AUSTRALIAN RAIL INDUSTRY STANDARDS ORGANISATION

AS 7711

Signalling Principles

STANDARDS

Australian STANDARD

Advancing safety and productivity

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Development of this Standard was prepared by an Australian Rail Industry Standards Organisation (ARISO) Development Group consisting of representatives from the following organisations:

Arc Infrastructure, JMD Railtech Pty Ltd, Transport for NSW, Arcadis, Department of Transport and Planning, Hayes Railway Signalling Pty Ltd, Sydney Trains, SKV Group, Hitachi Rail STS Australia, Advance System Integrators, Downer, and Aurizon.

The Train Control Systems Standing Committee verified that ARISO's accredited process was followed in developing the product, before the ARISO Board approved the document for publication.

ARISO wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comments on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Alan Fedda
Chief Executive Officer
Australian Rail Industry Standards Organisation

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Document history

Publication Version	Effective Date	Reason for and Extent of Change(s)
2026	19 February 2026	This document has been reviewed to ensure it remains relevant and applicable. The latest review assessed the content, confirming that while updates were made to align with current industry practices, technologies, and regulatory requirements, the original authorship and copyright have been acknowledged as required.

Approval

Name	Date
Australian Rail Industry Standards Organisation Board	19 February 2026

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Preface

This standard was prepared by the Signalling Principles Development Group, overseen by the ARISO Train Control Systems Standing Committee.

This latest revision introduces several key updates, including alignment with the IRSE's fundamental requirements for train control systems to ensure greater consistency with industry expectations. The principles have been refreshed to remain technology agnostic, reducing the risk of the document becoming outdated as systems evolve. Terminology has been updated to reflect current common practice, improving clarity and reducing ambiguity. In addition, redundant content related to enforcement systems has been removed to streamline the document.

Objective

The objective of this Standard is to provide the rail industry with a set of signalling principles that will ensure the safe and efficient operation of a railway.

Compliance

There are four types of provisions contained within Australian Standards developed by ARISO:

(a) Requirements.

(b) Recommendations.

(c) Permissions.

(d) Constraints.

Requirements – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term 'shall'.

Recommendations – do not mention or exclude other possibilities but do offer the one that is preferred. Recommendations are identified within the text by the term 'should'.

Recommendations recognize that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied, or other controls are more appropriate or better.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their WHS or Rail Safety National Law obligations. Similarly, it could also be incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities or interfacing organisations where the risk may be shared.

Permissions – conveys consent by providing an allowable option. Permissions are identified within the text by the term 'may'.

Constraints – provided by an external source such as legislation. Constraints are identified within the text by the term 'must'.

ARISO Standards address known hazards within the railway industry. Hazards, and clauses within this Standard that address those hazards, are listed in Appendix A.

Appendices in ARISO Standards may be designated either "normative" or "informative". A "normative" appendix is an integral part of a Standard and compliance with it is a requirement, whereas an "informative" appendix is only for information and guidance.

Commentary

Commentary *C Preface*

This Standard includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.

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Section 1 Scope and general

1.1 Scope

This document specifies the principles for railway signalling systems. This document is applicable to railways covered by AS 7630. This document is not generally applicable to inclined railways, tramways and other railways to which Rail Safety National Law does not apply, however the principles within this document can be applied.

This document is applicable to all aspects of the signalling system. Signalling systems comprise of various systems (e.g., train control, wayside systems, train-borne systems, etc.) including the procedures and technology that form the system of safeworking (including degraded mode working).

This document is applicable to automatic train operations (ATO). Where a requirement relates to rail safety workers, the requirement equally applies to autonomous train systems.

This document is applicable to all systems of safeworking regardless of the train detection systems in use. This includes systems that use mechanical interlockings, whether they are released/locked by a signalling system or managed through the safeworking system.

This document is primarily designed for use with fixed block systems, where the block locations or track section boundaries are fixed either physically (e.g., signals) or virtually. Systems using moving block can apply similar principles to those described in this document, however they could require modification.

Digital train control systems such as European Train Control System (ETCS) are not specifically covered by this document. However, the principles contained within can be used for guidance when designing those systems.

This document does not address the processes and competences for the design, construction and implementation, commissioning, monitoring and maintenance, modification, or decommissioning and disposal of a signalling system.

Each principle within this document includes:

(a) Rationale – identification of risks that are mitigated through adherence with the principles;

(b) Requirements (if applicable) – specific requirements needed to comply with the principles; and

(c) Guidance (if applicable) – recommendations and guidance to assist in meeting the principles.

1.2 Normative references

No documents are indispensable for the application of this Standard.

NOTE:

Documents for informative purposes are listed in a Bibliography at the back of the Standard.