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STANDARDS

AES standard for interconnections - Data connector in an XLR connector shell

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Abstract

Commonly used modular connectors are widely used, but are fragile in demanding installations, where a broken connection can affect the application critically. This is not important in many applications, such as structured data cabling for use with computer networks, or simple interconnect cabling and patching using Category 5 (or better) data cable. However, in professional audio applications, a broken connection can affect the application critically. A standard ruggedized fitting will promote system security in these applications. This document specifies a ruggedized data connector that is compatible with 8-position 8-contact (8P8C) modular connectors, commonly (though inaccurately) called RJ-45 connectors, with regard to mechanical aspects for proper mating and locking.

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Foreword

This foreword is not part of AES63-2012, *AES standard for interconnections - Data connector in an XLR connector shell*.

The standard was developed under project AES-X130 by the SC-05-02 working group on Audio Connectors. It was motivated by the understanding that the development of digital audio has necessarily expanding to include cables and connectors common in conventional computer applications. However, many audio professionals operate in more rugged conditions than the office environments familiar to IT installers; and so they need appropriately rugged connections.

The members of the writing group that developed this document in draft are: W. Bachman, J. Brown, M. Natter, R. Rayburn, J. Woodgate, M. Yonge.

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Foreword to second edition, 2024

This revision adds an informative Annex on connector usage.

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Note on normative language

In AES standards documents, sentences containing the word “shall” are requirements for compliance with the document. Sentences containing the verb “should” are strong suggestions (recommendations). Sentences giving permission use the verb “may”. Sentences expressing a possibility use the verb “can”.

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Introduction

There is a growing market for a number of audio applications that use data-connecting cabling and hardware the same as that being used for structured wiring in IT infrastructures, for example in Ethernet networks. As a result the use of ubiquitous “Category 5” data cables and the related modular connectors is becoming more and more popular.

Commonly used modular connectors are widely available but are fragile in demanding installations. A standard ruggedized fitting will promote system security in these applications.

The AES has a particular interest in professional audio installations which need physically secure data connections for high signal integrity.

This standard will help system integrators, designers, installers and users of data for professional audio and associated media in choosing a connector system which is already approved for its ruggedness and reliability in just these application areas. Based on the dimensions of the convenient XLR connectors the space requirements are comparable and the required panel cutouts in equipment are even compatible. The identical locking mechanism facilitates handling.

The standard will also greatly simplify equipment and cable compatibility.

0 Preamble

0.1 Patents

Attention is drawn to the possibility that some of the elements of this AES standard may be the subject of patent rights other than those identified herein. AES shall not be held responsible for identifying any or all such patent rights.

0.2 Documentation conventions

Following ISO convention, decimal points are conventionally shown as commas (,) unless an alternative, such as a period (.), is expressly stated here, with justification.

All dimensional values are indicated in mm.

1 Scope

The scope of this standard is to specify a ruggedized data connector that is compatible with 8-way modular connectors, also called RJ-45 connectors. Basic physical properties and mechanical dimensions are specified in order to enable proper mating and locking and to ensure reliable electrical contact in the locked position. No further requirements are specified with respect to electrical and other mechanical properties.

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.

IEC 60603-7-1 Ed.3 (2011) *Connectors for electronic equipment – Part 7-1: Detail specification for 8-way, shielded free and fixed connectors with common mating features, with assessed quality*, International Electrotechnical Commission, Geneva, Switzerland.

IEC 61076-2-103 (2004) *Connectors for electronic equipment – Part 2-103: Circular connectors – Detail specification for a range of multipole connectors (type 'XLR')*, International Electrotechnical Commission, Geneva, Switzerland.

3 Definitions and abbreviations

3.1

XLR shell

Housing of XLR-type connector adapted to incorporate the 8-way modular connector.

3.2

Modular connector

8-way connector specified in IEC 60603-7-1. Sometimes known as “RJ-45”

4 Mechanical interface

4.1 General mating information

The dimensions of the fixed chassis connector shall be such that mating and latching operation is guaranteed with a ruggedized modular plug in an XLR shell, or with a standard modular plug (free connector). In the case of a modular plug within XLR shell the integral latching means of the modular plug shall be permanently deactivated or be released when the XLR connector is being separated from the chassis connector.

The shape of the connectors may deviate from those given in the following drawings as long as the specified dimensions are not influenced.