



(Minor changes to the previous edition are indicated by ◆ placed before the relevant paragraphs)

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1. Scope

This specification details the manufacturing requirements of the 3-core and 5-core Screened Cables used in making connections between items of safety signal equipment mounted in lineside locations.

These cables are classified as items of vital signalling equipment which means that they may be used to perform a critical safety function directly affecting the safe movement of trains. They have been designed to be ultra reliable items of equipment whose mechanical and electrical integrity will be relied on throughout an extended working life.

For the details of items covered by this specification see section 6 of this specification.

2. References

The text of this document cites other documents that provide information or guidance. These are listed in Attachment 1.

References to British Standards or standards in other standards systems shall be taken to include the words 'or equivalent'.

3. Abbreviations

The following abbreviations are used in this document (if from a published source this is indicated):

TTB Trackside Termination Box

4. Definitions

There are no terms used in this document which need defining.

5. Introduction

3-core and 5-core Screened Cables are used to make connections between two Trackside Termination Boxes (TTBs). It is usually the case that the two TTBs will be mounted on opposite sides of the track and the Screened Cable will therefore be required to pass underneath the running and current rails. The cable used in the manufacture of the item is a special heavy duty cable produced for LU in accordance with specification T0503. The cable is required to lay on top of the ballast and to pass beneath the running and current rails and is therefore designed to be particularly rugged to withstand the harsh environment and physical treatment (being stepped on by track-workers) to which it is subjected.

The moulded ends of the cable are designed to allow easy site exchange of faulty cables to be made with no possibility of re-connecting them wrongly.

Various lengths of cable are required for each style of cable.

Details of the configurations produced are given in section 6 of this specification.

The service life of this equipment is 15 years. The shelf life is 3 years.

6. Applicability

This specification applies to the following cable variants.

Item	Stores List No.	Cable Definition Drawing
33/3S	10S37	AS33875/1 item 1
60/3S	10S38	AS33875/1 item 2
33/5S	10S39	AS33875/1 item 3
60/5S	10S40	AS33875/1 item 4

7. Critical functions

The critical functions of the cable are defined to be:-

Maintenance of core to core insulation: The cable used in the design of the harness is a special purpose multi-core cable which has each insulated conductor covered with a braided screen. This design feature is included to prevent core to core short circuits.

The ability of the item to meet the critical functions listed above throughout its life depends on many factors, not all of which are immediately obvious to people not familiar with all aspects of the design, manufacture and use of the equipment. To ensure that the significance of certain of the detailed requirements is understood and complied with, a number of Critical Parameters or Settings have been designated throughout the text.

Attachment 2 to this Specification lists all the Critical Parameters or Settings [CPS], a reference to the section from which the requirement originates and provides a Criticality Rating of the importance of each CPS item.

The Criticality Rating is based on the severity of the consequence if there is a deviation of the subject parameter from the value specified. Numerical values have been assigned to various levels of the Criticality Rating (CR) according to the following table.



Criticality Rating (CR)	SAFETY RELATED CRITERIA	RELIABILITY RELATED CRITERIA
10	Life critical – sole dependence Occurrence of this deviation alone may lead to an incident causing death or injury.	
8	Life critical – shared dependence Occurrence of this deviation, together with a second deviation which is potentially latent (i.e. not self announcing), may lead to an incident causing death or injury.	
7	Life critical – contributory Occurrence of this deviation increases the probability of an event which may lead to an incident causing death or injury.	Service critical – sole dependence Occurrence of this deviation alone may lead directly to an incident causing major service delays, and indirectly to the danger of a life threatening incident through enforced use of manual rules for operating the railway.
6		Service critical – shared dependence Occurrence of this deviation, together with a second deviation which is potentially latent (i.e. not self-announcing), may lead directly to an incident causing major service delays, and indirectly to the danger of a life threatening incident through enforced use of manual rules for operating the railway.
5		Service critical – contributory Occurrence of this deviation, increases the probability of an event which may lead to major service delays, and indirectly to the danger of a life threatening incident through enforced use of manual rules for operating the railway.
1	Not life critical	Not service critical

The criticality rating provides a scale of the importance of achieving the specified parameter and therefore of the care needed in designing the process or processes that will lead to the parameter being achieved. The design of the process or processes that will lead to the parameter being met are the responsibility of the Contractor.