

STN	Dráhové aplikácie Komunikačné a signalizačné systémy a systémy na spracovanie údajov Komunikácia súvisiaca s bezpečnosťou v prenosových systémoch	STN EN 50159 34 2670
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Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Railway applications - Communication, signalling and processing
systems - Safety-related communication in transmission systems**

Applications ferroviaires - Systèmes de signalisation, de
télécommunication et de traitement - Communication de
sécurité sur des systèmes de transmission

Bahnanwendungen - Telekommunikationstechnik,
Signaltechnik und Datenverarbeitungssysteme -
Sicherheitsrelevante Kommunikation in
Übertragungssystemen

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European foreword

This document (EN 50159:2026) has been prepared by CLC/SC 9XA “Communication, signalling and processing systems”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2027-07-31
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2029-07-31

This document supersedes EN 50159:2010 and all of its amendments and corrigenda.

EN 50159:2026 includes the following significant technical changes with respect to EN 50159:2010:

Requirements and guidance have been added on the following topics:

- Clause 3: harmonization of terminology, in particular with cybersecurity domain;
- Clauses 4 and 7.2: generalization to cover mixed safety integrity contexts;
- Clauses 6 and 7.2: coordination of cybersecurity requirements for Category 3 transmission systems;
- Clause C.6: guidance on separation between safety and cybersecurity;
- Annex D: guidance on the change management process for railway duty holders.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

EN 50159:2026 (E)

Introduction

If a safety-related electronic system involves communication of information, the transmission system forms an integral part of the safety-related system and it is understood that the communication is safe in accordance with EN 50129, with respect to random and systematic faults.

The transmission system considered in this document, which serves the transfer of information between different locations, has in general no particular preconditions to satisfy. It is from the safety point of view not trusted or not fully trusted.

This document is dedicated to the requirements to be taken into account for the communication of safety-related information over such transmission systems.

Although the RAM aspects are not considered in this document, it is recommended to keep in mind that they are a major aspect of the operational safety.

The safety requirements depend on the characteristics of the transmission system. In order to reduce the complexity of the approach to demonstrate the safety of the system, transmission systems have been classified into three categories:

- Category 1: closed transmission systems;
- Category 2 and Category 3: open transmission systems.

For safety purposes application messages using Category 3 transmission systems need protection against unauthorized access that can corrupt the integrity of data. This document only provides general requirements to protect in case of Category 3 transmission systems. For a complete set of cybersecurity requirements, specific cybersecurity standards are applicable.

1 Scope

This document is applicable to safety-related electronic systems using for digital communication purposes a transmission system which was not necessarily designed for safety-related applications. For transmission systems where the risk of unauthorized access is not negligible, the document defines the interface to the applicable cybersecurity standards.

Both safety-related equipment and non-safety-related equipment can be connected to the transmission system.

This document gives the specific requirements needed to achieve safety-related communication between safety-related equipment connected to the transmission system, while the general system requirements including allocation of safety requirements and content of the safety case are defined in EN 50129.

This document is not applicable to existing systems which had already been accepted prior to the release of this document. However, so far as reasonably practicable, it is applicable to modifications and extensions to existing systems, subsystems and equipment.

This document does not specify:

- the transmission system;
- equipment connected to the transmission system;
- solutions (e.g. for interoperability);
- which kind of data are safety-related and which are not.

A safety-related equipment connected through an open transmission system can be subjected to many different cybersecurity threats, against which an overall program is defined encompassing management, technical and operational aspects.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50129, *Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling*

CLC/TS 50701:2023, *Railway applications - Cybersecurity*

EN IEC 63452,¹ *Railway applications – Cybersecurity (IEC 63452)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

¹ Under preparation. Stage at the time of publication: prEN IEC 63452:2025.