

AKG ACOUSTICS

PERCEPTION 400



User Instructions

Please read the manual before using the equipment!





1 Precaution/Unpacking

1.1 Precaution

Please make sure that the piece of equipment your microphone will be connected to fulfills the safety regulations in force in your country and is fitted with a ground lead.

1.2 Unpacking

Check that the packaging contains all of the items listed below:

- Microphone
- Spider suspension
- Carrying case
- Mini poster

Should any item be missing, please contact your AKG dealer.



2 Description

2.1 Introduction

Thank you for purchasing an AKG product. This Manual contains important instructions for setting up and operating your equipment. Please take a few minutes to **read the instructions below carefully before operating the equipment** and keep the Manual for future reference. Have fun and impress your audience!

The **PERCEPTION 400** is a heavy-duty, rugged true condenser microphone built to the same strict quality standards as all other AKG products.

Designed on the basis of AKG's decades of know-how and feedback from sound engineers around the world using AKG studio microphones every day, this general-purpose 1-inch large-diaphragm microphone brings AKG studio quality to the worlds of recording, live sound, and

broadcasting.

2.2 Features

- **Cardioid polar pattern:** The microphone is most sensitive to sounds arriving from in front of it while picking up much less of sounds arriving from the sides or rear (from monitor speakers or neighboring instruments). This makes the microphone equally suited for recording and onstage use.
- **Gold-sputtered diaphragm:** The diaphragm is made of a plastic foil that is gold-sputtered on one side only to prevent shorting to the back electrode even at extremely high sound pressure levels.
- **All-metal body:** The all-metal body adds to the rejection of RF interference so you can use the microphone near transmitter stations and along with wireless microphones or other



Fig. 1: Polar pattern selector (1) on **PERCEPTION 400** front.

 **PERCEPTION 400**

communications equipment. The extremely rugged, heavy body and sturdy front grill protect the microphone from damage from tough handling on stage.

- **High headroom, minimum distortion:** Capable of handling sound pressure levels up to 135 dB without introducing perceptible distortion and built to resist high temperatures and humidity, the microphone will give excellent results in a wide range of applications.
- **Polar pattern selector:** Selector 1 on the microphone front (refer to fig. 1) sets the microphone polar pattern to figure eight, cardioid, or omnidirectional.
- **Switchable preattenuation pad:** Selector 2 on the microphone rear (refer to fig. 2) lets you increase the headroom by 10 dB for distortion-free close-in recording. The preatten-

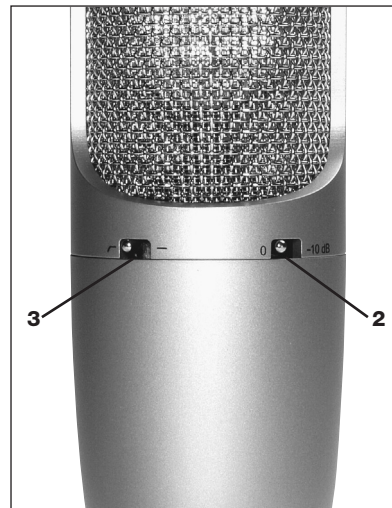


Fig. 2: Preattenuation (2) and bass cut (3) switches on **PERCEPTION 400** rear.

uation pad prevents the microphone's output level, particularly at low frequencies, from overloading the miniature transformers used in many mixer input stages, etc.

- **Bass cut filter:** Selector 3 on the microphone rear (refer to fig. 2 on page 3) further reduces low-end distortion caused by footfall or wind noise, etc. The filter also minimizes the proximity effect that close-in miking from less than 4 inches causes in any unidirectional microphone. The filter rolls off at 12 dB/octave from 300 Hz downward.

2.4 Optional Accessories

- **B 18 + A 48V** battery supply and DC/DC converter for 48-V phantom powering
- **PF 80** studio pop screen
- **ST 305** floor stand
- **W 4000** external windscreen



3 Interfacing

3.1 General

The microphone uses a true condenser transducer designed for 48-volt phantom powering to DIN 45 596/IEC 268-15. Neither the diaphragm nor the backplate are permanently polarized,

so the microphone needs an external power supply.

The microphone provides a balanced output on a 3-pin male XLR connector:

Pin 1: ground

Pin 2: hot

Pin 3: return

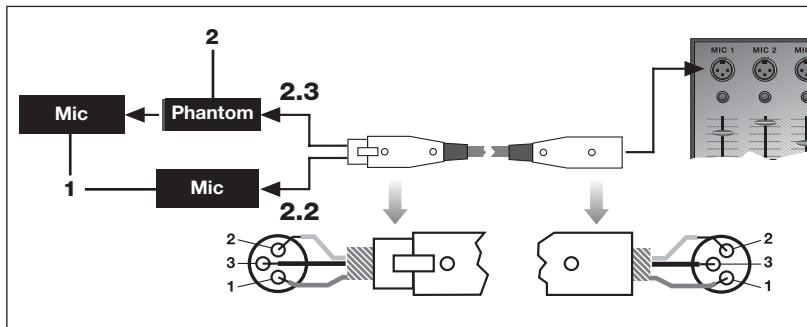


Fig. 3: Connecting to a balanced input with (2.2) or without (2.3) phantom power.

You can connect the microphone either to a balanced microphone input with or without phantom power or an unbalanced microphone input.

3.2 Input with Phantom Power

Refer to fig. 2 on page 4.

1. Use an XLR cable to connect the microphone (1) to a balanced XLR input with phantom power.
2. Switch the phantom power on. (Refer to the user manual of the unit to which you connected your microphone.)

3.3 Input with No Phantom Power

Refer to fig. 2 on page 4.

- If your mixer provides no phantom power, connect an optional **AKG B 18 + A 48V phantom power supply** (2) between the microphone and the mixer.

Important: Using any power supply other than those recommended by AKG may damage your microphone and will void the warranty.

3.4 Unbalanced Input

Refer to fig. 4.

Use a cable with a female XLR connector

and TS jack plug:

1. On the XLR connector, use a wire bridge to connect pin 1 to pin 3 and the cable shield.
2. Connect the inside wire of the cable to pin 2 on the XLR connector and the tip contact of the jack plug.

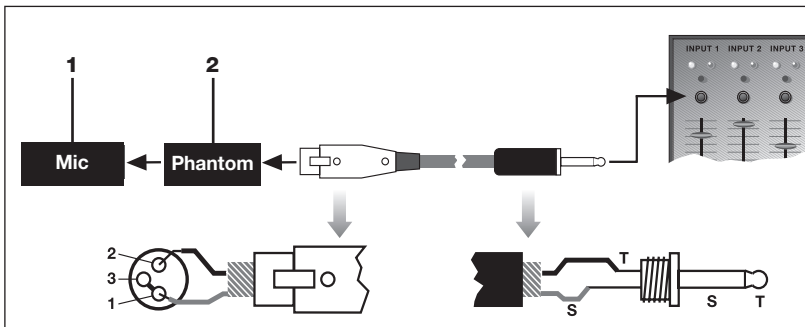


Fig. 4: Connecting to an unbalanced input.

Note: Unbalanced cables may pick up interference from stray magnetic fields near power or lighting cables, electric motors, etc. like an antenna. This may introduce hum or similar noise when you use a cable that is longer than 16 feet (5 m).



4 Using Your Microphone

4.1 General Hints

The **PERCEPTION 400** is a general-purpose multipattern microphone for recording, broadcast, and onstage use. Every instrument radiates its sound in a specific way. Therefore, to get the best sound it is crucial to experiment with microphone placement.

- Whichever polar pattern you selected, it may be good to know which way the transducer axis is facing: the **front** of the microphone is the side of the body with the **AKG logo** and polar pattern selector (1) on it.
- When recording wind instruments or vocals, make sure **not to blow or sing directly into the microphone**. To avoid unwanted wind and pop noise or moisture problems, place an

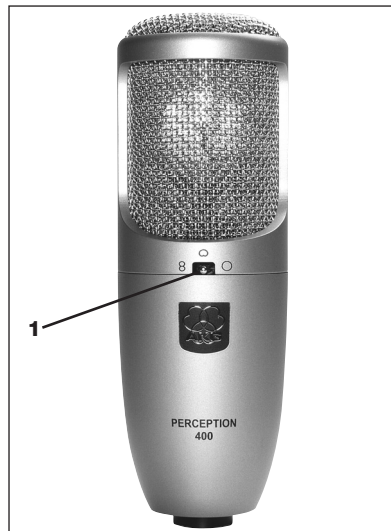


Fig. 5: Microphone front.

PERCEPTION 400 

optional **PF 80 pop screen** from AKG between the microphone and vocalist/instrument.

- **Keep the microphone dry.** Moisture from blowing or singing directly at the capsule from a short distance, or extremely high humidity may cause the microphone to start crackling or go very quiet due to partial short circuits in the polarization voltage.
- If you use the microphone **in the open**, use an optional AKG **W 4000 windscreen** to protect the microphone from moisture and reduce wind noise.
- **High volume instruments:** You can use this microphone for close-in recording of very loud instruments (brass instruments, kick drum, etc.). Just switch the preattenuation pad in to increase the microphone's capability of handling sound pressure levels to 145 dB.

- **Low-frequency noise:** To suppress low-frequency noise such as air conditioning rumble, footfall noise, or traffic sounds, switch the bass cut filter in.

4.2 Selecting Polar Patterns

Each of the **PERCEPTION 400's** selectable polar patterns is virtually frequency independent so that reflected sound, too will be reproduced accurately and uncolored.

- **Cardioid** (center setting): This is a standard setting for recording and gives excellent results on all kinds of voices and a wide range of instruments. Remember to aim the microphone front (see fig. 5 on page 6) at the sound source.
- **Figure eight** (left-hand setting): The microphone will pick up sounds arriving from the front and rear with equal

sensitivity. Use this mode to mic up the side signal in M/S stereo recording or to record two sound sources (talkers, instruments) facing each other. It is also a good choice for cymbal overhead miking.

- **Omnidirectional** (right-hand setting): This is the preferred setting for "all around the mic" recording, high quality ambience (audience sound) miking, or far-field recording in exceptionally good-sounding large or small recording rooms, etc.



5 Cleaning

To clean the surface of the microphone body, use a soft cloth moistened with water.





6 Troubleshooting

Problem	Possible Cause	Remedy
No sound.	<ol style="list-style-type: none"> 1. Power to mixer and/or amplifier is off. 2. Channel or master fader on mixer, or volume control on amplifier is at zero. 3. Microphone is not connected to mixer or amplifier. 4. Cable connectors are seated loosely. 5. Cable is defective. 6. No supply voltage. 	<ol style="list-style-type: none"> 1. Switch power to mixer or amplifier on. 2. Set channel or master fader on mixer or volume control on amplifier to desired level. 3. Connect microphone to mixer or amplifier. 4. Check cable connectors for secure seat. 5. Check cable and replace if damaged. 6. Switch phantom power on. Phantom power supply: insert batteries. Check cable and replace if necessary.
Distortion.	<ol style="list-style-type: none"> 1. Channel gain control on mixer set too high. 	<ol style="list-style-type: none"> 1. Turn gain control down CCW.

6 Troubleshooting



Problem	Possible Cause	Remedy
(Distortion)	<ol style="list-style-type: none">2. Microphone too close to sound source.3. Microphone sensitivity set too high.	<ol style="list-style-type: none">2. Move microphone further away from sound source.3. Switch preattenuation pad in.
Crackling noises or low output.	<ul style="list-style-type: none">• Partial short circuits due to excessive humidity.	<ul style="list-style-type: none">• Place microphone in warm, dry room and allow to dry.





7 Specifications

Type:	1-inch dual-diaphragm, true condenser pressure-gradient microphone
Polar patterns:	cardioid, omnidirectional, figure eight
Open-circuit sensitivity at 1kHz (cardioid):	28 mV/Pa (-31 dBV \pm 2 dB)
Frequency range:	20 Hz to 20 kHz (see frequency response graphs)
Impedance:	\leq 200 ohms
Recommended load impedance:	\geq 1000 ohms
Equivalent noise level to CCIR 468-2:	26 dB
Equivalent noise level to IEC 60268-4 (A-weighted):	16 dB-A
Signal/noise ratio re 1 Pa (A-weighted):	78 dB
Max. SPL for 0.5% THD:	135 / 145 dB SPL (0 / -10 dB)
Preattenuation pad:	-10 dB (switchable)

Bass cut filter slope:	12 dB/octave, 300 Hz
Environment:	temperature: -10°C to +60°C R.H.: 80% (+25°C)
Powering:	48 V \pm 4 V phantom power to DIN 45 596 / 268-15IEC
Current consumption:	\leq 2 mA
Connector:	3-pin XLR (pin 2 hot)
Dimensions:	53 dia. x 160 mm high / 2 x 6.3 in.
Net weight:	525 g / 1.2 lbs.

FCC Statement

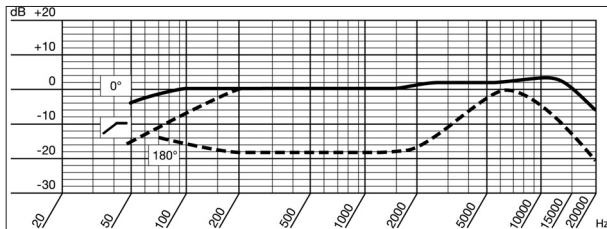
The device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

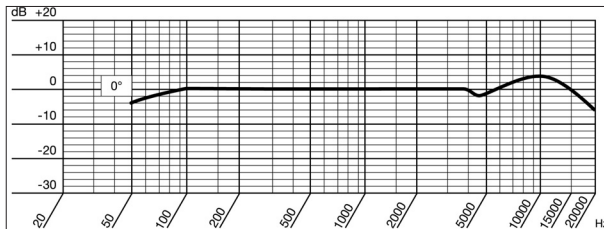
7 Specifications



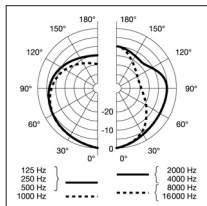
Frequency Response (cardioid)



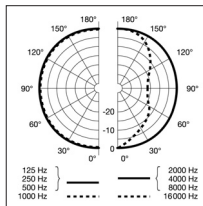
Frequency Response (omnidirectional)



Cardioid Polar Diagram



Omnidirectional Polar Diagram



PERCEPTION 400



7 Specifications

Frequency Response (figure eight)

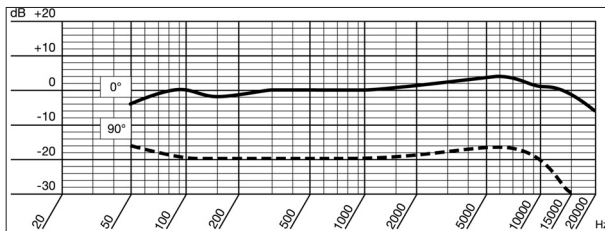
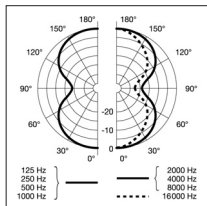


Figure Eight Polar Diagram



The International Page



English

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Microphones · Headphones · Wireless Microphones · Wireless Headphones · Headsets · Electroacoustical Components
Microphones · Casques HiFi · Microphones sans fil · Casques sans fil · Micros-casques · Composants acoustiques
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