
Warble tone	125-16000Hz separated in two ranges 125-8000Hz and 8000-16000Hz. 1-10 Hz sine +/- 5% modulation
Wave file	44100Hz sampling, 16 bits, 2 channels
Masking	Automatic selection of narrow band noise (or white noise) for tone presentation and speech noise for speech presentation.
Narrow band noise:	IEC 60645-1 2017, ANSI S3.6 2018 (R2023), 5/12 Octave filter with the same centre frequency resolution as pure Tone.
White noise:	80-20000Hz measured with constant bandwidth
Speech noise.	IEC 60645-1 2017, ANSI S3.6 2018 (R2023). 125-6300Hz falling 12dB/octave above 1KHz +/-5dB
Presentation	Manual or Reverse. Single or multiple pulses. pulse time adjustable from 200mS-5000mS in 50mS steps. Simultaneous or alternating.
Intensity	Check the accompanying Appendix for maximum output levels
Steps	Available Intensity Steps is 1, 2 or 5dB
Accuracy	Sound pressure levels: ± 3 dB. Vibration force levels: ± 4 dB.

Extended range function	If not activated, the Air Conduction output will be limited to 20 dB below maximum output.
Frequency	Range: 125Hz to 8kHz (Optional High Frequency: 8 kHz to 20 kHz) Accuracy: Better than ± 1 %
Distortion (THD)	Sound pressure levels: below 2.5 % Vibration force levels: below 5.5 %.
Signal indicator (VU):	Time weighting: 350mS Dynamic range: -20dB to +3dB Rectifier characteristics: RMS Selectable inputs are provided with an attenuator by which the level can be adjusted to the indicator reference position(0dB)
Free field output level:	Compiling INC60645-1 2017/ANSI S3.6 2018 (R2023) at a distance of 1 meter from speaker
Storing capability:	Tone audiogram: dB HL, MCL, UCL, Tinnitus. Speech Audiogram: WR1, WR2, WR3, MCL, UCL, Aided, Unaided, Binaural.
Compatible software:	Noah 4, OtoAccess® and XML compatible

REM software - technical specifications

Medical CE-mark	The CE-mark in combination with MD symbol indicates that Interacoustics A/S meets the requirements of the Medical Device Regulation (EU) 2017/745 Annex I Approval of the quality system is made by TÜV – identification no. 0123.	
Real Ear Measurement standards	IEC 61669 2015, ANSI S3.46 2013	
Stimuli	Live voice Warble tone Pure tone Speech noise Random noise Pseudo Random noise Pink noise Chirp White noise band limited ICRA	Speech female Speech male Speech dialogue ISTS Narrow band noise /SS/ /SH/ IFFM IF noise Real life sounds Custom sound files (automatic calibration available)
Frequency range	On ear: 100Hz – 12.5kHz Coupler: 100Hz – 16kHz	
Frequency accuracy	< ± 1 %	
Distortion	Internal speaker: 200Hz – 250Hz: < 3% @ 70dB 250Hz – 400Hz: < 3% @ 75dB 400Hz – 16000Hz: < 3% @ >90dB SP100: 100Hz – 200Hz:< 3% @ 75dB 200Hz – 16000Hz: < 3% @ >90dB	
Stimuli intensity range	40 – 100 dB	
Intensity accuracy	100Hz – 200Hz: < ± 3 dB 200Hz - 8000Hz: < ± 1.5 dB 8000Hz – 16000Hz: < ± 5 dB	
Measurement intensity range	Probe microphone: 40-140 dB SPL ± 2 dB Reference microphone: 40 – 100 dB ± 2 dB	
Frequency resolution	1/3, 1/6, 1/12, 1/24 octave or 1024-point FFT (Bandwidth 43Hz).	
Cross talk	Cross talk in the probe and probe tube will alter the obtained results with less than 1 dB at all frequencies.	
Narrow band noise	5/12 Octave filtered	
Available tests	REUR REUG REIG RECD REAR REAG REOG	REOR Input/output FM transparency Ear level, FM only Hearing aid transition Directionality Visible speech mapping
Compatible software	Noah 4, OtoAccess® and XML compatible	

HIT software - Technical specifications

Medical CE-mark	The CE-mark in combination with MD symbol indicates that Interacoustics A/S meets the requirements of the Medical Device Regulation (EU) 2017/745 Annex I. Approval of the quality system is made by TÜV – identification no. 0123.		
Hearing Aid Analyzer standards	IEC 60118-0:2015, IEC 60118-7:2005, ANSI S3.22:2014		
Frequency range	100-16000Hz.		
Frequency resolution	1/3, 1/6, 1/12 and 1/24 octave or 1024-point FFT.		
Frequency accuracy	< ± 1 %		
Stimuli	Warble tone Pure tone Narrow band noise Random noise Pseudo random noise Pink noise White noise band limited Speech noise Chirp	ISTS ICRA Real speech IFFM IF Noise /SS/ /SH/ Custom sound files (automatic calibration available)	
Sweep speed	4 – 22 sec.		
FFT	Resolution 1024 points. Averaging: 1sec – 1200sec.		
Stimuli intensity range	40-100 dB SPL in 1 dB step.		
Intensity accuracy	100Hz – 200Hz: < ± 3 dB 200Hz - 8000Hz: < ± 1.5 dB 8000Hz – 16000Hz: < ± 5 dB		
Measurement intensity range	100Hz – 200Hz: 40-145 dB SPL ± 3 dB 200Hz - 8000Hz: 40-145 dB SPL ± 1.5 dB 8000Hz – 16000Hz: 40-145 dB SPL ± 5 dB		
Stimulus distortion	70 dB SPL: < 0.5%THD 90 dB SPL: < 2 % THD		
Battery voltage accuracy	± 50mV		
Battery current accuracy	± 5%		
Battery simulator	Standard and custom types are selectable		
	Standard battery	*Impedance[Ω]*	*Voltage[V]*
	Zinc air 5	8.2	1.3
	Zinc air 10	6.2	1.3
	Zinc air 13	6.2	1.3
	Zinc air 312	6.2	1.3
	Zinc air 675	3.3	1.3
	Mercury 13	8.0	1.3
	Mercury 312	8.0	1.3
	Mercury 657	5.0	1.3
	Mercury 401	1.0	1.3
	Silver 13	8.2	1.5
	Silver 312	10.0	1.5
	Silver 76	5.1	1.5
	Custom types	0 – 25	1.1 – 1.6

Available tests	Additional tests can be designed by user	
	OSPL90 Full On Gain Input/Output Attack/Recovery Time Reference Test Gain Frequency Response Equivalent Input Noise	Harmonic Distortion Intermodulation Distortion Battery Current Drain Microphone Directionality Coil Frequency Response Coil Harmonic Distortion Coil Full-On Gain Response
Compatible software	Noah 4, OtoAccess® and XML compatible	