

Australian/New Zealand Standard™

**Electric cables—Twisted pair for control
and protection circuits**



AS/NZS 2373:2003

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-003, Electric wires and cables. It was approved on behalf of the Council of Standards Australia on 2 September 2003 and on behalf of the Council of Standards New Zealand on 9 September 2003. It was published on 29 October 2003.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF

AS/NZS 2373:2003

Electric cables—Twisted pair for control and protection circuits

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Technical Committee EL-003 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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NOTES

Australian/New Zealand Standard™

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-003, Electric Wires and Cables to supersede AS/NZS 2373.2:1995, *Electric cables for control and protection circuits, Part 2: Twisted pair control cables*.

The objective of this Standard is to specify the construction, dimensions and tests for cables used for control, supervisory, protection and instrumentation circuits, with or without a support wire.

This Standard differs from the 1995 edition as follows:

- (a) The specified range of conductor cross-sectional areas has been amended.
- (b) The application of collective insulation, moisture barrier sheath, metallic sheath, armour and insect-resistant barrier have been nominated as optional processes.
- (c) The preferred range of cables has been reduced.
- (d) The approximate overall diameters have been deleted.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Electric cables—Twisted pair for control and protection circuits**

1 SCOPE

This Standard specifies requirements for screened polyethylene (PE) insulated twisted pair control cables for voltages up to and including 0.6/1 kV. A support wire is included for aerial cables.

It applies to cables intended for use in control, supervisory, protection and instrumentation circuits and includes cables commonly referred to as pilot cables. Control cables complying with this Standard may be used between power stations, substations or in industrial applications.

It does not apply to cables used solely for telecommunication purposes.

NOTE: Purchasing guidelines are contained in Appendix A.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- 1222 Steel conductors and stays—Bare overhead
- 1222.1 Part 1: Galvanized (SC/GZ)
- 2706 Numerical values—Rounding and interpretation of limiting values

AS/NZS

- 1125 Conductors in insulated electric cables and flexible cords
- 1660 Test methods for electric cables, cords and conductors
- 1660.1 Method 1: Conductors and metallic components
- 1660.2.1 Method 2.1: Insulation, extruded semi-conductive screens and non-metallic sheaths—Methods for general application
- 1660.3 Method 3: Electrical tests
- 1660.5.6 Method 5.6: Fire tests—Test for combustion propagation
- 3808 Insulating and sheathing materials for electric cables
- 5000 Electric cables—Polymeric insulated
- 5000.1 Part 1: For working voltages up to and including 0.6/1 kV

3 DEFINITIONS

For the purpose of this Standard, definitions given in the referenced Standards and those below apply.

3.1 Control cable

A cable used for control, measuring, protection and communication circuits.

3.2 Lay-up

The assembling of cores.

3.3 Routine tests

Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

3.4 Sample tests

Tests made by the manufacturer on samples of completed cable, or components taken from a completed cable, to verify that the finished product meets the design specification.

3.5 Type tests

Tests made before supplying on a general commercial basis a type of cable covered by this Standard to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not be repeated, unless changes are made in the cable materials or design which might change the performance characteristics.

3.6 Voltage designation

For cables for a.c. systems, the rated voltages U_o and U expressed in the form U_o/U ; or for cables for d.c. systems, the rated voltage U_o —

where

U_o is the r.m.s. power frequency voltage to earth of the supply system or d.c. voltage of the supply system for which the cable is designed; and

U is the r.m.s. power frequency voltage between phases of the supply system for which the cable is designed.

3.7 Wavelength or length of lay

The axial distance between successive crests of the waveform or turns of the helix formed by a core of a pair or pairs of twisted pair cable.

4 VOLTAGE DESIGNATION

The rated voltage U_o/U recognized for the purpose of this Standard is 0.6/1 kV.

5 CONDUCTORS

Conductors shall be of single wire plain annealed copper and shall comply with the relevant requirements of AS/NZS 1125 and the maximum d.c. resistance at 20°C as given in Table 1.

TABLE 1
MAXIMUM d.c. RESISTANCE AT 20°C OF SOLID CIRCULAR CONDUCTORS

Nominal cross-sectional area of conductor mm ²	Nominal diameter of wire mm	Maximum d.c. resistance at 20°C Ω/km
0.64	0.90	28.3
1.0	1.13	18.1
1.27	1.27	14.3
1.5	1.38	12.1

6 INSULATION

6.1 Material

The insulation material shall be PE complying with AS/NZS 3808.

6.2 Application

The insulation shall be homogeneous and applied with a close fit, but shall not adhere to the conductor.