

Type identification			
MADSEN Zodiac is type 1096 from GN Otometrics A/S			
Feature table			
	Quick Check	Diagnostic	Clinical
Tympanometry, auto	X	X	X
Tympanometry, manual		X	X
Probe tone, 226 Hz	X	X	X
Probe tone, 1000 Hz		X	X
Probe tone, 678 and 800 Hz			X
Reflex Screening	X	X	X
Reflex Threshold (Ipsi/Contra)		X	X
Reflex Decay		X	X
ETF-P (Perforated)			X
Admittance Recorder			X
B & G tympanograms			X
Compliance measuring system			
Probe tone:	226 Hz at 85 dB SPL $\pm$ 3 dB		
Dynamic probe tone level:	The probe tone level will be compensated to accommodate varying ear canal volumes. The output level will be decreased in volumes < 1.7 ml. The output level will be increased in volumes > 2.3 ml		
THD:	< 1% in 2 cc		
Frequency accuracy:	$\pm$ 0.5%		
Range:	0.2 ml to 5.0 ml $\pm$ 5% or 0.05 ml which ever is greater * 5 ml to 8.0 ml $\pm$ 15% * * The accuracy stated requires that calibration has been performed at the altitude where the device is to be put into operation		
Acoustic reflex			
Step size dB:	Quick Check: 10 dB		
Ipsilateral Stimulation			
Tone:	500 Hz, 1000 Hz, 2000 Hz, 4000 Hz		
Frequency accuracy:	$\pm$ 0.5%		
Noise:	Roll off > 12 dB/Octave		
Range:	BBN, LPN, HPN at 50 to 110 dB SPL * $\pm$ 3 dB * measured in calibration coupler		
Screening range:	BBN at 50 to 90 dB SPL * $\pm$ 3 dB * measured in calibration coupler		
Step size dB:	1, 2, 5, 10 dB		
Decay range:	50 to 100 dB HL* * artifacts may start to occur at levels above 95 dB HL in 0.5 cc.		
Air pressure system			
Range:	Normal +200 to -400 daPa/s,		
Pressure sweep rate:	200, 400, 600 daPa/s $\pm$ 20% in 20% to 80% of the total pressure range		
Pressure accuracy:	$\pm$ 10% or $\pm$ 10 daPa, whichever is greatest		
Pump measure direction:	Positive to negative or negative to positive		
Safety:	Separate safety +530 daPa and -730 daPa $\pm$ 70 daPa Software safety +450 daPa and -650 daPa $\pm$ 70 daPa.		
Graph units			
Unit of admittance graph Y-axis::	ml, cc, mmho, $\mu$ l		
Unit of graph X-axis:	daPa, sec		
Device display			
Display:	7 inch, 15:9 WVGA		
Resolution:	800 x 480 pixel		
USB port connector			
Type:	USB device port		
Compatible:	USB 2.0		
Power supply			
External power supply	XP Power, type AFM60US24		
Output:	24 V, 2.5 A		
Input:	100-240 V AC, 50-60 Hz, 1.5 A		
Power consumption			
	< 60 VA		
Operating environment			
Temperature:	+15°C to +35°C (59°F to +95°F) <b>Caution</b> - Operation in temperatures exceeding -20°C (-4°F) or +60°C (140°F) may cause permanent damage to the device.		
Air humidity:	30 to 90%, non-condensing		
Air pressure:	600 hPa to 1060 hPa		
Warm-up time:	< 10 min. If stored in conditions not within specified operating environment conditions, the device must warm up for 24 hour before being put into operation.		

Storing and handling	
Temperature:	-20°C to +60°C (-4°F to +140°F)
Relative humidity:	< 90 %, non-condensing
Air pressure:	500 hPa to 1060 hPa
Dimensions (HxWxD)	
Stand-alone version:	190 mm x 248 mm x 261 mm (7.5" x 9.8" x 10.3")
PC-based version:	100 mm x 240 mm x 240 mm (3.9" x 9.4" x 9.4")
Probe dimensions (HxWxD)	
Quick Check probe:	28 mm x 22 mm x 100 mm (1.1" x 0.9" x 3.9")
Weight	
Stand-alone version:	2.65 kg/5.85 lb
PC-based version:	1.65 kg/3.64 lb
Optional features	
Printer:	Built-in printer. Prints 600 dot line/s on 112 mm paper width
2 cc coupler	
Calibration	
Equipment should be calibrated regularly according to EN 60645-5 and ANSI S3.39	
Essential performance	
MADSEN Zodiac has no essential performance and accordingly, the applicable requirements are as stated in the following:	
1. Impedance/admittance as defined by EN 61027 Type 1, ANSI S3.39 Type 1.	
2. Basic safety as defined by IEC 60601-1.	
All information required by IEC 60601-1-2:2007, #5.2.2.1#5.2.2.10 is available in the MADSEN Zodiac User Guide.	
Standards	
Safety:	IEC 60601-1, UL 2601-1, CAN/CSA - C22.2 NO 601.1-90 ANSI/AAMI ES60601-1 + AMD 1, CAN/CSA-C22.2 No. 60601-1 MADSEN Zodiac: EN 60601-1, Class II, externally powered, Type BF, IPX0
EMC:	EN 60601-1-2
Impedance/Admittance:	Clinical/Diagnostic: EN 60645-5 Type 1, ANSI S3.39 Type 1 Quick Check: EN 60645-5 Type 2, ANSI S3.39 Type 2
Power supply:	Class I externally powered supply
System requirements	
For system requirements, please refer to the OTOSuite data sheet.	