

# STANDARDS AND INFORMATION DOCUMENTS

AES26-2001  
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## **AES recommended practice for Professional audio connections - Conservation of the polarity of audio signals**

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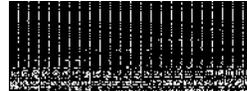
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**AES recommended practice  
for professional audio  
interconnections —  
Conservation of the polarity of  
audio signals**

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**Abstract**

This document standardizes the polarity of the signals at the various interface points between different items of equipment, in particular from the acoustical, electrical, mechanical, digital, and magnetic aspects. Each item of equipment complies separately with the polarity requirements for the input and output signals.

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## Foreword

[This foreword is not a part of *AES recommended practice for professional audio interconnections— Conservation of the polarity of audio signals*, AES26-2001.]

### Foreword to original edition

In the early days of audio engineering, it was seldom thought necessary to pay attention to the polarity of audio signals, but since the introduction of multichannel techniques, and in particular stereophony, this has become essential in order to permit the satisfactory combination of signals from different sources. Conservation of polarity on a local basis is easy to achieve in isolation, but the satisfactory interconnection of equipment obtained from the manufacturers that supply an international market requires international standardization. For this reason, the AES has prepared this standard, which is concerned only with polarity, and not, for example, with signal levels, impedances, or mechanical characteristics of the connections within audio systems. It is based partially on EBU Technical Recommendation R 50-1990 (E), *Conservation of the Polarity of Audio Signals in Radio and Television Production Installations*, and is completely consistent with the technical requirements of that document except as specifically noted here.

In order to ensure that the correct polarity is maintained throughout the audio production chain, it is necessary to standardize the polarity of the signals at the various interface points between different items of equipment, in particular from the acoustical, electrical, mechanical, digital, and magnetic aspects. Each item of equipment should comply separately with the polarity requirements for the input and output signals.

The writing group that drafted the first edition of this document (1995) consisted of Andrew J. Condon, Neal E. Edwards, Gary H. Hedden, Irving L. Joel, James P. Jordan, Stanley P. Lipshitz, Edward M. Long, John G. McKnight, Cal Perkins, Daniel Queen, Saul A. Walker, Bernhard A. Weingartner, Conrad J. White, and John M. Woodgate.

John G. McKnight, chair  
AESSC SC-05-01 Working Group on Conservation of Polarity  
1994-06-01.

### Foreword to second edition

The writing group of SC-05-01 that drafted the second edition of this document consisted of J. Brown, R. H. Campbell, G. H. Hedden, I. L. Joel, E. M. Long, J. G. McKnight, B. Olson, D. Prince, R. Rayburn, J. Schmidt, B. A. Weingartner, C. J. White, and J. M. Woodgate.

J. G. McKnight, chair  
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SC-05-01 Working Group on Polarity  
2001-03-08

### Note on normative language

In AES standards documents, sentences containing the verb "shall" are requirements for compliance with the standard. Sentences containing the verb "should" are strong suggestions (recommendations). Sentences giving permission use the verb "may." Sentences expressing a possibility use the verb "can." The decimal point is a comma except in coding, where it is a period.

# AES recommended practice for professional audio interconnections — Conservation of the polarity of audio signals

## 1 Scope

This standard provides a means to ensure that correct polarity is maintained throughout an audio production chain by determining the polarity of the signals at the various interface points between different items of equipment, in particular at the acoustical, electrical, mechanical, digital, and magnetic ports. The standard intends that each item of equipment comply separately with the polarity requirements for the input and output signals. The preservation of signal polarity in audio recording and processing is important for two main reasons:

- a) the polarity relationship between channels of a stereo pair or multichannel set of signals is of fundamental importance in the correct re-creation of the sound field;
- b) some audio signals are sufficiently asymmetrical that polarity inversion may be perceptually detected.

NOTE This standard is consistent with IEC 60268-2 and IEC 61213.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the indicated standards.

Some referenced excerpts are available on the databases page of [www.aes.org/standards/](http://www.aes.org/standards/).

AES3-1992, *AES Recommended practice for digital audio engineering — Serial transmission format for two-channel linearly represented digital audio data*. New York, US: Audio Engineering Society.

AES14-1992, *AES standard for professional audio equipment — Application of connectors, part 1, XLR-type polarity and gender*. New York, US: Audio Engineering Society.

IEC 60094-1 (1981-01), *Magnetic tape sound recording and reproducing systems — Part 1: General conditions and requirements*. Geneva, CH: International Electrotechnical Commission.

IEC 60098 (1987-11), *Analog audio disk records and reproducing equipment*. Geneva, CH: International Electrotechnical Commission.

IEC 60268-2 (1987-06), *Sound system equipment — Part 2: Explanation of general terms and calculation methods*. Geneva, CH: International Electrotechnical Commission.

IEC 60268-12 (1987-03), *Sound system equipment — Part 12: Application of connectors for broadcast and similar use*. Geneva, CH: International Electrotechnical Commission.