

TCS 023 – 2.1 – 2010

The Supply of Cables for Traffic Signal Installations

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Foreword

This specification has been developed by VicRoads. It is one of a number of technical specifications, and associated standard drawings, which set out the requirements for roadside ITS devices, traffic signal equipment and other electrical equipment and associated devices and control systems.

This specification is intended for use in all relevant works undertaken by or on behalf of VicRoads.

VicRoads Standard Drawings, Specifications and Guidelines are available for downloading from the VicRoads website at the following address under 'Tenders & Suppliers':
<http://www.vicroads.vic.gov.au/itsspecs>

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Specification updates. VicRoads specifications and associated standard drawings are subject to periodic review. To keep the specifications up to date, amendments or new editions are issued as necessary. It is therefore important for users of VicRoads specifications to ensure that they have the latest version and associated amendments.

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Revision History

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SECTION 1 – SCOPE AND GENERAL

1.1 SCOPE

- 1.1.1 This specification details the requirements for the manufacture and supply of traffic signal cables for use in the state of Victoria.
- 1.1.2 The type of traffic signal cables covered by this specification are:
- (a) Multicore power cable;
 - (b) Detector feeder cable; and
 - (c) Detector loop cable.

1.2 GENERAL

- 1.2.1 Multicore power cable is used to connect traffic signal hardware to a traffic signal controller. This hardware includes such things as lanterns, pedestrian detectors, walk detectors, audio tactile drivers and LED signs
- 1.2.2 Detector feeder cable is used to connect inductive detector loops to a traffic signal controller.
- 1.2.3 Loop cable is used to form an Inductive detector loop and is connected to a traffic signal controller via a detector feeder cable.
- 1.2.4 All cables supplied under this specification shall comply with the relevant requirements of this specification and the relevant Australian Standard.

1.3 TYPE APPROVAL

- 1.3.1 All cable covered by this specification shall hold current VicRoads 'Type Approval' certification. To obtain VicRoads 'Type Approval' the supplier must submit evidence of compliance in accordance with Appendix A of this specification.
- 1.3.2 Compliance with this version of this specification (and subsequent VicRoads Approval) does not constitute automatic approval against future versions of this specification. Where it is considered necessary, VicRoads may withdraw current Type Approval and request that the affected product be re-submitted for evaluation against future versions of this specification.

1.4 RELATED SPECIFICATIONS

- 1.4.1 The fabrication and supply of all traffic signal cables shall conform with all relevant Australian Standards.
- 1.4.2 The following specifications, standards, documents and standard drawings are referred to or relevant to this specification:
- AS/NZS 2276.1, Cables for traffic signal installations, Part 1: Multicore power cables
 - AS/NZS 2276.2, Cables for traffic signal installations, Part 2: Feeder cable for vehicle detectors
 - AS/NZS 2276.3, Cables for traffic signal installations, Part 3: Loop cable for vehicle detectors

SECTION 2 – MULTICORE POWER CABLE

2.1 GENERAL

- 2.1.1 Multicore power cables shall comply with all relevant requirements of AS/NZS 2276.1.
- 2.1.2 Notwithstanding the above, the cable shall comply with the following requirements.
- 2.1.3 The drum size the cable is supplied on shall not exceed an overall diameter of 1300mm and a width of 1000mm.
- 2.1.4 For 51 and 29 core cable, the centre hole in the drum shall be 95mm diameter.
- 2.1.5 For 19 and 13 core cable, the centre hole in the drum shall be 75mm diameter.

2.2 51 CORE CABLE

- 2.2.1 51 core cable shall comply with the requirements of Table 1 below.

Designation	Colour	Conductor Size mm ²
Earth	Green/Yellow	10
Neutral	Black	10
ELV return	Grey	4
1-48	White	1.5

Table 1

2.3 29 CORE CABLE

- 2.3.1 29 core cable shall comply with the requirements of Table 2 below.

Designation	Colour	Conductor Size mm ²
Earth	Green/Yellow	6
Neutral	Black	6
ELV return	Grey	4
1-26	White	1.5

Table 2

2.4 19 CORE CABLE

2.4.1 19 core cable shall comply with the requirements of Table 3 below.

Designation	Colour	Conductor Size mm ²
Earth	Green/Yellow	4
Neutral	Black	4
ELV return	Grey	2.5
1-16	White	1.5

Table 3

2.5 13 CORE CABLE

2.5.1 13 core cable shall comply with the requirements of Table 4 below.

Designation	Colour	Conductor Size mm ²
Earth	Green/Yellow	4
Neutral	Black	2.5
ELV return	Grey	2.5
1-10	White	1.5

Table 4

SECTION 3 – DETECTOR FEEDER CABLE

3.1 GENERAL

- 3.1.1 Detector feeder cable shall comply with all relevant requirements of AS/NZS 2276.2.
- 3.1.2 Notwithstanding the above, the cable shall comply with the following requirements.
- 3.1.3 The insulation quality of the outer sheath shall not less than that required for low voltage cables.
- 3.1.4 The outer sheath of the cable shall be marked as follows:
 - (a) Manufacturers/Suppliers name;
 - (b) Part number; and
 - (c) Metres of cable remaining on the drum.
- 3.1.5 The drum size the cable is supplied on shall not exceed an overall diameter of 800mm and a width of 550mm.
- 3.1.6 The centre hole in the drum shall be 60mm diameter.

3.2 MULTI-PAIR FEEDER CABLE

- 3.2.1 AS/NZS 2276.2 only allows for single pair detector feeder cables.
- 3.2.2 VicRoads however, has approved the use of multi-pair detector feeder cable with up four separate pairs.
- 3.2.3 Each pair shall be legibly and durably marked with numbers or uniquely colour coded to allow for ease of identification.
- 3.2.4 The outside diameter of cable shall not exceed 15mm.

SECTION 4 – DETECTOR LOOP CABLE

4.1 GENERAL

4.1.1 Detector loop cable shall comply with all relevant requirements of AS/NZS 2276.3.

APPENDIX A

REQUIREMENTS FOR TYPE APPROVAL

A1. GENERAL

To enable assessment for the purpose of granting Type Approval, the supplier is to submit a formal request for Type Approval accompanied by the following:

- a. An outline drawing showing the general lay of the cable and overall dimensions.
- b. Documentation to demonstrate that the cable conforms to the requirements of VicRoads Specification.
- c. Documentation to demonstrate that the cable conforms to the requirements of the relevant Australian Standard.
- d. The supplier shall submit test results or other approved evidence to demonstrate compliance with the tests specified in the relevant Australian Standard.
- e. If requested by VicRoads, a sample of the cable