r35c

FULL COMPREHENSIVE CLINICAL
COMBINED MIDDLE EAR ANALYZER

RoHS2 COMPLIANT

PRODUCT SPECIFICATIONS

Please contact Resonance should you have any questions:
support@resonance-audiology.com

GENERAL SPECIFICATION

DIMENSIONS AND WEIGHT
- L x W x H: 370 x 290 x180 mm
- Net weight: 3.5 kg

TEST TYPES
- Tympanometry: Automatic Tympanometry, Acoustic Reflex, Reflex Decay, nr. 3 Quick tests, Acoustic Reflex Latency Test (ARLT), ETF (Intact, Perforated and Patulous), Special tests (Growth-DLI and Non-acoustic)

- Audiometry: Pure Tone test, Autothreshold, ABLB, Speech Test, Stenger, DLI, SISI, Bekesy, Tone Decay, MLB, Multifrequency, GAP, DLF

DISPLAY
- 7" TFT Color display

USER INTERFACE
- Multilingual

PRINTER
- Built-in fast thermal printer with paper width: 112 mm supplied as standard part

REPORTS
- Printed on thermal printer
- .pdf report created directly from the device and stored on USB Pen drive with possibility to add patient data and tests comments via the USB Keyboard (optional)
- Data transfer to PC using Resonance Management Data Suite

"CHILDREN" FEATURE
- To help keep the child distracted while running screening "Quick Check" a series of animated images appears on the color display

DATA TRANSFER TO PC
- Via cable through USB port

COMMUNICATION PORT
- Nr.1 USB host type A
- Nr.1 USB slave type B

WINDOWS® COMPATIBLE SOFTWARE
- Resonance MDS Management Data Suite

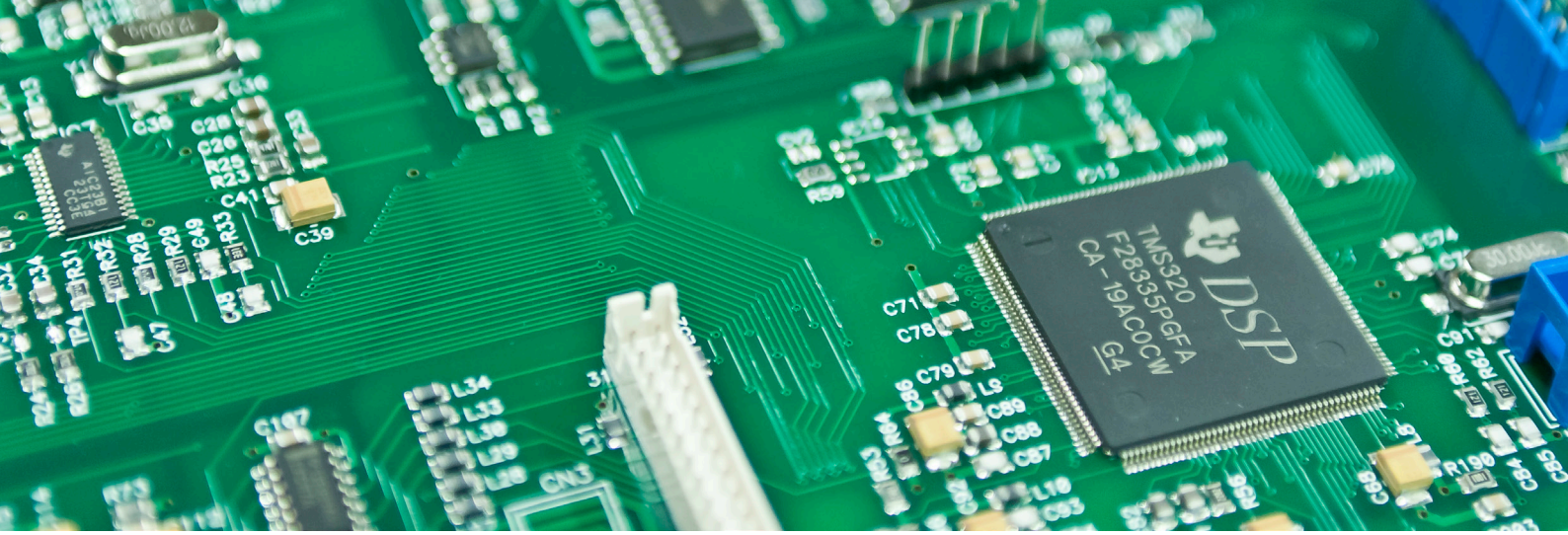
POWER

POWER SUPPLY
- 110 - 240 V AC 50/60 Hz 40 VA
- Fuses: 2 x T 1 A L 250 V

CONSUMPTION
- Max current 0.15 A
- Power consumption 40 VA

ENVIRONMENTAL

OPERATING ENVIRONMENT
- Storage: -20° C up to +50° C
- Operating: +15° C up to +35° C
- Humidity: up to 90%, (non-condensing)
- Ambient pressure: from 700 hPa up to 1060 hPa



TYMPANOMETRY OPERATING SPECIFICATIONS

PROBE TONE
• 226 Hz for tympanometry

INTENSITY
• 226 Hz: 85 dB SPL ± 2 dB
• Frequency Accuracy: ± 0.5%
• Harmonic distortion: Less than 1%

ADMITTANCE MEASUREMENTS
• Compliance range at 226 Hz: 0.05 up to 7 ml
• Sensitivity scale: Autoscale to appropriate range; available scale at 226 Hz: 1.5, 2, 5 or 7 ml

AIR PRESSURE
• Control: Automatic and Manual
• Range: from +400 up to -600 daPa adjustable in 50 daPa steps
• Pressure accuracy: +/- 10 daPa or +/- 10%
• Sweep rate: 50, 100, 200, 300 daPa/sec and automatic
• Indicator: Measured value is displayed
• Safety limitations: -800 up to +600 daPa

EUSTACHIAN TUBE FUNCTION
• ETF test for use with both intact and perforated eardrums
• Available also test for patulous tympanic membrane

ACOUSTIC REFLEX TESTS
• Reflex test method: Threshold , Automatic, Manual
• Stimulus duration: 0.5, 1 or 2 sec.
• User selectable protocols for all test methods
• Ipsi or Contralateral stimulation for all reflex test
• Automated peak search functions available for all test methods
• Manual Reflex: Pump manual control of all stimuli
• Reflex Decay: Threshold, Automatic, Manual
• Stimulus duration: 10 or 20 sec.
• ARLT: Threshold, Automatic, Manual
• Stimulus duration: 1 sec. fixed
• Non-acoustic: 10/20 sec.

FREQUENCIES AND INTENSITY RANGES
Ipsilateral:
• Pure tone level range (dB HL) from 50 to 110
• Noise level range (dB SPL) from 50 to 100
• Frequency: 500, 1000, 2000, 3000, 4000 Hz
• Noise: BBN, HP or LP
• Frequency accuracy: ±1%
• Harmonic distortion (THD): less than 3%

Contralateral:
• Pure tone level range (dB HL) from 50 to 120 (all version)
• Noise level range (dB SPL) from 50 to 115 (all version)
• Frequency: 250, 500, 1000, 2000, 3000, 4000, 6000, 8000 Hz
• Noise: BBN, HP or LP
• Frequency accuracy: ±1%
• Calibration accuracy ±3 dB
• Level steps: 1, 2, 5 or 10 dB
• On/Off ratio: 70 dB minimum

AUDIOMETRY OPERATING SPECIFICATIONS

RANGE
• Frequency range:
  125 - 8000 Hz (with DD45)
  125 - 12500 Hz (with HDA280)
  250 - 8000 Hz (with B71W)
• Range stimuli level -10 up to 120 dB HL

ACCURACY
• Frequency < 0.5%
• Distortion < 1%
• Attenuator linearity 1 dB per 5 dB step, max 3 dB whole range

TYPE OF SIGNALS
• Pure tone: sine wave 125 to 8KHz signal (to 12.5 KHz for HDA280 phones)
• Warble: ± 5% frequency sine wave modulated, modulation: sine wave 5 Hz
• Narrow band noise: 24 dB/oct filtered noise
• Speech noise: 1 kHz 12 dB/oct filtered noise
• White noise
• External signal
• External mike
• Speech material recorded on SD card
• Master Hearing Aid: 1 KHz 6, 12, 18 ,24 dB High pass filters
• On/Off rise – fall time: 40msec

OUTPUT TRANSDUCERS
• ACR, ACL: 10 ohm DD45 matched pair earphone, alternatively HDA280 Sennheiser.
  IP30 Insert earphones (optional)
• BC: B71W Radioear; B81 (optional)
• INSERT: Insert transducer
• Free field output: 600 ohm impedance

STIMULUS PRESENTATION MODALITY
• Presentation: Normal, Reverse, Extended (present tone for 1 second from 20 dB below the maximum level)
• Modality: Continuous, Pulsed (rate 0.5, 1 and 2 Hz), Alternated (ABLB and MLB 0.5, 1 and 2 Hz)
• DLI increment levels:
  0.1 in steps of 0.1dB up to 1.0 dB; 1.5, 2, 3, 4, 5 dB
• DLI increment recurrence rates: 0.5 Hz, 1 Hz, 2 Hz
• SISI increment recurrence rates: 0.2 Hz, 0.5 Hz, random. Time on 300 ms
• SISI increment level: 0.25, 0.5, 0.75, 1, 1.5, 2, 3, 4, 5 dB
• Bekesy: mode sweep and fixed; Continuous, Pulsed and LOT; exam duration 30 sec and 60 sec.

QUALITY SYSTEM

Manufactured, designed, developed and marketed under an ISO 13485, ISO 9001 certified quality system. Medical CE marks and FDA approval.

COMPLIANCE/REGULATORY STANDARDS

Designed, tested and manufactured to meet the European and International Standards:

• MDD 93/42/EEC and its revised versions: Class IIa (as referred to in Annex IX, rule 10 of said MDD 93/42 EEC)
• Safety: IEC 60601-1, 3rd edition, Class 1 Type B
• EMC: IEC 60601-1-2
• Impedance: IEC 60645-5/ANSI S.3.39 Type 1
• Audiometer: to IEC 60645-1; IEC 60645-2 and ANSI S3.6, Type 1A

STANDARD ACCESSORIES

• Probe 226 Hz
• Headband and probe handle
• Probe cleaning tool kit
• DD45 for Contra
• Kit of assorted ear tips; size from 6 mm up to 15 mm
• Calibration cavity with probe holder
• Built-in fast thermal printer
• Thermal paper roll
• Device dust cover
• Multilingual Quick user's handbook
• Pen Drive
• Resonance® MDS software with NOAH® module included (demo version)
• Power supply cable (110 – 220V)
• Spare fuse
• DD45, ADC or HDA280 headset for audiometry testing
• B71W bone conductor
• Patient microphone (talk back)
• Patient response pushbutton
• SD-card with Multilanguage speech material
• Insert-Transducer (for bone conductor masking and contralateral reflex)
• Operator headset with microphone and speaker (talk over and monitor)

OPTIONALS

• Kit of assorted silicone ear tips "MS" shape size from 8 mm up to 16 mm
• External USB Keyboard
• Carrying bag
• TDH39 for Contra
• TDH39 headset
• Pediatric Headset (AC or BC)
• ADC Audiocups Noise reducing headset enclosures
• Goose-neck microphone
• IP30 Insert earphones
• B81 High Output Bone Conductor
• Silent cabin cables
• Free field loudspeaker
• Additional patient response pushbutton
• MDS software license
• Quick-SIN test

The information, pictures and specifications found in this datasheet are intended as a general guideline for customers seeking information about supplies for Resonance equipment. Resonance makes no warranty, nor assumes any legal liability or responsibility for the accuracy, typing errors or mistakes, correctness or completeness of any information in this datasheet .
The information in this datasheet was correct to the best of our knowledge at the time of printing.

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