



ES12

Electronic Stethoscope



Electronic Stethoscope ES12 for locating sound sources.

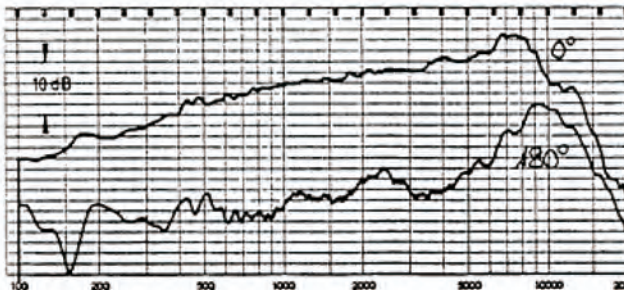
The system contains a directional microphone MI10, a monitor amplifier AV14, dynamic headphones, an accelerometer and a carrying case.

Use

- Acoustic and Vibration Measurements
- Source Location
- Machine Diagnosis

Scope of delivery

- 1-Channel Monitor Amplifier and Charge Amplifier AV14
- AC Adapter, 100-240 VAC / 12 VDC
- 1/4" Directional Microphone MI10
- Accelerometer
- Headphone KH10
- Carrying Case
- Manual



MI10 Directional Microphone

Features

- Shapely matt black plastic housing and swan neck
- Built-in windscreen
- Background noise elimination
- Functional small and handy design

TECHNICAL DATA MI10

Acoustic mode of operation:	Pressure gradient receiver
Directional characteristic:	Cardioids
Backward noise elimination:	20 dB
Frequency range:	see Diagram
Open circuit sensitivity at 1000Hz und 5V	7,2 mV/PA \pm 3 dB
Impedance:	1000 Ω \pm 40 %
Distortion at 28 Pa, (123dB) SPL:	< 3 %
Operating supply voltage:	0,8 – 15 V
Current consumption:	< 0,2 mA
Storage:	min. -25 °C, max. +60 °C
Operation mode:	min. -20 °C, max. +55 °C
Humidity range:	20°C / 99%, 60°C / 95%
Swan neck thread:	M10x1
Length:	455 mm
Weight:	approx. 130 g
Cable:	2 m, \varnothing 2,7 mm



AV14 Monitor Amplifier

The 1-channel charge amplifier AV 14 has been constructed mainly to monitor acoustic and vibration signals. It has a measuring channel for an electret condenser microphone or a piezoelectric accelerometer. The switching over from the accelerometer to the microphone comes automatically, when the microphone mini-jack is plugged in. At the output socket you get a voltage proportional to the acceleration or sound pressure independent of the amplification of the headphone amplifier. So the instrument can be used as a front end for analyzers or similar instruments.

Features

- electret condenser microphone Input
- Piezoelectric accelerometer input
- Adjustable Headphones output
- Preamplifier Function (additional output)

TECHNICAL DATA AV14

Piezoelectric accelerometer input:	Microdot
Microphone input:	LEMO Serie 00
Frequency response hp-amp.:	-3 dB between 30 Hz – 20 kHz
Max. Output voltage hp-amp.:	4 V _{ss} *) at 150 Ω
Distortion factor:	< 1 % bei 1 kHz and 4 V _{ss}
Output socket headphone:	3.5 mm stereo jack
Output socket measuring ampl.:	BNC (on rear panel)
Max. output voltage:	5 V _{ss}
Output Impedance:	50 Ω in series with 10 μF
Max. Impedance:	> 10 kΩ, < 10 nF
Frequency response:	-3 dB between 1 Hz – 30 kHz
Microphone power supply voltage:	5,6 V via 8,2 kΩ
Sensitivity (Piezoelectric accelerometer):	1 mV/pC or 10 mV/pC, ±2 %
LED "Supply Voltage":	green
LED "Charging" (rear):	red
Supply rechargeable battery:	9 V
Supply extern:	9–15 V DC
Battery Charge:	12–14 V, approx. 14 h
Current Consumption:	5 to 15 mA
Battery operating time:	ca. 10–30 h
Operating temperature range:	+/- 0°C to +50°C
Cabinet material:	Aluminium
Dimensions (W × H × D):	55 × 25 × 100 mm
Weight with batteries:	ca. 250 g
Safety standards:	IEC61010, EMC EN55103-1, EN55103-2



KH10 Dynamic Headphone

KH10 is a closed dynamic headphone and it is designed for critical music and sound monitoring in an open environment. The headphone features a frequency response of 5 Hz to 30 kHz and is equalized to the diffuse sound field. The single-sided 3 m connecting cable is equipped with an in-line volume control for optimum set-up. It is fitted with a gold-plated mini stereo plug (3.5 mm) with a 1/4" (6.35 mm) adapter and is therefore suitable for use with almost all headphone amplifiers.

The rugged headband construction has been strengthened to give the headphone a very secure fit, matched with mechanical reliability. Soft ear pads that are easy to clean and adjustable, sliding earpieces ensure listening comfort during extended periods of use.

Features

- Closed diffuse field headphone
- Excellent ambient noise attenuation (≥ 35 dB A)
- Superb audio quality with high sound pressure level (105 dB)
- Robust spring steel headband
- Single sided cable (straight cable, 3 m long) with in-line volume control
- Gold plated jack plug (3.5 mm) and adapter (6.35 mm)

TECHNICAL DATA KH10

Transducer type:	Dynamic
Operating principle:	Closed
Nominal frequency response:	5 - 30.000 Hz
Nominal impedance:	80 Ω per cartridge
Nominal SPL:	105 dB
Nominal T.H.D.:	< 0,2%
Power handling capacity:	100 mW
Sound coupling to ear:	Circumaural
Ambient noise isolation:	≥ 35 dBA
Nominal headband pressure:	approx. 6,5 N
Weight (without cable):	300 g
Length and type of cable:	3 m / straight cable
Connection:	Gold plated stereo jack plug (3.5 mm) and 1/4" adapter (6.35 mm)

ES12 & ES10i SET



Electronic Stethoscope AV11i for locating sound sources

Set include: 1x monitor Amplifier AV11i, 1x directional Microphone MI10i, 1x dynamic Headphones KH10, 1x transport Case KO10i.

Uses

- Acoustic and Vibration Measurements
- Source Location
- Machine Diagnosis

AV11i Monitor Amplifier with octave - and third octave filter

Features

- IEPE Input channel (Microphone or acceleration sensor)
- Measuring output
- Adjustable Headphones output
- Input amplifier: 0 dB and +20 dB selectable
- Switchable octave filter, 9 frequencies
- Switchable third octave filter, 25 frequencies
- Display with backlight
- Overload indication
- Internal rechargeable accu for portability
- Robust aluminum cabinet

The 1-channel monitor amplifier AV11i is a handheld, accu driven instrument, which has been constructed mainly to monitor acoustic and vibration signals with headphones.

AV11i offers you many possibilities to locate disturbance sources. It has an IEPE measuring input for microphone or piezoelectric accelerometer.

The measuring signal can be weighted with the switchable octave filter (9 frequencies) or third octave filter (25 frequencies). So, you can detect the exact frequencies of the disturbance source.

At the output socket you get a voltage proportional to the acceleration or sound pressure independent of the amplification of the headphone amplifier. So the instrument can be used as a front end for analyzers or similar instruments.



The AV11i has been constructed for mobile uses. The AV11i is also suitable for robust environmental conditions.



MI10i IEPE ½" Directional Microphone

Features

- Shapely matt black metal housing
- Built-in windscreen
- Background noise elimination



KH10 Dynamic Headphone

Features

- Closed diffuse field headphone
- Excellent ambient noise attenuation (≥ 35 dB A)
- Superb audio quality with high sound pressure level (105 dB)
- Robust spring steel headband
- Single sided cable (straight cable, 3 m long) with in-line volume control
- Gold plated jack plug (3.5 mm) and adapter (6.35 mm)

The KH10 is a closed dynamic headphone. Due to its high SPL capability and excellent ambient noise attenuation, the KH10 is also suitable for the monitoring. The single-sided 3 m connecting cable allows easy handling for everyday use and is equipped with an in-line volume control for optimum set-up. It is fitted with a gold-plated mini stereo plug (3.5 mm) with a 1/4" (6.35 mm) adapter and is therefore suitable for use with almost all head-phone amplifiers. The rugged headband construction has been strengthened to give the headphone a very secure fit, matched with mechanical reliability. Soft earpads that are easy to clean and adjustable, sliding earpieces ensure listening comfort during extended periods of use. The KH10 provides a natural and balanced sound and exceptional quality suitable for the most demanding professional and audiophile applications.



Technical Data AV11i

Analog IEPE Inputs

Number:..... 1

constant current (IEPE) input

IEPE power:.....22V / 4mA

Connector: BNC

Impedance: > 100 k Ω

Analog Outputs

Number:..... 2

Measuring output

Connector: BNC

Output Impedance:.. 50 Ω in series with 10 μ F

Max. Impedance: > 10 k Ω , <10 nF

Headphones output

Connector: 3.5 mm jack

Amplifier

Input amplifier

Amplification:.....0dB, +20 dB

Headphones amplifier

Max power: 1 W on 16 Ω

Distortion factor:

.....< 1% at 1 kHz and 4 V peak to peak

*Bandwidth (Lin., -3 dB):*20 Hz to 20 kHz

Filter

1/1 Octave filter, switchable - Frequencies:

32 Hz, 64 Hz, 125 Hz, 250 Hz, 500 Hz, 1kHz, 2 kHz,
4 kHz, 8 kHz

1/3 Third octave filter, switchable - Frequencies:

32 Hz, 40 Hz, 50 Hz, 64 Hz, 80 Hz, 100 Hz, 125 Hz,
160 Hz, 200 Hz, 250 Hz, 320 Hz, 400 Hz, 500 Hz,
640 Hz, 800 Hz, 1 kHz, 1,25 kHz, 1,6 kHz, 2,0 kHz,
2,5 kHz, 3,2 kHz, 4 kHz, 5 kHz, 6,4 kHz, 8 kHz

Power supply

internal:..... 4,8 V rechargeable accu

external:..... 100-240 V / AC plug-in charger

Current consumption: 100 mA – 150 mA

Battery operating time:6-8 h

Operating conditions

Operating temp. range: +/- 0°C to +50°C

Mechanical Data

Cabinet material:Aluminum

Dimensions (H x W x D):.....220 x 43 x 24 mm

Weight with accu: approx. 350 g

Accessories included

100-240 V / AC plug-in charger



Technical Data MI10i

Acoustic mode of operation: Pressure gradient receiver

Directional characteristic: Cardioids

Backward noise elimination: 20 dB

Frequency range: see Diagram

Open circuit sensitivity at 1000Hz

IEPE 22V/4mA: 50 mV/PA ± 3 dB

Impedance: $50 \Omega \pm 10 \%$

Distortion at 28 Pa,

(123dB) SPL: $< 3 \%$

IEPE supply voltage: 22 V

Current consumption: 2 - 4 mA

Permissible climatic conditions:

Storing temperature: min. -25°C , max. $+60^\circ\text{C}$

Operating temperature: min. -20°C ,

..... max. $+55^\circ\text{C}$

Relative Humidity: ... $20^\circ\text{C} / 99 \%$, $60^\circ\text{C} / 95 \%$

Mechanical data

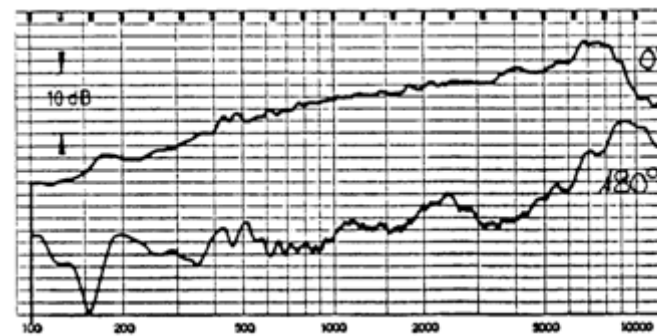
Swan-neck handle $\varnothing 19\text{mm}$, 120mm

Connecting cable: 1.5 m / $2.7 \text{ mm } \varnothing$

..... with BNC male plug

Length 455 mm

Weight: approx. 130 g



Technical Data KH10

Transducer type Dynamic

Operating principle Closed

Nominal frequency response 5 - 30,000 Hz

Nominal impedance 80Ω per cartridge

Nominal SPL 105 dB SPL

Nominal T.H.D $< 0.2 \%$

Power handling capacity 100 mW

Sound coupling to ear Circumaural

Ambient noise isolation $\geq 35 \text{ dB(A)}$

Nominal headband pressure approx. 6.5 N

Weight (without cable) 300 g

Length and type of cable . 3 m / straight cable

Connection: Gold plated stereo jack plug (3.5 mm) and 1/4" adapter (6.35 mm)



Carrying Case KO10i

Padded Inlay: especially formed to hold AV11i, MI10i und KH10

Case material: Plastic

Dimensions W × H × D:..... 450 × 170 × 380 mm

Weight empty: approx. 2.9 kg

Scope of delivery

- 1 × AV11i: 1-Channel Monitor Amplifier with octave and 1/3 Third octave filter
- 1 × 100-240 V / AC plug-in charger
- 1 × MI10i: 1/4" Directional Microphone
- 1 × KH10: Headphone
- 1 × KO10i: Carrying Case
- Manual

Optional Accessories

- Acceleration sensors in wide choice

ROGA Instruments reserves the right to change specifications and accessories without notice.

