



## **User Instructions**

Please read the manual before using the equipment!



## 1 Safety and Environment

1. Do not spill any liquids on the equipment and do not drop any objects through the ventilation slots in the equipment.
2. Do not place the equipment near heat sources such as radiators, heating ducts, or amplifiers, etc. and do not expose it to direct sunlight, excessive dust, moisture, rain, mechanical vibrations, or shock.
3. The packaging of the equipment is recyclable. To dispose of the packaging, make sure to use a collection/recycling system provided for that purpose and observe local legislation relating to waste disposal and recycling.



## 2 Description

### 2.1 Introduction

Thank you for purchasing a Discreet Acoustics module. The **Discreet Acoustics Compact Series** comprises four gooseneck microphones, one flown microphone, and dedicated accessories for every application and every type of venue.

### 2.2 Microphones

Refer to figs. 9 to 14.

**CGN 321 E (order no. 2965Z0001):** 380-mm (15-in.) cardioid gooseneck microphone with integrated DPA XLR phantom power adapter and external foam windscreen.

**CGN 323 E (order no. 2965Z0002):** 380-mm (15-in.) hypercardioid gooseneck microphone with integrated DPA XLR phantom power adapter and external foam windscreen.

**CGN 521 E (order no. 2965Z0003):** 576-mm (23-in.) cardioid gooseneck microphone with integrated DPA XLR phantom power adapter and external foam windscreen.

**CGN 323 E (order no. 2965Z0004):** 576-mm (23-in.) hypercardioid gooseneck microphone with integrated DPA XLR phantom power adapter and external foam windscreen.

**CHM 21 (order no. 2965Z0005):** cardioid flown microphone with spring clamp and 10-m (33-ft.) special cable with DPA XLR phantom power adapter.

## 2 Description



Always use the supplied windscreen (unless it would be too visually obtrusive). It protects the microphone from dust and moisture, and reduces pop and wind noise to a minimum.

### 2.3 Windscreen (2965Z2001)

**B 18 battery power supply** for all Discreet Acoustics Compact microphones.

### 2.4 Optional Accessories

**N 62 E, N 66 E AC power supplies** for all Discreet Acoustics Compact microphones.

**PS3 F-Lock panel mount socket** for all Discreet Acoustics Compact gooseneck microphones (not for CHM 21).

Refer to fig. 9.

**H 500 shock mount** for all Discreet Acoustics Compact gooseneck microphones (not for CHM 21).

Refer to fig.10.

**H 600 shock mount** for all Discreet Acoustics Compact gooseneck microphones (not for CHM 21).

Refer to fig.11.

**SA 60 stand adapter** for all Discreet Acoustics Compact gooseneck microphones (not for CHM 21).

Refer to fig.12.

**ST 1, ST 45 table stands** for all Discreet Acoustics Compact gooseneck microphones (not for CHM 21).

Refer to fig.13.

## 3 Microphone Applications



Note that both the maximum working distance and the area covered by the microphone depend on the pickup angle. The smaller the pickup angle (hypercardioid), the longer the maximum distance between the talker and the microphone and the smaller the area covered by the microphone.

Whether a cardioid or hypercardioid capsule will give the best results therefore depends on the specific application situation).

Refer to Table 1.

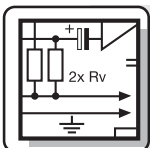


## 3 Microphone Applications

| Microphone | Polar Pattern | Speaker position                      | Working distance              | Application  |
|------------|---------------|---------------------------------------|-------------------------------|--------------|
| CGN 321 E  | Cardioid      | Beinde the micro-<br>phone only       | 30 to 60 cm*<br>(1 to 2 feet) | Sound system |
| CGN 323 E  | Hypercardioid | 90° to 135° off<br>microphone axis    | 30 to 90 cm*<br>(1 to 3 feet) | Sound system |
| CGN 521 E  | Cardioid      | Behind the micro-<br>phone only       | 30 to 60 cm*<br>(1 to 2 feet) | Sound system |
| CGN 523 E  | Hypercardioid | 90° to 135° off<br>microphone<br>axis | 30 to 90 cm*<br>(1 to 3 feet) | Sound system |
| CHM 21     | Cardioid      | Behind the micro-<br>phone only       | 1 to 3 m*<br>(3.5 to 10 feet) | Sound system |

**Table 1: Microphone applications.**

\* Depending upon Acoustic environment



## 4 Installation and Connection

### 4.1 Introduction

All Discreet Acoustics Compact microphones are condenser microphones and therefore require a power supply (phantom power). The microphones have been designed for connection to microphone inputs with 9 to 52 V phantom power. To connect Discreet Acoustics Compact microphones to inputs without phantom power, refer to Section 4.4.

### 4.2 CGN .. E Gooseneck Microphones

Refer to figs. 9 and 12.

#### Note:

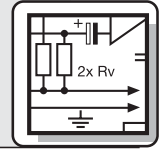
Refer to figs. 10 and 11.

1. Use the optional PS 3 F-Lock panel mount socket to install the microphone in a tabletop or an optional SA 60 stand adapter to mount the microphone on a floor or table stand.

For even better vibrational noise rejection, you can fix the microphone to the tabletop with an optional H 500 or H 600 shock mount.

2. Use a shielded cable to connect the microphone to a microphone input with phantom power.

## 4 Installation and Connection



3. If the phantom power on your mixing console is switchable, switch the phantom power on. (Refer to the instruction manual for your mixing console.)  
The microphone is powered directly from the phantom power source on the console.

1. **Prior to installing the microphone,** straighten the cable by carefully pulling it through your fingers. Make sure not to buckle or twist the cable. Let hang for 1 day to untwist.
2. Fasten a hook to the ceiling, use an existing hook, or stretch a fishing line across the hall.
3. Pass the cable through the hook or over the line so that it will hang at the desired height.

**Do not tie a knot into the cable to hang it on the hook.** This may cause the cable to twist and misalign the microphone after a while.

### 4.3 CHM 21 Flown Microphone

#### Important!

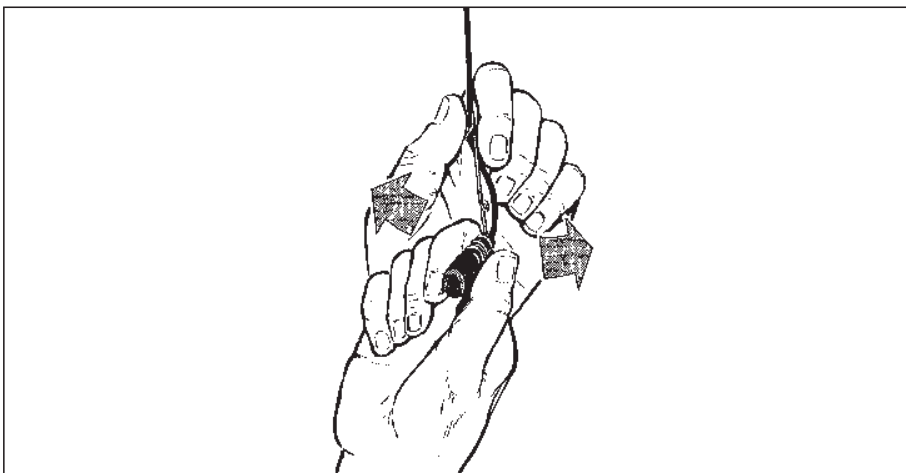


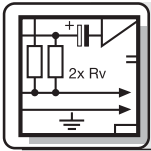
Fig. 1: Aligning the microphone.

5. Hold the cable with one hand and turn the microphone carefully into the desired position.

Refer to fig. 1.

- The cable on the CHM 21 will twist as the ambient temperature changes, e.g., in the heat generated by spotlights.
- The angle of twist depends both on the ambient temperature and the cable length. The shorter the cable, the smaller the amount of twist.

#### Note:



## 4 Installation and Connection

- If you use spotlights, be sure to turn them on before aligning the microphone.
- When you turn the spotlights off, the microphone will rotate out of alignment. Upon turning the spotlights back on, the microphone should rotate back into its original position.

### 4.3.1 Stabilizing the Microphone

To stabilize the microphone,

1. Leave an appropriate length of fishing line through the eyelet on the spring clamp of the CHM 21.
2. Fix the fishing line to two opposite walls so as to create just enough downward pull to steady the microphone laterally.

### 4.3.2 Applications

Fig. 2: Theater stage miking

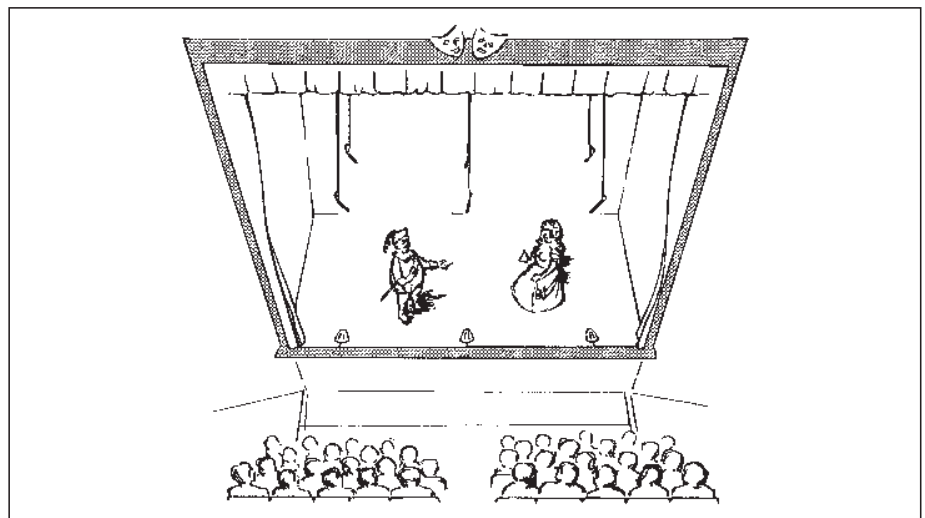
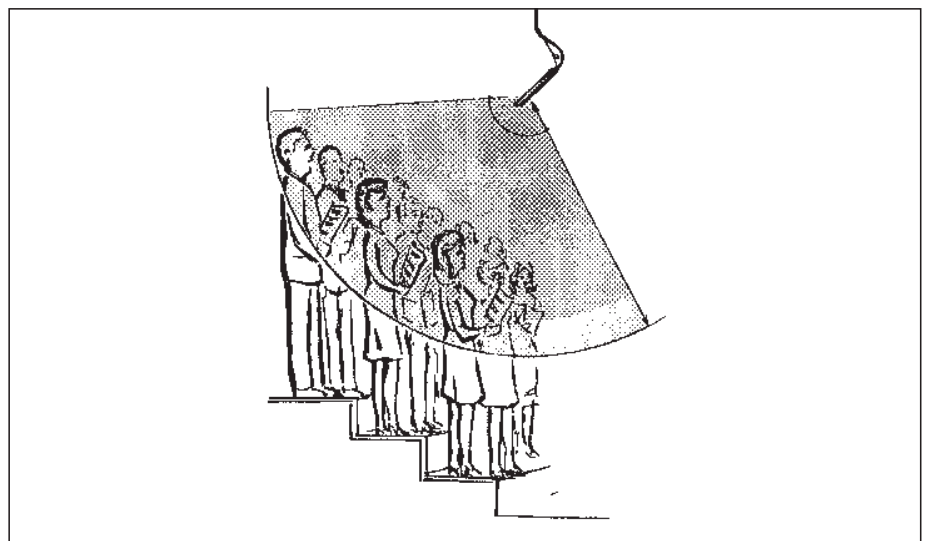
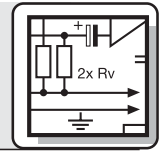


Fig. 3: Miking up a choir



## 4 Installation and Connection



1. Use a shielded balanced cable to connect the microphone to a microphone input with phantom power.
2. If the phantom power on your mixing console is switchable, switch the phantom power on. (Refer to the instruction manual for your mixing console.)  
The microphone is powered directly from the phantom power source.

### 4.3.3 Audio Connection

If your mixer has no phantom power, insert an external phantom power supply between the DPA phantom power adapter and mixer input. We recommend the optional B 18, N 62 E, or N 66 E power supplies from AKG. **Using any power supplies not recommended by AKG may damage your microphone and voids the warranty.**

You may also consider having a **qualified technician** retrofit a phantom power supply as per DIN 45596 to balanced or unbalanced mixer inputs. The DIN 45596 standard specifies a positive voltage of 12, 24, or 48 V on the audio lines versus the cable shield.

### 4.4 Connecting to Inputs without Phantom Power

#### 4.4.1 Balanced Inputs

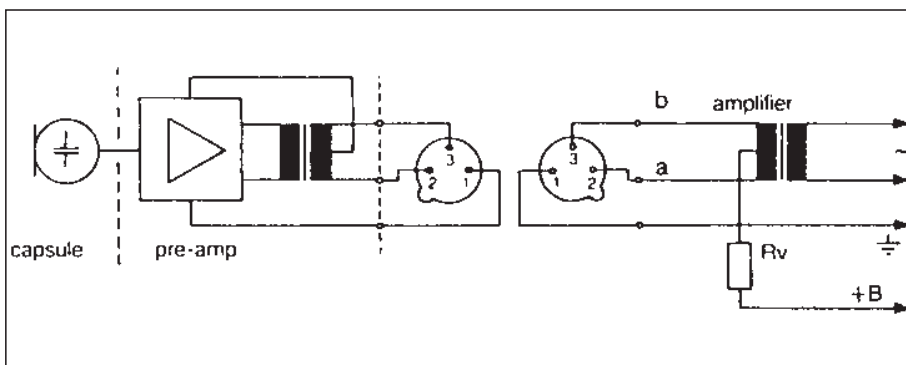


Fig. 4: Input transformer **with center tap** (ungrounded)

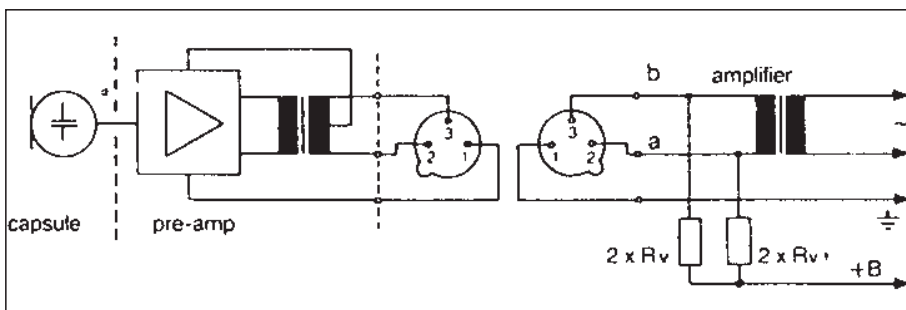
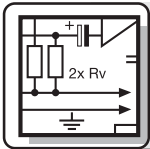


Fig. 5: Input transformer with **no center tap** (ungrounded)

If your equipment inputs are grounded or transformerless, wire either capacitors or extra transformers into the audio lines as shown in fig. 9 above in order to prevent any current leakage into the input stage.



## 4 Installation and Connection

### 4.4.2 Unbalanced Inputs

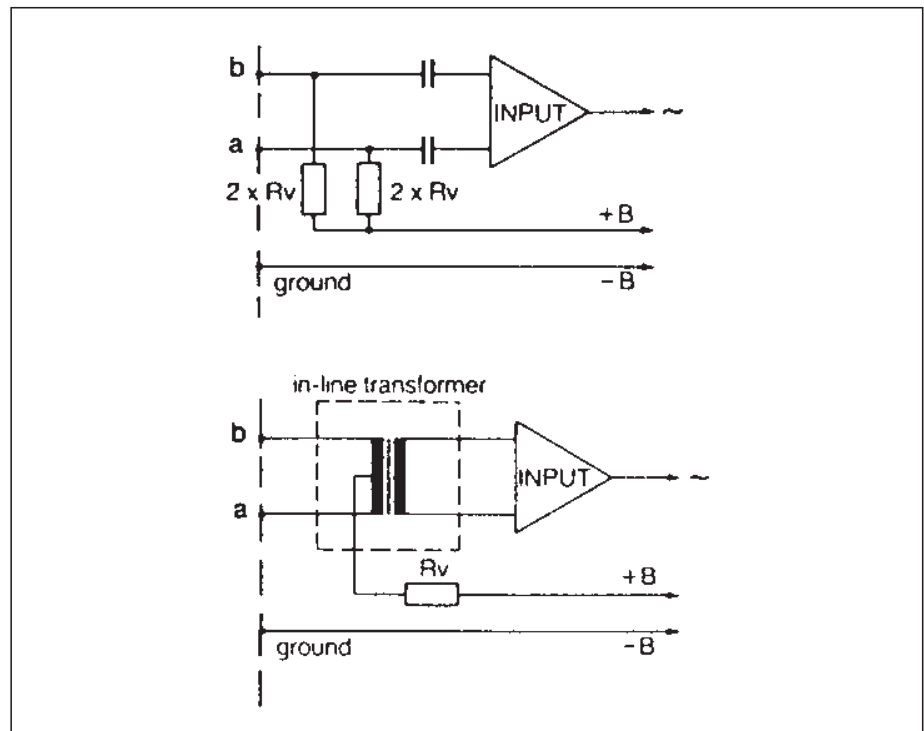


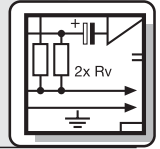
Fig. 6: Unbalanced input stage

Table 2: Standard values for  $R_v$  and  $2 \times R_v$

| VDC            | $R_v$          | $2 \times R_v^*$ |
|----------------|----------------|------------------|
| 12 V $\pm$ 2 V | 330 $\Omega$   | 680 $\Omega$     |
| 24 V $\pm$ 4 V | 680 $\Omega$   | 1,200 $\Omega$   |
| 48 V $\pm$ 4 V | 3,300 $\Omega$ | 6,800 $\Omega$   |

\* In order to satisfy the DIN 45596 symmetry requirement, make sure the actual values of the two resistors  $2 \times R_v$  do not differ by more than 0.5%!

## 4 Installation and Connection



The DPA phantom power adapter is equipped with a bass cut filter to minimize low-frequency noise.

### 4.5 Bass Cut

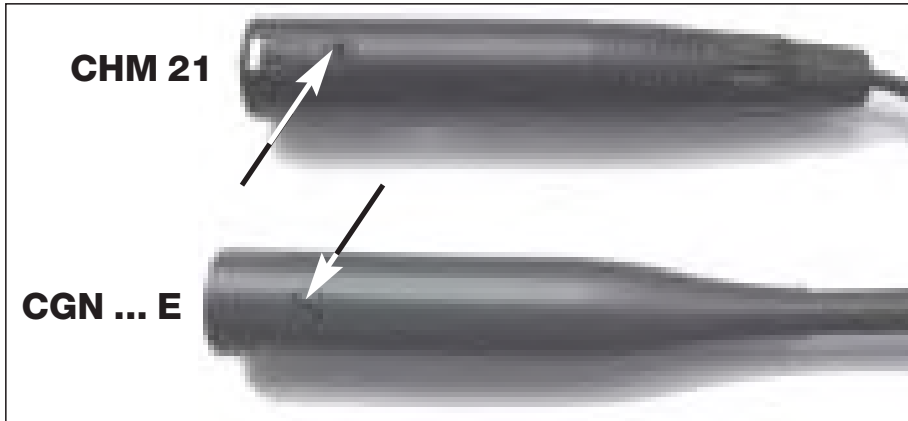


Fig. 7: Fixing screw.

1. Unscrew the fixing screw on the microphone or DPA phantom power adapter.
2. Pull the circuit board out of the case WITH CAUTION – so as not to break the internal leads.

Refer to fig. 7.

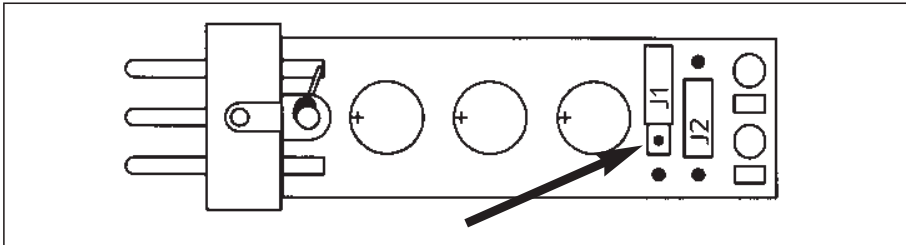


Fig. 8: DPA circuit board.

3. To activate the bass cut filter, plug the jumper J1 into the central contact pair on the circuit board.

Refer to fig. 8.



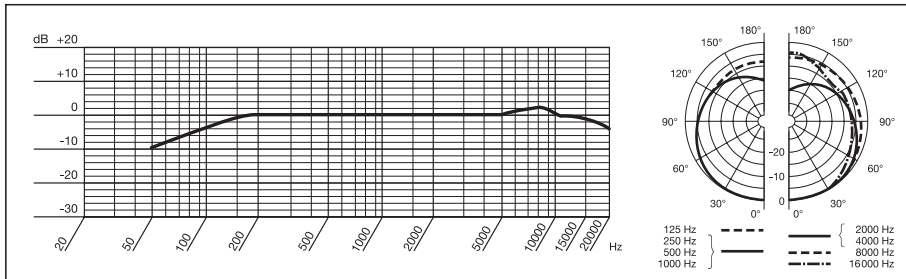
## 5 Specifications

| Microphone                          | CGN 321 E<br>CGN 521 E                                             | CGN 323 E<br>CGN 523 E                                             | CHM 21                           |
|-------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------|
| Type                                | Pre-polarized condenser microphone                                 |                                                                    |                                  |
| Polar pattern                       | Cardioid                                                           | Hypercardioid                                                      | Cardioid                         |
| Frequency range                     | 70 to 18,000 Hz                                                    | 50 to 19,000 Hz                                                    | 70 to 18,000 Hz                  |
| Sensitivity                         | 18 mV/Pa<br>$\triangle -35$ dBV*                                   | 12 mV/Pa<br>$\triangle -38$ dBV*                                   | 18 mV/Pa<br>$\triangle -35$ dBV* |
| Max. SPL for 1% THD                 | 125 dB                                                             | 125 dB                                                             | 125 dB                           |
| Equivalent noise level              | <21 dB-A                                                           | <21 dB-A                                                           | <21 dB-A                         |
| Signal/noise ratio<br>(A-weighted.) | >73 dB                                                             | >73 dB                                                             | >73 dB                           |
| Electrical impedance                | <600 $\Omega$                                                      | <600 $\Omega$                                                      | <600 $\Omega$                    |
| Receommended<br>load impedance      | >2000 $\Omega$                                                     | >2000 $\Omega$                                                     | >2000 $\Omega$                   |
| Power requirement                   | 9 to 52 V phantom power to DIN 45596<br>(DPA adapter integrated)   |                                                                    |                                  |
| Current consumption                 | <3 mA                                                              | <3 mA                                                              | <3 mA                            |
| Connector                           | XLR-3                                                              | XLR-3                                                              | XLR-3                            |
| Finish                              | matte dark gray                                                    | matte dark gray                                                    | matte dark gray                  |
| Size<br>(capsule dia. x length)     | 13.5 x 380 mm<br>(0.5 x 15 in.)<br>13.5 x 580 mm<br>(0.5 x 23 in.) | 13.5 x 380 mm<br>(0.5 x 15 in.)<br>13.5 x 580 mm<br>(0.5 x 23 in.) | 13.5 x 55 mm<br>(0.5 x 2.1 in.)  |
| Net/shipping weight                 | 160/480 g<br>(5.7/17 oz.)<br>170/500 g<br>(6/17.7 oz.)             | 160/480 g<br>(5.7/17 oz.)<br>170/500 g<br>(6/17.7 oz.)             | 20/480 g<br>(0.7 x 17 oz.)       |
| Order no.                           | 2965Z0001<br>2965Z0003                                             | 2965Z0002<br>2965Z0004                                             | 2965Z0005                        |

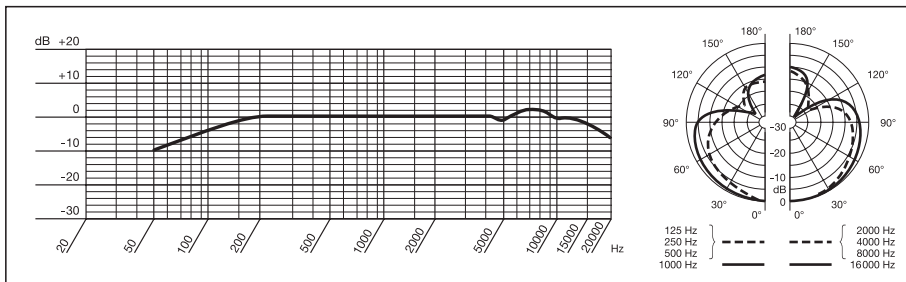
\* re 1 V/Pa

This product conforms to EN 540082-1 provided it is connected to audio/power supply equipment with a CE mark.

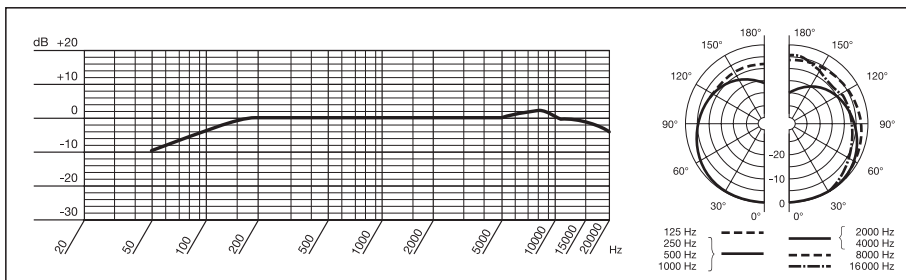
## 5 Specifications



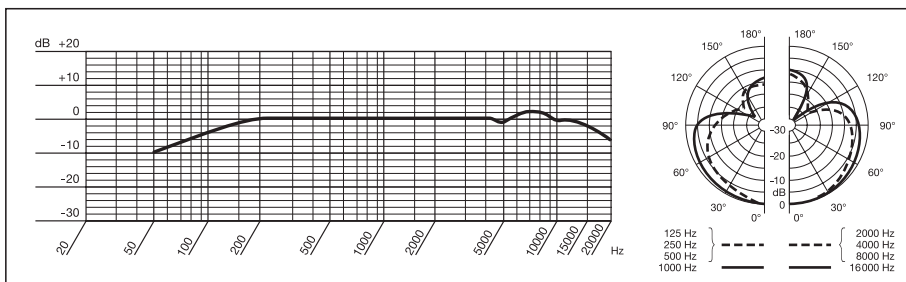
**CGN 321 E**  
Frequency  
Response &  
Polar Diagram



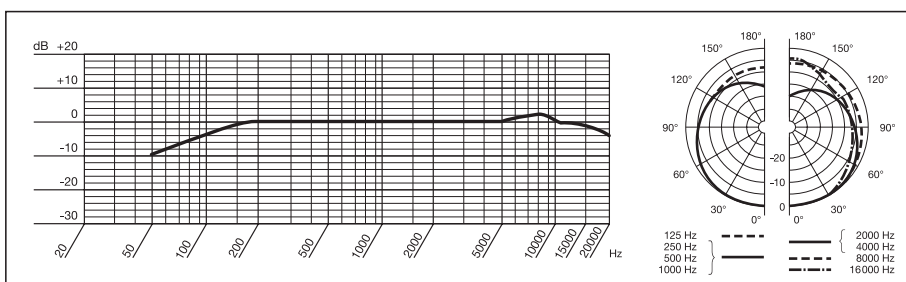
**CGN 323 E**  
Frequency  
Response &  
Polar Diagram



**CGN 521 E**  
Frequency  
Response &  
Polar Diagram



**CGN 523 E**  
Frequency  
Response &  
Polar Diagram



**CHM 21**  
Frequency  
Response &  
Polar Diagram



**Fig. 9: CGN 321 E  
+ PS3 F-Lock**



**Fig. 10: CGN 321 E  
+ H 500**



**Fig. 12: CGN 321 E  
+ SA 60 + ST 1**



**Fig. 11: CGN 521 E  
+ H 600**



**Fig. 14: CHM 21**



**Fig. 13: CGN 521 E  
+ SA 60 + ST 45**

**Microphones · Headphones · Wireless Microphones · Wireless Headphones · Headsets · Electroacoustical Components**

Technische Änderungen vorbehalten. Specifications subject to change without notice. Ces caractéristiques sont susceptibles de modifications.

Ci riserviamo il diritto di effettuare modifiche tecniche. Nos reservamos el derecho de introducir modificaciones técnicas. Especificações sujeitas à mudanças sem aviso prévio.



**AKG Acoustics GmbH**

Lemböckgasse 21–25, P.O.B. 158, A-1230 Vienna/AUSTRIA, Tel: (+43 1) 86 654-0\*, Fax: (+43 1) 86 654-7516, [www.akg.com](http://www.akg.com), e-mail: [sales@akg.com](mailto:sales@akg.com), Hotline: (+43 676) 83200 888, [hotline@akg.com](mailto:hotline@akg.com)

**H** A Harman International Company

**AKG Acoustics GmbH**

Bodenseestraße 228, D-81243 München/GERMANY, Tel: (+49 89) 87 16-0, Fax: (+49 89) 87 16-200, [www.akg-acoustics.de](http://www.akg-acoustics.de), e-mail: [info@akg-acoustics.de](mailto:info@akg-acoustics.de), Hotline: (+49 89) 87 16-22 50, [hotlinede@akg.com](mailto:hotlinede@akg.com)

**AKG ACOUSTICS, U.S.**

914 Airpark Center Drive, Nashville, TN 37217, U.S.A., Tel: (+1 615) 620-3800, Fax: (+1 615) 620-3875, [www.akgusa.com](http://www.akgusa.com), e-mail: [akgusa@harman.com](mailto:akgusa@harman.com)

**For other products and distributors worldwide see our website: [www.akg.com](http://www.akg.com)**