Under Revision DR 91178 D-P

AS 2276.3—1986
UDC 621.315.2:621.315.616:656.056.4

Superseded by AS 2276.3-1992

Australian Standard®
2276.3—1986

CABLES FOR TRAFFIC SIGNAL INSTALLATIONS
Part 3—LOOP CABLE FOR VEHICLE DETECTORS

[Title allocated by Defence Cataloguing Authority:
Wire Electrical (Vehicle Detector Loop Construction,
Traffic Signal Installations)]

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

B

This Australian standard was prepared by Committee EL/3—Electric Wires and Cables. It was approved on behalf of the Council of the Standards Association of Australia on 17 April 1986 and published on 7 July 1986.

The following interests are represented on Committee EL/3:

Australian Electrical and Electronic Manufacturers' Association

Confederation of Australian Industry

Department of Aviation

Department of Defence

Department of Industrial Relations (New South Wales)

Electrical Contractors Associations of Australia

Electrical Regulatory Authorities

Electrical Supply Association of Australia

Electrical Testing Laboratories

Railways of Australia Committee

Telecom Australia

This standard was issued in draft form for comment as DR 85122.

AUSTRALIAN STANDARD

CABLES FOR TRAFFIC SIGNAL INSTALLATIONS

Part 3
LOOP CABLE FOR VEHICLE DETECTORS

AS 2276.3—1986

First published 1982
Second edition 1986

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 4226 8

PREFACE

This edition of this standard was prepared by the Association's Committee on Electric Wires and Cables to supersede AS 2276, Part 3—1982.

The nominal cross-sectional area of the conductor specified herein is taken from AS 1125, Conductors in Insulated Electric Cables and Flexible Cords.

The insulation material specified for the loop cable is electric cable grade polypropylene.

The choice of polypropylene insulation was determined by the requirements for material having a low dielectric constant and a low temperature coefficient of dielectric constant, capable of withstanding the mechanical stresses on cables when installed in road slots; and also a material readily available from local sources in Australia. Constructional dimensions of the cable were determined by requirements such as mechanical strength, the limited dimensions of road slots; and by the need to minimize variation in capacitance to earth, caused by changes in moisture content of the road slot filling.

The polypropylene insulation material specified, having a realistic continuous operating temperature of 80 °C and a short term performance of 140 °C, is expected to provide a much longer service life than the best grades of PVC used previously. Other insulation materials such as fluoropolymers, having further improved temperature performance are being investigated.

This standard differs from the previous edition, as follows:

(a) The requirement for an identification thread within the cable has been deleted but cable marking remains under consideration.

(b) The standard packaging length of cable has been reduced from 1000 m to 500 m.

(c) The addition of a test for stress cracking of polypropylene insulation.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
CABLES FOR TRAFFIC SIGNAL INSTALLATIONS

PART 3—LOOP CABLES FOR VEHICLE DETECTORS

1 SCOPE. This standard specifies requirements for single-core cable intended for the construction of inductive type vehicle-detector loops for traffic signal installations, and suitable for installation in slots cut into road surfaces, the slots being subsequently filled with a suitable sealant.

The cable is intended for operation in extra-low voltage (ELV) installations.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1125 Conductors in Insulated Electric Cables and Flexible Cords

AS 1660 Methods of Test for Electric Cables and Flexible Cords (Including Conductors, Insulation and Sheath).

3 DEFINITIONS. For the purpose of this standard, the definitions given in AS 1125 and the following apply:

3.1 Routine tests—tests made by the manufacturer on all finished cable lengths to demonstrate the integrity of the cable.

3.2 Special tests—tests made by the manufacturer on samples of completed cable, or components taken from the completed cable, so as to verify that the finished product meets the design specifications.

3.3 Type tests—tests required to be made by the manufacturer before supplying on a general commercial basis a type of cable covered by this standard in order 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.

4 VOLTAGE DESIGNATION. The cable is intended for use at extra-low voltage (ELV).

5 OPERATING TEMPERATURE. The cables shall be suitable for operating continuously within the temperature range $-10\,^{\circ}C$ to $+80\,^{\circ}C$.

6 CONDUCTOR. The conductor shall have a nominal cross-sectional area of 1.5 mm^2 and comprise seven strands of 0.5 mm diameter tinned annealed copper wire complying with the requirements of AS 1125.

NOTE: A tinned conductor has been specified in order to reduce the possibility of copper induced oxidation of the polypropylene insulation. The requirement for tinned conductors may be reviewed as experience is gained with the use of copper inhibiting agents incorporated in polypropylene insulation.

7 INSULATION.

7.1 Material. The insulation material shall be electric cable grade polypropylene, stabilized against heat and ultraviolet light and containing a copper inhibitor. The dielectric constant shall not exceed 2.3.

7.2 Application. The insulation shall fit closely on but not adhere to the conductor and shall be applied coaxially with the conductor. The insulation shall be homogeneous throughout.

7.3 Thickness. The average thickness of insulation when determined in accordance with AS 1660 shall be not less than 1.0 mm and the thickness at any point shall be not less than 0.8 mm.

The overall diameter of the finished cable shall not exceed 4.0 mm.

7.4 Colour. The colour of the insulation shall be black.

8 MARKING. (Under consideration).

9 REEL MARKING. Every reel of cable shall be labelled giving the following information:

(a) The name or registered trade name or mark of the manufacturer or other distinguishing mark.

(b) The word Polypropylene.

(c) Length of cable, in metres.

(d) Manufacturer's type number and the words 'loop cable for vehicle detectors ELV'.

NOTE: Manufacturers who place the number of this Australian standard on cable, on packaging or on literature related thereto should ensure that the products are manufactured to comply with the standard.

Attention is particularly drawn to the scheme for independent assurance provided by the Standards Mark which is a registered certification trade mark owned by the Standards Association of Australia and which is available for use with suitable Australian standards.

The presence of the Standards Mark on or in relation to a product is an assurance that the goods have been produced under a system of supervision, control and testing applied during manufacture and including periodical inspections at the manufacturer's works in accordance with the certification mark scheme of the SAA.

The Standards Mark can be used only by manufacturers licensed under the certification mark scheme operated by the SAA, and only when accompanied by the number of the relevant Australian standard. It will usually be a requirement that the words 'Manufactured to Australian Standard' accompany the number of the standard and enclose the Mark as shown below; however, this is a matter for negotiation with the Association.

Further particulars of the terms of licence and suitability of this standard for certification purposes may be obtained from the