

Technical Specification

T0539

(Formerly
S-SG-1094)

Triple-layer single- core abrasion resistant signalling wire

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1 Purpose

- 1.1 The purpose of this Technical Specification is to describe wire for use in safety critical railway signalling applications.
- 1.2 Failure of a wire to meet the requirements of this standard throughout its 40 year working life could lead to train collision or derailment, resulting in death or serious injury.

2 Scope

- 2.1 This standard specifies requirements for single-core wire with tri-layered insulation and cross-sectional conductor area of 1.0mm², for use as railway signalling equipment wire.
- 2.2 This wire is primarily intended for use in equipment rooms, where there is a risk of pull through damage, but it can also be used in trackside enclosures and signal heads. It is not intended for applications where it is directly exposed to the elements, nor to be directly laid in trackside troughing or ballast.
- 2.3 For continuity, the terms SE1093 and SE1094 are maintained in the text below.
- 2.4 This document replaces S-SG-1094 A1, which is withdrawn. No technical changes have been made. The document identification has been changed to facilitate re-classification as a Technical Specification.

3 Requirements

3.1 Introduction

- 3.1.1 The wire shall be suitable for installation in trackside cases and enclosures and equipment rooms, where it shall be run unprotected on metal ladder racking, equipment racks, and trunking.
- 3.1.2 The rated voltage for the wire shall be 600/1000 V.
- 3.1.3 The nominal operating voltage shall not exceed 240 V, measured with respect to earth; and the operating current shall not exceed 5 A.

3.2 Construction and specific requirements

3.2.1 Construction

- 3.2.1.1 The conductors shall consist of seven strands of 0.44mm diameter circular tinned copper wires ('7/0.44'). The conductor shall comply with the requirements for class 2 conductors quoted in BS6360.
- 3.2.1.2 The conductor shall be externally covered with an extruded XLPE based insulation material, applied using the BS 6004, clause 6.2 format (although the insulation is not PVC).
- 3.2.1.3 The insulated conductor shall be sheathed with a LFH extruded material applied in accordance with BS 6004, clause 6.6. Insulation and sheathing layers shall be bonded such that they shall not be easily separable.
- 3.2.1.4 The mean value of the sheath thickness shall not be less than 0.5 mm, and the mean value of the combined insulation and sheath thickness shall not be less than 0.74 mm. The measurement and tolerances of all thicknesses shall be in accordance with BS 6004 clauses 8.3 and 5.3 respectively. The insulation and sheath layers shall have a concentricity of 70% or greater.