

# Technical Data

## Teneo™



S+

M+

HP+

### Teneo S+

#### Earhook damped

- 62 dB / 132 dB SPL (ear simulator)
- 55 dB / 124 dB SPL (2 ccm coupler)

#### LifeTube

- 53 dB / 125 dB SPL (ear simulator)
- 45 dB / 124 dB SPL (2 ccm coupler)

### Teneo M+

#### Earhook damped

- 68 dB / 136 dB SPL (ear simulator)
- 60 dB / 130 dB SPL (2 ccm coupler)

#### LifeTube

- 62 dB / 128 dB SPL (ear simulator)
- 53 dB / 125 dB SPL (2 ccm coupler)

### Teneo HP+

#### Earhook damped

- 75 dB / 136 dB SPL (ear simulator)
- 70 dB / 130 dB SPL (2 ccm coupler)

#### Earhook undamped

- 78 dB / 140 dB SPL (ear simulator)
- 75 dB / 136 dB SPL (2 ccm coupler)

#### LifeTube



- 66 dB / 129 dB SPL (ear simulator)
- 65 dB / 125 dB SPL (2 ccm coupler)

## Data Sheet



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**SIEMENS**

# Teneo S+ · Technical Data

Type	Earhook damped		LifeTube	
				
	2 ccm coupler	Ear simulator	2 ccm coupler	Ear simulator
<b>Output sound pressure level</b>				
at 1.6 kHz	–	129 dB SPL	–	116 dB SPL
Peak	124 dB SPL	132 dB SPL	124 dB SPL	125 dB SPL
HFA-OSPL 90	121 dB SPL	–	113 dB SPL	–
<b>Gain</b>				
Full on gain (FOG) at 1.6 kHz	–	49 dB	–	48 dB
Full on gain (Peak)	55 dB	62 dB	45 dB	53 dB
HFA-FOG	42 dB	–	41 dB	–
Reference test gain	42 dB	42 dB	36 dB	41 dB
<b>Frequency, noise and directivity</b>				
Frequency range	100-7100 Hz	1000-7100 Hz	100-7100 Hz	280-7100 Hz
Equivalent input noise	20 dB SPL	23 dB SPL	15 dB SPL	15 dB SPL
Total harmonic distortion at 500 / 800 / 1600 Hz	2 / 1 / 1 %	2 / 1 / 1 %	1 / 1 / 2 %	1 / 1 / 2 %
Tinnitus noiser broadband	70 dB SPL	–	70 dB SPL	–
AI-DI	3.5 dB		3.5 dB	
<b>Inductive coil sensitivity</b>				
MASL (1 mA/m) at 1.6 kHz	–	–	–	–
HFA MASL (1 mA/m)	–	–	–	–
HFA SPLITS (left/right)	–	–	–	–
RSETS (left/right)	–	–	–	–
<b>Battery</b>				
Battery voltage	1.3 V		1.3 V	
Battery current drain	0.9 mA		0.9 mA	
Battery life (cell zinc air)	~125 h		~125 h	
Battery life (rechargeable)	–		–	
<b>IRIL IEC 118-13:2004 (bystander)</b>				
800-960 MHz	<-10 dB SPL		<-10 dB SPL	
1400-2000 MHz	<-10 dB SPL		<-10 dB SPL	
ANSI C63.19	M4		M4	

# Teneo M+ · Technical Data

Type	Earhook damped		LifeTube	
				
	2 ccm coupler	Ear simulator	2 ccm coupler	Ear simulator
<b>Output sound pressure level</b>				
at 1.6 kHz	–	133 dB SPL	–	121 dB SPL
Peak	130 dB SPL	136 dB SPL	125 dB SPL	128 dB SPL
HFA-OSPL 90	126 dB SPL	–	116 dB SPL	–
<b>Gain</b>				
Full on gain (FOG) at 1.6 kHz	–	61 dB	–	54 dB
Full on gain (Peak)	60 dB	68 dB	53 dB	62 dB
HFA-FOG	53 dB	–	46 dB	–
Reference test gain	49 dB	54 dB	39 dB	46 dB
<b>Frequency, noise and directivity</b>				
Frequency range	100-7000 Hz	320-7200 Hz	100-7000 Hz	120-7200 Hz
Equivalent input noise	19 dB SPL	19 dB SPL	19 dB SPL	19 dB SPL
Total harmonic distortion at 500 / 800 / 1600 Hz	2 / 2 / 1 %	2 / 2 / 1 %	1 / 1 / 2 %	1 / 1 / 3 %
Tinnitus noiser broadband	75 dB SPL	–	75 dB SPL	–
AI-DI	3.5 dB		3.5 dB	
<b>Inductive coil sensitivity</b>				
MASL (1 mA/m) at 1.6 kHz	–	89 dB SPL	–	82 dB SPL
HFA MASL (1 mA/m)	82 dB SPL	–	74 dB SPL	–
HFA SPLITS (left/right)	102 / 105 dB SPL	–	93 / 95 dB SPL	–
RSETS (left/right)	-7 / -4 dB	–	-6 / -4 dB	–
<b>Battery</b>				
Battery voltage	1.3 V		1.3 V	
Battery current drain	1.0 mA		1.0 mA	
Battery life (cell zinc air)	~220 h		~220 h	
Battery life (rechargeable)	–		–	
<b>IRIL IEC 118-13:2004 (bystander)</b>				
800-960 MHz	<-20 dB SPL		<-20 dB SPL	
1400-2000 MHz	<-15 dB SPL		<-15 dB SPL	
ANSI C63.19	M4 / T2		M4 / T2	

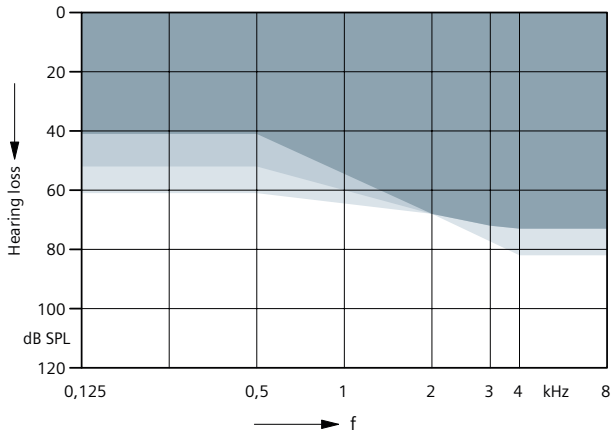
# Teneo HP+ · Technical Data

Type	Earhook damped		Earhook undamped		LifeTube	
	2 ccm coupler	Ear simulator	2 ccm coupler	Ear simulator	2 ccm coupler	Ear simulator
<b>Output sound pressure level</b>						
at 1.6 kHz	–	130 dB SPL	–	132 dB SPL	–	119 dB SPL
Peak	130 dB SPL	136 dB SPL	136 dB SPL	140 dB SPL	125 dB SPL	129 dB SPL
HFA-OSPL 90	123 dB SPL	–	128 dB SPL	–	114 dB SPL	–
<b>Gain</b>						
Full on gain (FOG) at 1.6 kHz	–	68 dB	–	70 dB	–	53 dB
Full on gain (Peak)	70 dB	75 dB	75 dB	78 dB	65 dB	66 dB
HFA-FOG	62 dB	–	66 dB	–	49 dB	–
Reference test gain	47 dB	54 dB	50 dB	57 dB	37 dB	43 dB
<b>Frequency, noise and directivity</b>						
Frequency range	100-6900 Hz	150-7000 Hz	100-5800 Hz	150-6500 Hz	100-5800 Hz	100-6000 Hz
Equivalent input noise	19 dB SPL	19 dB SPL	19 dB SPL	19 dB SPL	28 dB SPL	28 dB SPL
Total harmonic distortion at 500 / 800 / 1600 Hz	2 / 1 / 1 %	2 / 1 / 1 %	3 / 2 / 1 %	5 / 2 / 2 %	1 / 1 / 2 %	1 / 2 / 3 %
Tinnitus noiser broadband	80 dB SPL	–	80 dB SPL	–	80 dB SPL	–
AI-DI	3.5 dB		3.5 dB		3.5 dB	
<b>Inductive coil sensitivity</b>						
MASL (1 mA/m) at 1.6 kHz	–	99 dB SPL	–	99 dB SPL	–	83 dB SPL
HFA MASL (1 mA/m)	92 dB SPL	–	95 dB SPL	–	80 dB SPL	–
HFA SPLITS (left/right)	105 / 105 dB SPL	–	108 / 108 dB SPL	–	96 / 96 dB SPL	–
RSETS (left/right)	-2 / -2 dB	–	-2 / -2 dB	–	-1 / -1 dB	–
<b>Battery</b>						
Battery voltage	1.3 V		1.3 V		1.3 V	
Battery current drain	1.0 mA		1.2 mA		1.3 mA	
Battery life (cell zinc air)	~220 h		~190 h		~170 h	
Battery life (rechargeable)	–		–		–	
<b>IRIL IEC 118-13:2004 (bystander)</b>						
800-960 MHz	<-23 dB SPL		<-23 dB SPL		<-23 dB SPL	
1400-2000 MHz	<-15 dB SPL		<-15 dB SPL		<-15 dB SPL	
ANSI C63.19	M4 / T2		M4 / T2		M4 / T2	



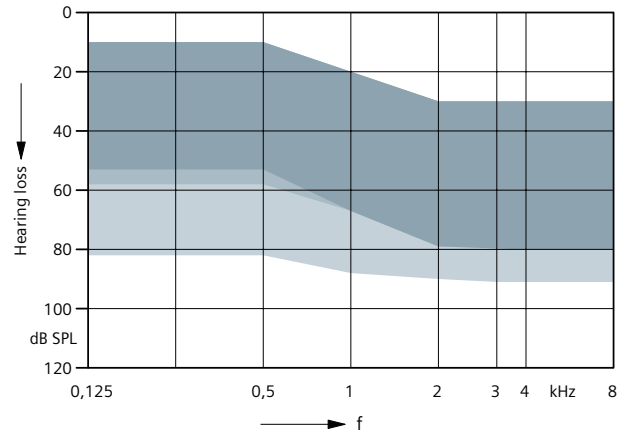
# Fitting Range

## Teneo S+



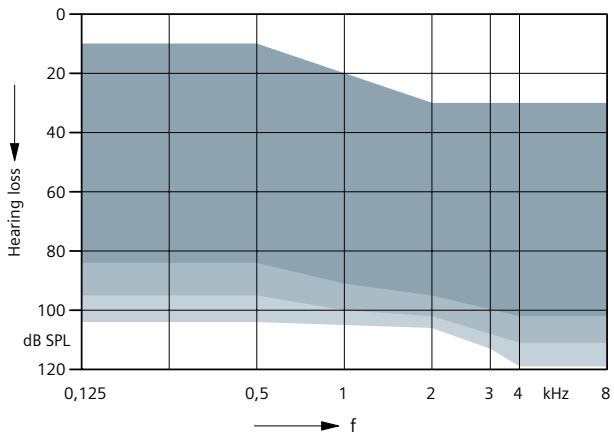
- LifeTube open
- +  LifeTube double
- +  +  Earhook

## Teneo M+



- LifeTube open
- +  LifeTube double
- +  +  Earhook

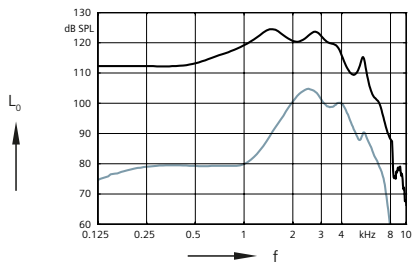
## Teneo HP+



- LifeTube double
- +  Earhook damped
- +  +  Earhook undamped

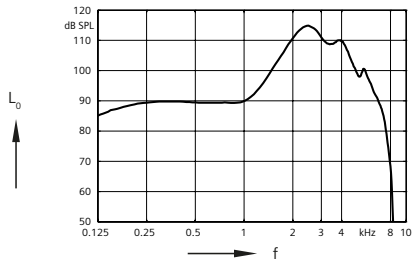
# Teneo S+ (Earhook damped) · Basic Data

## 2 ccm coupler



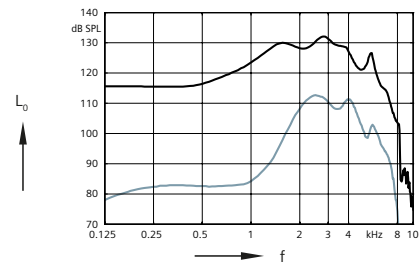
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



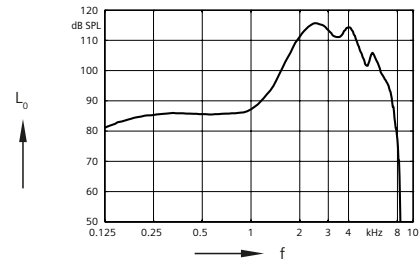
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



Output sound pressure level  
( $L_1 = 90$  dB)

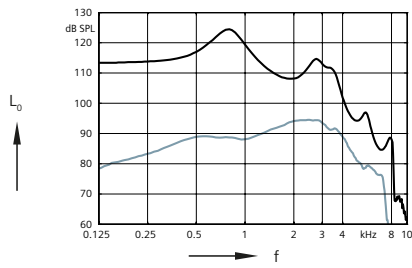
Full on gain  
( $L_1 = 50$  dB)



Basic acoustic response  
( $L_1 = 60$  dB)

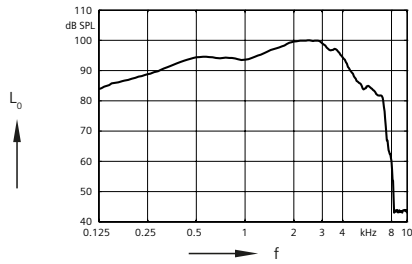
# Teneo S+ (LifeTube) · Basic Data

## 2 ccm coupler



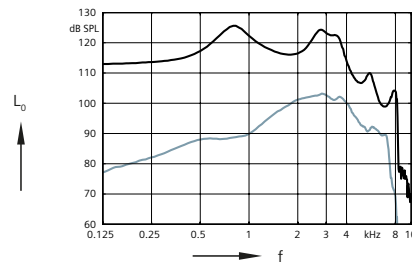
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



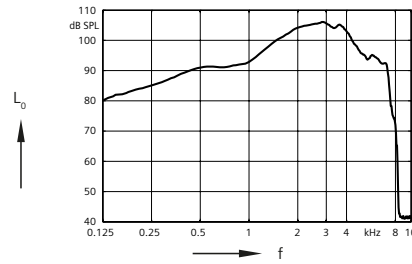
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



Output sound pressure level  
( $L_1 = 90$  dB)

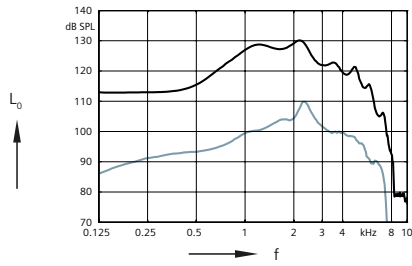
Full on gain  
( $L_1 = 50$  dB)



Basic acoustic response  
( $L_1 = 60$  dB)

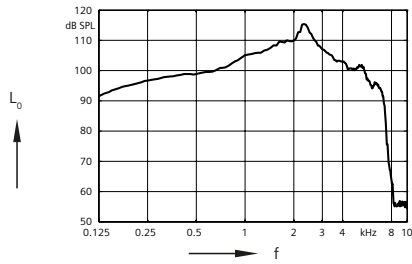
# Teneo M+ (Earhook damped) · Basic Data

## 2 ccm coupler



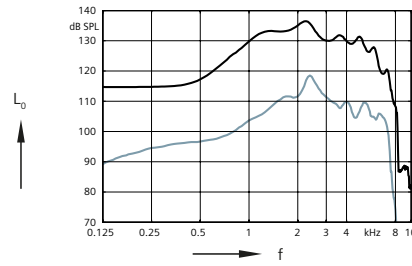
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



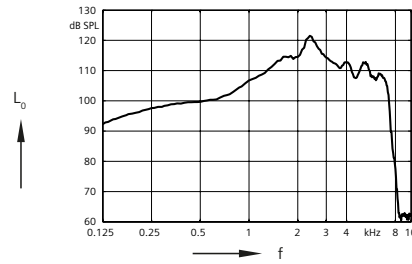
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



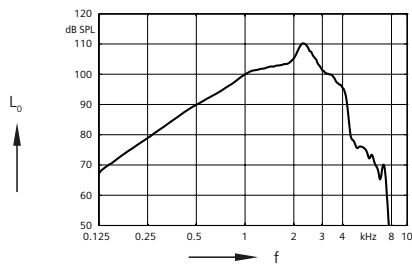
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)

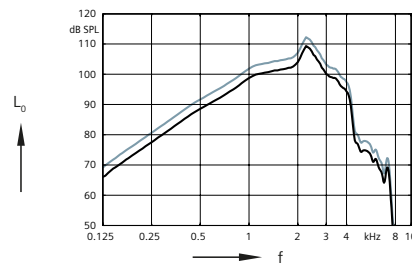


Basic acoustic response  
( $L_1 = 60$  dB)

## Inductive response



Inductive response  
( $H = 10$  mA/m)



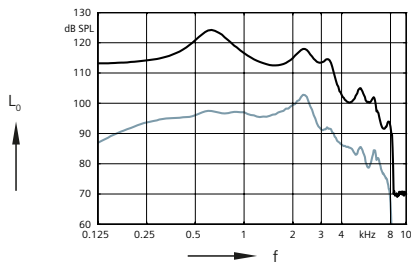
SPLITS curve left  
( $H = 31.6$  mA/m)

SPLITS curve right  
( $H = 31.6$  mA/m)



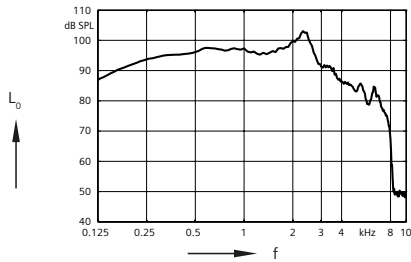
# Teneo M+ (LifeTube) · Basic Data

## 2 ccm coupler



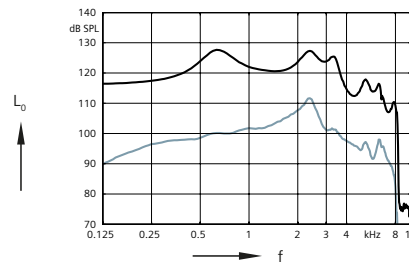
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



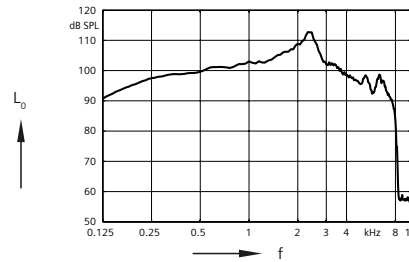
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



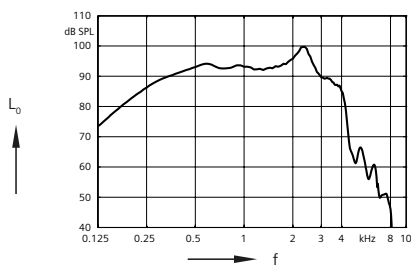
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)

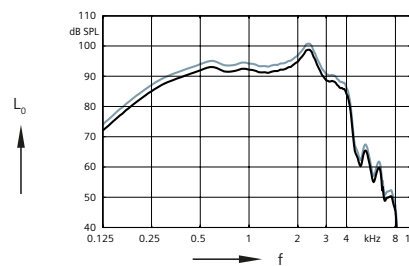


Basic acoustic response  
( $L_1 = 60$  dB)

## Inductive response



Inductive response  
( $H = 10$  mA/m)

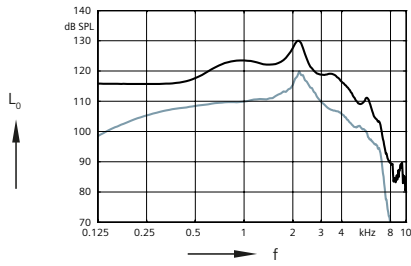


SPLITS curve left  
( $H = 31.6$  mA/m)

SPLITS curve right  
( $H = 31.6$  mA/m)

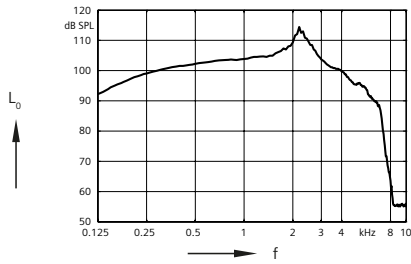
# Teneo HP+ (Earhook damped) · Basic Data

## 2 ccm coupler



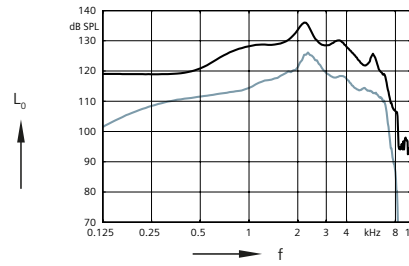
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



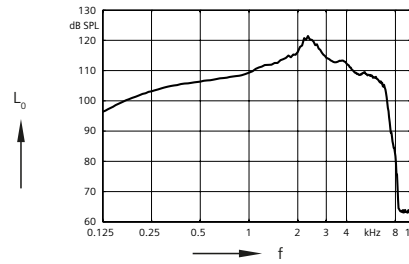
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



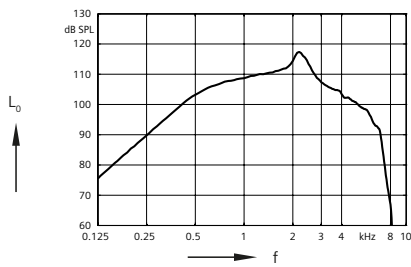
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)

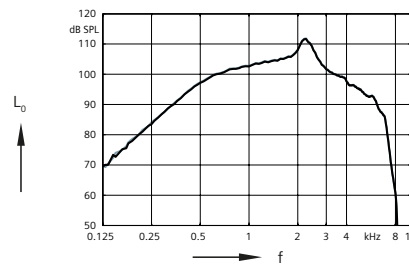


Basic acoustic response  
( $L_1 = 60$  dB)

## Inductive response



Inductive response  
( $H = 10$  mA/m)

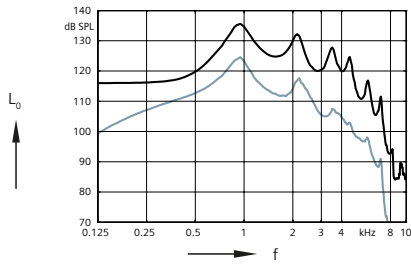


SPLITS curve left  
( $H = 31.6$  mA/m)

SPLITS curve right  
( $H = 31.6$  mA/m)

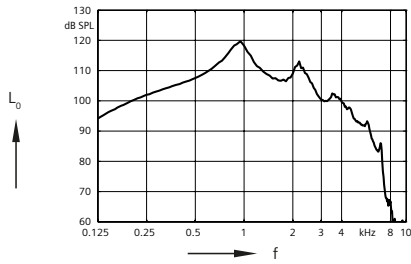
# Teneo HP+ (Earhook undamped) · Basic Data

## 2 ccm coupler



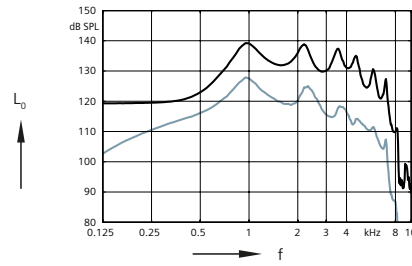
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



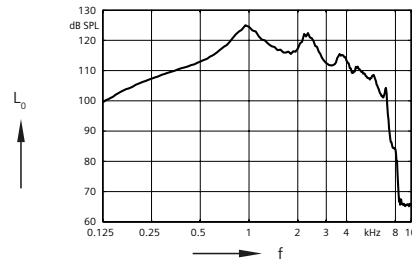
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



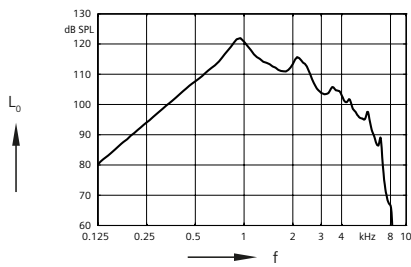
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)

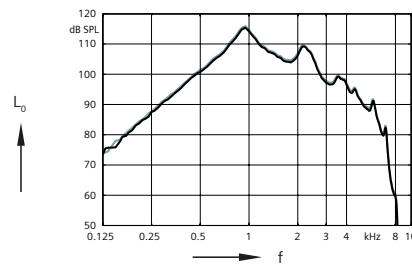


Basic acoustic response  
( $L_1 = 60$  dB)

## Inductive response



Inductive response  
( $H = 10$  mA/m)

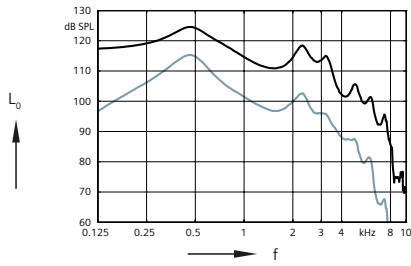


SPLITS curve left  
( $H = 31.6$  mA/m)

SPLITS curve right  
( $H = 31.6$  mA/m)

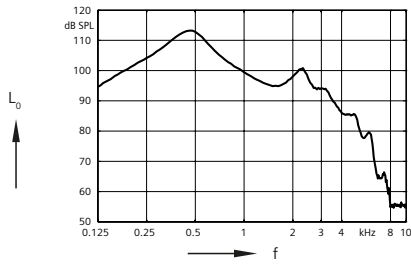
# Teneo HP+ (LifeTube) · Basic Data

## 2 ccm coupler



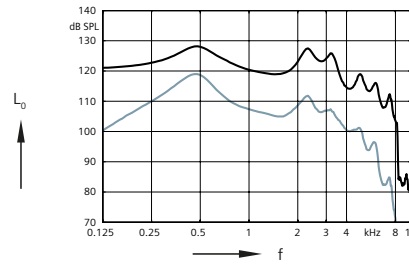
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)



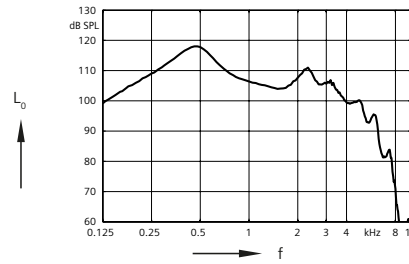
Frequency response  
( $L_1 = 60$  dB)

## Ear simulator



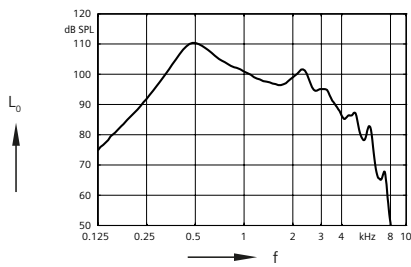
Output sound pressure level  
( $L_1 = 90$  dB)

Full on gain  
( $L_1 = 50$  dB)

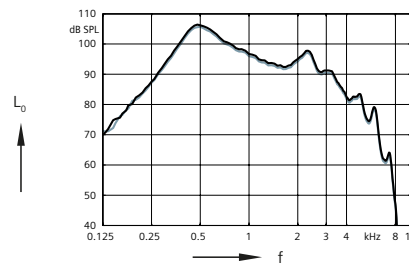


Basic acoustic response  
( $L_1 = 60$  dB)

## Inductive response



Inductive response  
( $H = 10$  mA/m)



SPLITS curve left  
( $H = 31.6$  mA/m)

SPLITS curve right  
( $H = 31.6$  mA/m)

## Features and Accessories

	Teneo S+ M+ HP+
<b>General</b>	
<b>Signal processing</b> (channels)	24
<b>Gain/MPO</b> (handles)	12
<b>Hearing programs</b>	4
<b>Audibility</b>	
<b>Directional microphone</b> (channels)	24
<b>Frequency compression</b>	●
<b>Sound Quality</b>	
<b>eWindScreen™</b> (steps)	on / off
<b>SoundBalance</b>	Selectable values
<b>Feedback cancellation</b>	●
<b>Speech and noise management</b> (channels / steps)	24 / 3
<b>SoundSmoothing™</b> (channels / steps)	24 / on/off
<b>Individuality</b>	
<b>Data logging</b>	●
<b>Acclimatization manager</b>	●
<b>InsituGram</b>	●
<b>Tinnitus Therapy</b>	
<b>Standard</b> (handles / presets)	12 / 4

## Features and Accessories

	Teneo		
	S+	M+	HP+
<b>Style Specific Features</b>			
Ingress Protection Rating	IP67	IP67	IP67
Telecoil	—	●	●
Battery Size	312	13	13
Battery door on/off function	●	●	●
Nanocoated housing	●	●	●
e2e wireless™	●	●	●
Audio streaming	●	●	●
User controls coupling via e2e	●	●	●
Wireless programming via ConnexLink™	●	●	●
<b>Instrument configurations</b>			
Push button	●	—	●
Rocker switch	—	●	●
Battery door – direct audio input	—	○	○
Tamperproof battery door	—	○	○
<b>Programming Accessories</b>			
ConnexLink	●	●	●
Programming pill	●	●	●
<b>Accessories</b>			
easyPocket™	●	●	●
easyTek™	●	●	●
Transmitter (req. easyTek)	●	●	●
VoiceLink™ (req. easyTek)	●	●	●
<b>App</b>			
easyTek App (req. easyTek)	●	●	●

● available ○ optional — not available



# Abbreviations and Standards

## Abbreviations

The following abbreviations are used in this datasheet:

OSPL	Output Sound Pressure Level
HFA	High Frequency Average
FOG	Full-On Gain
MASL	Magneto Acoustical Sensitivity Level
SPLITS	Coupler SPL for an Inductive Telephone Simulator
RSETS	Relative Equivalent Telephone Sensitivity
AI-DI	Articulation Index - Directivity Index
IRIL	Input Related Interference Level
RTF	Reference Test Frequency

## Standards

- ▶ All measurements with the 2 ccm coupler were performed according to ANSI S3.22-2009 and IEC 60118-7:2005 if applicable.
- ▶ All measurements with an ear simulator were performed according to IEC 118-0/A1 and to DIN 45605 (frequency range) if applicable.
- ▶ Tinnitus noiser measurement conditions: all tinnitus single frequency sliders in max position, master volume slider in default position (0 dB) and local volume control in default position.
- ▶ The following ear pieces were used:
  - Earhook
  - LifeTube

### WARNING

Choking hazard posed by small parts.

- ▶ This instrument is not intended for the fitting of infants, small children and persons of mental incapacity.

### WARNING

Instrument has an output sound pressure level of 132 dB SPL or more.

Risk of impairing the residual hearing of the user.

- ▶ Take special care when fitting this instrument.

The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases and are subject to change without prior notice. The required features should therefore be specified in each individual case at the time of conclusion of the respective contract.