Precision in Sound and Technology

Sennheiser ATC Headsets

SENNHEISER

The Pursuit of Perfect Sound

The professional choice for safe communications

When you devote yourself to supervising air traffic, hearing and being heard correctly must not take any extra effort. When simple speech transports vital information, speech intelligibility is not just another benefit – it's a necessity. Transducers and microphones in Sennheiser headsets for air traffic control are dedicated to capturing and reproducing the human voice with absolute precision.

Since the mid 1980s, Sennheiser has developed ATC headsets to Global ANSP's and ATC Communications System OEM's. Innovations such as Sennheiser Voice Clarity ensure clear communication in air traffic control and ActiveGard® technology protects the users against acoustic injury caused by sudden sound burst on the line.

The International Air Traffic Control network is one of the most reliable, successful and safe organizations in the world. The people who are at the core of this system are highly trained professionals on duty in Airport Towers and Air Traffic Control (ATC) Centers every day, making flight safety something that can nearly be taken for granted.

Sennheiser supports the safe performance of these professionals with state-of-the-art communication technology. Our new generation of ATC headsets are lighter than ever and offer a more comfortable fit even during long hours of operation.

Global ANSP Partners

NATS
AirServices – Australia
Airways- New Zeland
LFV
CANI
DSNA-DGAC
FABEC
EuroControl
ATNS
UAE
ROMATSA
BULATSA
HungaroControl
IAA
CAD- Hong Kong
MATS
LVN
SMATSA
SERCO
Fraport

Global VCCS OEM Partners

Frequentis
Indra
Indra-NAVIA
Rohde & Schwarz/Topex
Lockheed-Martin
General Dynamics
SAAB
Harris
Thales
Northrop Grumman – Park Air
SITTI
Jotron
Copperchase
Rockwell Collins-ARINC
Compunetix
Raytheon
L3
Selex- Leonardo
DRS Technologies
Orion
MicroNAV
Entry Point North
e-Sigma
UFA

Sennheiser Voice Clarity

ActiveGard® Technology

Sound Leadership – The Natural Listening Experience

For the best possible communication between the Air Traffic controller and the Pilot Cockpit, Sennheiser Voice Clarity, uniquely enhances the most important frequencies and details of the human voice.

Sound enhancement profiles adjust automatically for optimal communications. The sound for the Air Traffic controller is crisper and clearer, allowing them to hear the nuances contained in spoken conversation.
For the pilot in the cockpit, the Air Traffic Contoller using a Sennheiser headset with active-noise cancelling microphone, hears the clearest voice signal, which maximizes speech intelligibility and significantly reduces “Call Back-Read Backs”.

In combination, this results in better, more natural sounding communications where no important details are lost and this adds to the safety factor.

Play sound without Voice Clarity

Play sound with Voice Clarity

Hearing protection

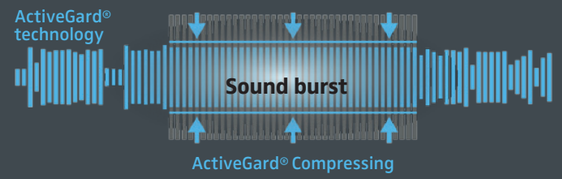
During the course of a day, Air Traffic Controllers may be exposed to seldom, but hazardous incoming noises that can be dangerous to the hearing. Technically referred to as a sound burst, this can potentially cause long-lasting damage to the human ear. To safeguard users, all Sennheiser headsets for Air Traffic Control (ATC) are equipped with the innovative ActiveGard® technology.

Required by EC directive

As long as ATC operators continuously use headsets without ActiveGard®, unexpected noise peaks can lead to irreversible consequences, from headaches and tinnitus problems to acoustic shocks or even total hearing loss. For that reason, the current EU directives regarding workplace security prescribe the protection of employees from acoustic shock.

Required by FAA

The Federal Aviation Administration (FAA) also requires using hearing protection for controllers if the noise level is reaching certain limits.



Play sound without ActiveGard®

Play sound with ActiveGard®

Please be warned that the sound without ActiveGard® can be extremely high.
We recommend the volume should be set low when playing.

Sennheiser HME 46-3 / HMD 46-3

The headsets in the 46 series are designed for all air traffic control communication and C3 applications. The headsets can be operated in 2-channel mode, making it possible to use one channel for control communication with the airplane and the second channel for land telephone connections. Both models in this series feature an open headphone design, are lightweight, deliver first-class comfort and offer the best options for personal adjustments. They have been optimized with one goal in mind: to ensure operator use without fatigue, even over many hours and in changing situations.

Soft ear pads and the patented, automatic opening frame provide for perfect, secure fit – the result of Sennheiser's more than 30 years of experience in the ATC/C3 headset field.

The HME 46-3 features a noise-cancelling electret microphone, which makes speech more natural sounding in every respect.

The HMD 46-3 variant offers a dynamic microphone with a cardioid pattern to guarantee a high level of intelligibility even in noisy environments; for instance, in a tower during high traffic volume.

HME/HMD 46-31 models without ActiveGard® are available for special applications with high sound pressure levels.

Benefits and Features:

- Flip-away headphone allows single-sided listening
- Flexible microphone boom, can be worn on either left- or right-hand side
- ActiveGard® – acoustic shock protection
- Available with PTT in different styles
- Single-sided cable, easy to exchange
- Two-channel application possible
- Serviceability
- 2 years international warranty

Sennheiser SC 260 ATC/C3

The SC 260 ATC/C3 is a unique robust, double-sided headset for Air Traffic Control and C3 Communications.

Built to last, the SC 260 is with its durable construction designed for years of continuous use. Its lightweight, metal reinforced headband with numbered grooves gives a personalized fit and a fully adjustable, bendable boom arm positions the microphone perfectly.

The headset features best-in-class comfort with the CircleFlex® dual-hinge ear cup system that adapts seamlessly to your ear for perfect fit and relaxed all day wearing comfort for the Air Traffic Control/C3 Operations and Communications.

SC 260 ATC/C3 models without ActiveGard® are available for special applications with high sound pressure levels.

Benefits and Features:

- Sennheiser Voice Clarity – wideband sound for excellent communications and better separation between radio and telephone reception
- Noise-cancelling microphone – filters out ambient noise for optimum speech clarity for reduced "call back-read back" events
- Acoustic foam ear pads with soft leatherette cover – for user flexibility and all day wearing comfort
- ActiveGard® – acoustic shock protection
- Connector – interconnector with PTT
- 2 years international warranty

ActiveGard™ integrated

Superior WEARING Comfort

2 Years Ans Jahre Warranty Garantie

Sennheiser HME 46-3S

The HME 46-3S offers the advantages of the highly functional HME 46 series for Air Traffic controllers and C3 operations that need to have one ear free.

The premium quality components of this single-sided headset ensure long service life and excellent wearing comfort for the user. The steel core cables resist the most robust conditions in daily operation. A special quality of this headset is the exceptional intelligibility in hearing and speech.

Benefits and Features:

- Superb wearing comfort due to patented two-piece headband and soft temple pads
- Foam ear pads, replaceable
- Noise-cancelling microphone – filters out ambient noise for optimum speech clarity for reduced "call back-read back" events
- Superb transmission qualities due to extremely wide frequency response
- ActiveGard® – acoustic shock protection
- Serviceability
- 2 years international warranty

Sennheiser SC 230 ATC/C3

The SC 230 ATC/C3 is a unique robust, single-sided headset for Air Traffic Control and C3 Communications.

Built to last, the SC 230 is with its durable construction designed for years of continuous use. Its lightweight, metal reinforced headband with numbered grooves gives a personalized fit and a fully adjustable, bendable boom arm positions the microphone perfectly.

The headset features best-in-class comfort with the CircleFlex® dual-hinge ear cup system that adapts seamlessly to your ear for perfect fit and relaxed all day wearing comfort for the Air Traffic Control/C3 Operations and Communications.

SC 230 ATC/C3 models without ActiveGard® are available for special applications with high sound pressure levels.

Benefits and Features:

- Sennheiser Voice Clarity – wideband sound for excellent communications and better separation between radio and telephone reception
- Noise-cancelling microphone – filters out ambient noise for optimum speech clarity for reduced "call back-read back" events
- Acoustic foam ear pad with soft leatherette cover – for user flexibility and all day wearing comfort
- ActiveGard® – acoustic shock protection
- Connector – interconnector with PTT
- 2 years international warranty

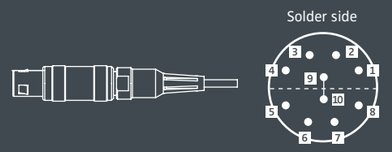
ActiveGard™ integrated

Superior WEARING Comfort

2 Years Ans Jahre Warranty Garantie

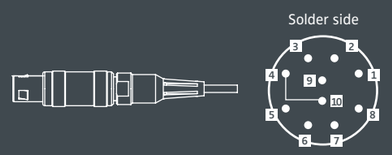
Connector types and assignments

The following connector types are available as a standard configuration. Sennheiser is able to do the assembly for other plugs due to customer specification.



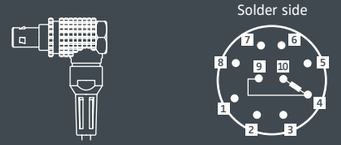
Lemo FFP 3B.310.CLA252A

1 Audio Hi right
2 Audio Lo right
3 Not assigned
4 Screen
5 Audio Hi left
6 Audio Lo left
7 Microphone Hi
8 Microphone Lo
9 Bridge to pin 10
10 Bridge to pin 9



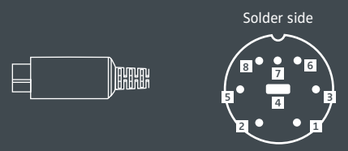
Lemo FFP 3B.310.CLA252A

1 Audio Hi left
2 Audio Lo left
3 PTT
4 PTT (bridge to pin 10)
5 Audio Lo right
6 Audio Hi right
7 Microphone Hi
8 Microphone Lo
9 Screen
10 PTT (bridge to pin 4)



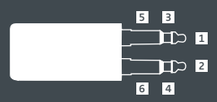
Lemo FHG. 2B.310.CLAD52Z

1 Audio Hi right
2 Audio Lo right
3 PTT
4 PTT/screen/bridge to pin 9
5 Audio Hi left
6 Audio Lo left
7 Microphone Hi
8 Microphone Lo
9 PTT/screen/ bridge to pin 4
10 75 Ω resistor between pin 4 and pin 10/screen



Mini-DIN connector

1 Audio Hi
2 Audio Lo
3 Dynamic microphone Hi (HMD)
4 Not assigned
5 Not assigned
6 PTT
7 PTT/screen
8 Microphone Lo



Available on request on different wiring configurations.

PJ 07

	International ATC wiring	PIN	Canadian ATC wiring
1	Mic +	TIP +	Audio +
2	Mic -	TIP -	Audio -
3	PTT	RING +	Mic +
4	PTT	RING -	Mic -
5	Audio +	SLV +	PTT
6	Audio -	SLV -	PTT

Small Button PTT

- Analog version with headset interconnector
- Analog version with headset direct wired
- Without PTT locking mechanism

Pistol grip PTT

- Analog version with headset interconnector
- Analog version with headset direct wired
- Digital USB version
- With and without PTT locking mechanism

Accessories

	Art.no.	HMD/HME 46 Series	SC 260/SC 230 ATC/C3
Carry Case 05	507235	●	▬
Nylon carry pouch CB 01	092818	▬	●
Cable clip HZC 08 (for round cable)	525787	○	▬
Cable clip HZC 09 (for flat cable)	543652	●	▬
Clothing clip CCL 01	091552	▬	○
Ear pads foam	515295	○	▬
Ear pads leatherette HZP 31	504412	▬	○
Wind- and pop screen BKE 46 (only for HME 46)	515297	○	▬
Windshield ANT (only for HMD 46)	543656	○	▬
Spare mic foam	504362	▬	○
Hygiene pads HZH 46	502194	●	▬
Hygiene pads HZH 200	500581	▬	●
Headband padding HMS 26-2	550262	●	▬
Name plate cover SC 200	504414	▬	○

○ Included in the delivery ● Available as an accessory ▬ Not suitable for this headset

Specifications
Headsets for ATC

	HMD 46-3	HMD 46-31	HMD 46-3-6	HME 46-3	HME 46-31	SC 230 ATC/C3	SC 260 ATC/C3	HME 46-ATC	HME 46-3PTT-LA	HME 46-3PTT-6	HME 46-3-6	HME 46-3S
Prod. Code	500849	502483	500466	500857	502484	507247	506516	500851	502172	500468	500467	502592
Headphone												
Transducer	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural	dynamic, open supra-aural
Frequency response	20 – 14,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz	50-18,000 Hz	50-18,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz	20 – 14,000 Hz
Impedance	300 Ω mono per side	300 Ω mono per side	300 Ω mono per side	300 Ω mono per side	300 Ω mono per side	200 Ω (mono)	200 Ω mono per side	300 Ω mono per side	300 Ω mono per side	300 Ω mono per side	300 Ω mono per side	300 Ω (mono)
Sound Pressure Level (SPL)	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 103 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 103 dB SPL at 1 kHz, 1 V	103 dB SPL at 1 kHz, 1 mW, 107 dB SPL at 1 kHz, 1 V	103 dB SPL at 1 kHz, 1 mW, 107 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono, 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V	95 dB SPL at 1 kHz, 1 mW, mono 83 dB SPL at 1 kHz, 1 V
Distortion	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 110 dB SPL (350 – 3,000 Hz)	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 105 dB SPL at 1 kHz	< 1 % at 102 dB SPL at 1 kHz	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 95 dB SPL (350 – 3,000 Hz)	< 1 % at 98 dB SPL (350 – 3,000 Hz)
Contact pressure	approx. 3 N	approx. 3 N	approx. 3 N	approx. 3 N	approx. 3 N	approx. 1.9 N	approx. 1.9 N	approx. 3 N	approx. 3 N	approx. 3 N	approx. 3 N	approx. 3 N
Microphone												
Type	BMD 46-413	BMD 46-413	BMD 46-413	BKE 46	BKE 46	Noise-cancelling	Noise-cancelling	BKE 46	BKE 46	BKE 46	BKE 46	BKE 46
Transducer principle	dynamic, noise-cancelling	dynamic, noise-cancelling	dynamic, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling	Electret microphone, noise-cancelling
Frequency response	100 – 12,000 Hz	100 – 12,000 Hz	100 – 12,000 Hz	100 – 15,000 Hz	100 – 15,000 Hz	150-6,800 Hz	150-6,800 Hz	100 – 15,000 Hz	100 – 15,000 Hz	100 – 15,000 Hz	100 – 15,000 Hz	100 – 15,000 Hz
Output voltage	0.5 mV / Pa	0.5 mV / Pa	0.5 mV / Pa	17 – 100 mV / Pa adjustable, 80 mV / Pa, –2 dB (factory preset), equivalent to 800 mV at 114 dB SPL	17 – 100 mV / Pa adjustable, 80 mV / Pa, –2 dB (factory preset), equivalent to 800 mV at 114 dB SPL	Sensitivity: -38dBV (+/-) 3dB	Sensitivity: -38dBV (+/-) 3dB	17 – 215 mV / Pa adjustable, 152 mV / Pa, –2 dB (factory preset), equivalent to 1,520 mV at 114 dB SPL	17 – 215 mV / Pa adjustable, 152 mV / Pa, –2 dB (factory preset), equivalent to 1,520 mV at 114 dB SPL	17 – 215 mV / Pa adjustable, 80 mV / Pa, –2 dB (factory preset), equivalent to 800 mV at 114 dB SPL	17 – 100 mV / Pa adjustable, 80 mV / Pa, –2 dB (factory preset), equivalent to 800 mV at 114 dB SPL	17 – 100 mV / Pa adjustable, 80 mV / Pa, –2 dB (factory preset), equivalent to 800 mV at 114 dB SPL
Impedance	200 Ω	200 Ω	200 Ω	150 – 2,200 Ω	150 – 2,200 Ω	2,200 Ω	2,200 Ω	150 – 2,200 Ω	150 – 2,200 Ω	150 – 2,200 Ω	150 – 2,200 Ω	150 – 2,200 Ω
Supply voltage				8 – 16 VDC	8 – 16 VDC	1-10 VDC	1-10 VDC	8 – 16 VDC	8 – 16 VDC	8 – 16 VDC	8 – 16 VDC	8 – 16 VDC
General Data												
Weight without cable	approx. 150 g	approx. 150 g	approx. 150 g	approx. 150 g	approx. 150 g	approx. 58 g	approx. 86 g	approx. 150 g	approx. 150 g	approx. 150 g	approx. 150 g	approx. 110 g
Operating temperature	–15 °C to +55 °C	–15 °C to +55 °C	–15 °C to +55 °C	–15 °C to +55 °C	–15 °C to +55 °C	–5 °C to +45 °C	–5 °C to +45 °C	–15 °C to +55 °C	–15 °C to +55 °C	–15 °C to +55 °C	–15 °C to +55 °C	–15 °C to +55 °C
Storage temperature	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C	–55 °C to +70 °C
Connection cable	–	–	single-sided, round cable	–	–	open end, pre-tinned cable	open end, pre-tinned cable	single-sided, steel cable, twin-paired	single-sided, round cable	single-sided, round cable	single-sided, round cable	–
Length	–	–	1.85 m	–	–	1.00 m	1.00 m	2.00 m	2.30 m	1.85 m	1.85 m	–
PTT	–	–	–	–	–	–	–	–	small	small	–	–
Connectors	–	–	open ended	–	–	open ended	open ended	Lemo 3B.310.CLA252A	Lemo FHG. 2B.310. CLAD52Z	open ended	open ended	–
Remarks						Art.no. 507246 (without ActiveGard®)	Art.no. 506515 (without ActiveGard®)					

Cables

	cable-6	cable-7	cable-H-6	cable-PTT-6	cable-PTT-6-1	cable-L
Prod. Code	500836	502360	502533	500844	502418	502365
Connection cable	single-sided, round cable	single-sided, steel cable	single-sided, round cable	single-sided, round cable	single-sided, round cable	single-sided, steel cable
Length	1.85 m	2.00 m	3.00 m	1.85 m	1.85 m	2.00 m
PTT	–	–	–	small	small	–
Connectors	open ended	twin-paired, open ended	open ended	open ended	open ended	Lemo FFP3B.310. CLA252A
Remarks				PTT position: 1.5 m from headset	PTT position: 0.8 m from headset	

	cable-PTT-L	cable-PTT-LA	cable D-3PTT-M	Amplified Cable PTT – coiled	Amplified Cable PTT – straight	Pistol Grip PTT – coiled cable with interconnector
Prod. Code	500845	502187	500930	UKCABLEPTTH6MICPRE	UKCABLEPTT6MICPRE	CA-APTTN-TA6-H10-UT
Connection cable	single-sided, round cable	single-sided, round cable	single-sided, round cable	single-sided round cable	single-sided round cable	single-sided round cable
Length	1.85 m	2.30 m	2.45 m	3.00 m	1.85 m	3.00 m
PTT	small	small	small	Amplified small with Interconnector	Amplified small with Interconnector	Amplified Pistol Grip with Interconnector
Connectors	Lemo FFP. 3B.310.CLA 252A	Lemo FHG. 2B.310.CLA D52Z	Mini-DIN connector	Open ended	Open ended	Open ended
Remarks						

	Pistol Grip PTT – Non Amplifed Coiled	Pistol Grip PTT – Amplified Straight Cable with Interconnector	Pistol Grip PTT – Non Amplifed Straight Cable
Prod. Code	CA-72-UPTT-H10-UT	CA-APTTN-TA6-S6-UT	CA-72-UPTTN-S6-UT
Connection cable	single-sided helix cable	single-sided round cable	single-sided round cable
Length	3.00 m	1.8 m	1.8 m
PTT	Non-amplified Pistol Grip with Interconnector	Amplified Pistol Grip with Interconnector	Non-amplified Pistol Grip with Interconnector
Connectors	Open ended	Open ended	Open ended
Remarks			

In addition to our standard cable/PPT offerings, we can offer customised solutions to meet any system scenarios, with any type of connector, cable, PTT combination that is required for any type of VCCS or high performance VHF and UHF Radio system.

ATC/C3 Service & Support

Warranty/Repairs

All Sennheiser ATC/C3 headsets are covered by a standard two year international warranty. After the warranty period, Sennheiser ATC/C3 can offer flat rate repairs or an annual maintenance contract, or a combination of the two. Standard turnaround time is 5 working days on most repairs (this may vary by geographic location). All headset repairs include cleaning of the headset, refreshing of ear pads and a complete operational check before the return to the customer.

Support

Sennheiser ATC/C3 Support aims at providing a premium customer experience to all customers, throughout the world. Support is provided by phone, e-mail, ticket and live chat (UK only) and is available during European and UK normal working hours.

Special requirements

The Sennheiser ATC/C3 team offers specially made customer solutions such as customized connectors and cables. Furthermore, we continuously develop our products to meet the special requirements of air traffic control operations worldwide.

www.sennheiser.com

SENNHEISER

Sennheiser is one of the world's leading manufacturers of headphones, microphones, wireless transmission systems and high-quality headsets for both business and entertainment.

Drawing on the electro acoustics expertise of Sennheiser and the leading hearing healthcare specialist William Demant, Sennheiser Communications' headsets for Air Traffic Control (ATC) are the result of Sennheiser's and William Demant's joint leadership in sound quality, design, wearing comfort and hearing protection.

www.sennheiser.com/air-traffic-control-headsets

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0618–2017-01